



Chapter 1

Introduction to Medical Terminology

Learning Medical Terminology

- The CD-RAM is very good
- Try analyze the words. do not memorize.
- **Be aware of spelling and pronunciation:**
 - **Different spelling but same pronunciation have different meaning**
 - Ilium and Ileum
 - Psy (psychiatry) and cy (cytology)
 - **Incorrect pronunciation leads to misunderstanding.**
 - Urethra and Ureter.
- **Abbreviation may leads to misunderstanding. Better to spell it out**
 - SM simple mastectomy, sm = small intestine

Medical record

- **It is a legal document contain patient information**
 - History, physical examination, diagnoses, medications, lab tests,, rehabilitation, social services...etc.
- **Informed Consent:**
 - A document signed by the patient or a responsible party
 - describes the purpose, methods, procedures, benefits and risks
- **Operative Report:**
 - pre- and postoperative, and surgical procedure
- **Anesthesiologist's Report**
 - drugs given to a patient, patient's response to anesthesia, and vital signs during surgery
- **Pathologist's Report:**
 - tissue removed from the patient
- **Discharge Summary:**
 - comprehensive outline of the patient's entire hospital stay; includes time of admission, diagnosis, test results, treatments, and follow-up plans

Health Care Settings

- **Acute Care or General Hospitals:**
 - provide services for a short period of time (emergency)
- **Specialty Care Hospitals:**
 - very specific e.g. psychiatric hospital
- **Nursing Homes or Long-Term Care Facilities:**
 - for patients need extra time to recover, or patient can not care for themselves.
- **Ambulatory Care, Surgical Centers or Outpatient Clinics:**
 - services do not require overnight hospitalization.

Health Care Settings

- **Physicians' Offices:**
 - private office setting.
- **Home Health Care:**
 - Agencies provide care in the patient's own home.
- **Rehabilitation Centers:**
 - provide physical and occupational therapy
- **Hospices:**
 - provide supportive treatment to dying patients

Confidentiality

- A moral and legal responsibility to keep patient information confidential.
- proper authorization form must be signed by the patient before disclosing patient's information.
- **Health Insurance Portability and Accountability Act (HIPAA) of 1996**
 - federal standards that protect patients' medical records

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Building Medical Terms

- **Word root**
 - Indicates the part being discussed
 - A medical term may have more than one root.
- **Combining vowel**
 - Links the root to a suffix or to another root.
 - usually the letter O.
- **Prefixes**
 - added to the beginning of a word to make a new word
- **Suffixes**
 - added to the end of a word to form an derivative
 - **Carditis = Cardi** = heart; **-itis** = inflammation
 - maybe added directly to a prefix without a word root.
 - **Dystrophy: Dys-** = abnormal; **-trophy** = development
 - There are different suffixes: Adjective Suffixes, Surgical Suffixes, Procedural Suffixes.

Building Medical Terms

- **Electr-o-cardi-o-gram**

- Electr = root
- O = Combining vowel
- Cardi = root
- O = Combining vowel
- -gram = suffix.

- Do not use a combining vowel if the suffix **begins** with a vowel
 - arthritis = arthr-**itis** **NOT** arthr-**o-itis**
- Keep combining vowel **between two word roots**, even if the second root begins with a vowel; it is easier to say.
 - Gastr-**o**-enter-itis, instead of gastrenteritis

1. Write the prefix for the following

- | | |
|------------|------------------|
| 1. Within | a) Poly-/multi- |
| 2. Large | b) Macro- |
| 3. Before | c) Dys- |
| 4. Around | d) Supra-/Super- |
| 5. New | e) Trans- |
| 6. Painful | f) Pre-/ante- |
| 7. Above | g) Peri- |
| 8. Many | h) Neo- |
| 9. Slow | i) Brady- |
| 10. Across | j) Intra-/Endo- |

2. Circle and define the prefix in the following terms

1. **Tachy**-cardia
2. Pseudocyesis
3. Hypoglycemia
4. Intercostal
5. Eupnea
6. Postoperative

7. Monoplegia
8. Subcutaneous
9. Bradycardia
10. Hemiplegia
11. Pericardium
12. Epigastric

3. Match the suffix with its meaning

- | | |
|-------------------------------------|----------------------|
| 1. Excessive flow. | A. - Stenosis |
| 2. Narrow | B. - al |
| 3. Pertaining to | C. - megaly |
| 4. Puncture to withdraw fluid. | D. - ectomy |
| 5. Study of | E. - rrhage |
| 6. Enlargement | F. - centesis |
| 7. Pain | G. - ology |
| 8. Blood condition. | H. - algia |
| 9. Removal , excision,
resection | I. - emia |

4. Match the suffix with its meaning

1. Abnormal condition
2. Cell
3. Disease condition
4. Incision, cutting into
5. Inflammation
6. Instrument to visually examine
7. Record

- A. - gram
- B. - scope
- C. - osis
- D. - pathy
- E. - tomy
- F. - itis
- G. - cyte

5. Underline the suffix and give the meaning

1. Ophthalmo-**scopy**
2. Oncology
3. Osteitis
4. Thrombocyte
5. Renal
6. Nephrectomy
7. Osteotomy
8. Carcinogenic
9. Sarcoma

6. Use a combining form and a suffix to form a medical term

1. Pain relating to a nerve
 2. Nose discharge or flow
 3. Abnormal softening of a kidney
 4. Enlarged heart
 5. Cutting into the stomach
 6. Inflammation of the skin
 7. Surgical removal of the voice box
 8. Inflammation of the joint
 9. gland disease
- A. Laryngectomy**
 - B. Arthritis**
 - C. Cardiomegaly**
 - D. Adenopathy**
 - E. Rhinorrhea**
 - F. Nephromalacia**
 - G. Neuralgia**
 - H. Gastrotomy**
 - I. Dermatitis**

7. Write the medical term using the suffix –ology

1. Study of the stomach
2. Study of blood
3. Study of tumors
4. Study of nerves
5. Study of x-rays
6. Study of the eyes
7. Study of lungs
8. Study of glands that secrete hormones

8. Give the meanings for the following suffixes.

1. –algia

2. –cele

3. –centesis

4. –coccus

5. –cyte

6. –ectomy

7. –emia

8. –genesis

9. -gram

10. –graph

11. -graphy

12. -lysis

13. -malacia

14. -megaly

15. -oma

16. –opsy

17. -pathy

18. -penia

19. –plasia

20. –plasty

9. Give the meanings for the following suffixes.

1. –osis
2. –sclerosis
3. –phobia
4. -ia
5. -um
6. –trophy
7. -ule
8. –stasis
9. –stomy

10. Complete the medical term

1. The membrane surrounding the heart is peri _____
2. Hardening of arteries is arterio _____
3. Enlargement of the liver is hepato _____
4. New opening of the windpipe to the outside of the body is tracheo_____
5. Inflammation of the tonsils is _____itis
6. Study of the eye is _____ logy
7. Beyond control (spread of a cancerous tumor) is meta _____

11. Circle the correct term to complete the following sentences

1. a patient was diagnosed with breast cancer. The first phase of her treatment included a **(nephrectomy, mastectomy, pulmonary resection)** to remove the breast and the tumor. After the surgery, the doctor recommended **(chemotherapy, radiotherapy, hydrotherapy)** using drugs.
2. The patient's facial features became coarser and his hands and tongue enlarged. After a head CT scan, doctors diagnosed the cause of these changes as **(hyperglycemia, hyperthyroidism, acromegaly)**, a slowly progressive endocrine condition involving the pituitary gland.

11. Circle the correct term to complete the following sentences

3. Each winter during cold and flu season. Daisy developed (**chondromalacia, bronchitis, cardiomyopathy**). Her doctor prescribed antibiotics and respiratory therapy to help her recover.
4. After (**arthroscopy, laparotomy, radiotherapy**) on his knee, Alan had swelling and inflammation near the small incisions.
5. David enjoyed weight lifting, but he recently noticed a bulge in his right groin region. His doctor, who made the diagnosis of (**hiatal hernia, rectocele, inguinal hernia**).

12. Give the meaning of the following roots

1. Cardi/o
2. Aden/o
3. Cerebr/o
4. Cephal/o
5. Erythr/o

6. Crani/o
7. Enter/o
8. Gastr/o
9. Neur/o
10. Gynec/o

13. Match the following with its meaning

- | | |
|------------|------------------|
| 1. Oste/o | A. Kidney |
| 2. Path/o | B. Disease |
| 3. Psych/o | C. To cut |
| 4. Radi/o | D. Nose |
| 5. Ren/o | E. Flesh |
| 6. Rhin/o | F. Mind |
| 7. Sarc/o | G. Urinary tract |
| 8. Sect/o | H. Bone |
| 9. Ur/o | I. X-ray |

14. Match the medical condition with the treating specialist

- | | |
|-----------------------|-----------------------------|
| 1. Gastroenterologist | A. Ovarian cysts |
| 2. Hematologist | B. Bipolar disorder |
| 3. Nephrologist | C. Breast cancer |
| 4. Oncologist | D. Anemia |
| 5. Gynecologist | E. Cerebrovascular accident |
| 6. Psychiatrist | F. Renal failure |
| 7. Urologist | G. Cystitis |
| 8. Neurologist | H. Stomach ulcer |

Singular and Plural Endings

- some words follow the rules of Greek or Latin.
- Other words follow English rules.

Word ending in	Singular	Plural
-a	Vertebra	vertebrae
-ax	thorax	Thoraces
-ex or -ix	appendix	appendices
-is	metastasis	metastases
-ma	sarcoma	arcomata
-nx	phalanx	phalanges
-on	ganglion	ganglia
-us	Nucleus	Nuclei

15. Change the singular terms to plural terms

1. Metastasis
2. Ovum
3. Diverticulum
4. Atrium
5. Diagnosis
6. Vertebra

16. Select the medical term

Arthralgia

Leukocytosis

carcinogenic

Hepatoma

Endocrine

1. When Paul smoked cigarettes, he inhaled a _____ substance with each puff.
2. Sally's sore throat, fever, and chills made her doctor order a white blood cell count. The results, indicating infection, showed a slight increase in normal cells, a condition called _____
3. Mr. Smith's liver enlarged, giving him abdominal pain. His radiologic tests and biopsy revealed a malignant tumor, or _____
4. Mrs. Rose complained of pain in her hip joints, knees, and shoulders each morning. She was told that she had painful joints, or _____
5. Dr. Black was trained to treat disorders of the pancreas, thyroid gland, adrenal glands, and pituitary gland. Thus, he was an expert in the _____ glands.

17. Select the medical term

- iatrogenic
- cystitis

- hematoma
- Enteropathy

- leukemia

1. Walsh told her doctor she had pain when urinating. After tests, the doctor's diagnosis was inflammation of the urinary bladder, or ____
2. Elizabeth's overhead tennis shot hit David in the thigh, producing a large _____. His skin looked bruised and was tender.
3. Bell's white blood cell count is 10 times higher than normal. Examination revealed cancerous white blood cells or _____
4. Mr. Kay was resuscitated in the emergency room after experiencing a heart attack. He suffered a broken rib as a result of the physician's chest compressions. This is an example of a (an) _____ fracture.
5. Cameron had eaten strange foods, Mr. Cameron had a disease of his intestines called _____

18. complete the following sentences

- urologist diagnosis osteoarthritis
- Neuropathy psychiatrist

1. 72 year-old male suffers from a degenerative joint disease that is caused by the wearing away of tissue around her joints. This disease, which literally means 'inflammation of bones and joints, is

2. A _____(an) performed surgery to remove Mr. Simon's cancerous kidney.
3. Ms. Rose has suffered from diabetes with hyperglycemia for many years. This condition can lead to long-term complications, such as the disease of nerves called diabetic _____
4. Mrs. Jones had many problems with her job, her husband, and her family relationships. She went to see a _____to treat her depression.

19. complete the following sentences

Anemia

Oncologist

Prognosis

Thrombocyte

1. Jordan has a disease cause erythrocytes to collapse and form sickle-shaped cells. His condition is called sickle cell _____
2. a physician who treats carcinomas and sarcomas. is a (an) _____
3. Bill had difficulty stopping the bleeding from a cut on his face while shaving. He knew his medication caused him to have decreased platelets, or a low _____ count, and that probably was the reason his blood was not clotting very well.
4. Dr. Susan Parker told Paul that his condition would improve with treatment in a few weeks. She said his _____ is excellent and he can expect total recovery.

20. match

Radiology

urologist

Cardiologist

anemia

arthroscopy

1. Dr. Curtin suggested ____ to visually examine my swollen, painful knee
Ms. Brody had a cough and fever. Her doctor instructed her to go to the _____ department for a chest x-ray examination.
2. After delivery of her third child, Ms. Thompson had problems holding her urine (a condition known as urinary incontinence). She made an appointment with a _____ to evaluate her condition.
3. Dr. Monroe told a new mother she had lost much blood during delivery of her child. She had _____ and needed a blood transfusion immediately.
4. Mr. Preston was having chest pain during his morning walks. He made an appointment to discuss his new symptom with a _____

21. Choose the correct diagnostic or treatment procedure for each definitions

- **Amniocentesis** **colostomy** **mastectomy** **angiography**
- **Laparoscopy** **angioplasty** **laparotomy**
- **thoracentesis**

1. large abdominal incision to remove an ovarian adenocarcinoma
2. removal of an adenocarcinoma of the breast
3. a method used to determine the karyotype of a fetus
4. surgical procedure to open clogged coronary arteries
5. method of removing fluid from the chest (pleural effusion)
6. procedure to drain feces from the body after bowel resection
7. x-ray procedure used to examine blood vessels before surgery
8. minimally invasive surgery within the abdomen

22. Match the following terms with their meanings below.

metastasis

Atrophy

Necrosis

chemotherapy

laparoscope

osteomalacia

1. treatment using drugs
2. condition of death (of cells)
3. softening of bone
4. no development: shrinkage of cells
5. beyond control: spread of a cancerous tumor to another organ
6. instrument to visually examine the abdomen

23. Select the term related to blood and blood vessels to complete the sentences below.

Anemia

angioplasty

leukemia

1. Billy was diagnosed with excessively high numbers of cancerous white blood cells, or _____.
2. Clark's angiogram showed that he had serious atherosclerosis of one of the arteries supplying blood to his heart. His doctor recommended that _____ would be helpful to open up his clogged artery by threading a catheter through his artery and opening a balloon at the end of the catheter to widen the artery.
3. Jackson's blood count showed a reduced number of red blood cells, indicating ____.

24. Select the term related to blood and blood vessels to complete the sentences below.

Leukocytosis **arterioles** **venules** **Thrombocytopenia**
hematoma **leukemia**

1. Joe has low platelet count, a condition called _____.
2. Small arteries, or _____ were broken under Ben's scalp when she was struck on the head. he soon developed a mass of blood, a (an) _____ under the skin in that region of her head.
3. Sarah had a staphylococcal infection causing elevation of her white blood cell count. She was treated with antibiotics and _____ returned to normal.
4. Within the body, the bone marrow makes blood cells. Scott developed _____ a malignant condition of the bone marrow cells.
5. Small vessels that carry blood toward the heart from capillaries and tissues are _____

Chapter 2

Body Structure

1. Identify the prefixes/ word roots or combining form/ suffixes and give the meaning

1. Abdominal.

– abdomen/o =

– –al =

– Meaning =

2. Anterior.

– anter/o =

– –ior =

– Meaning =

3. Cervical

4. Coccygeal

5. Cytoplasm:

6. Distal

7. Dorsal

8. Histology

9. Iliac

10. Inguinal

11. Karyotype

12. Lateral

13. Medial

14. Posterior

1. Identify the prefixes/ word roots or combining form/ suffixes and give the meaning

15. Proximal

16. Pelvic

17. Sacral

18. Sarcoma

19. Thoracic

20. Visceral

21. Umbilical

22. Ventral

23. Retroperitoneal

24. Epigastric

25. Substernal

26. Suprapubic

27. unilateral

28. Lumbosacral

2. Match right column with the left column

- | | |
|----------------|--|
| 1. Distal | A. away from the surface |
| 2. prone | B. toward the surface |
| 3. lateral | C. located closer to point of attachment |
| 4. Inferior | D. Caudal |
| 5. Deep | E. tip or summit of an organ |
| 6. Apex | F. lying face down |
| 7. Base | G. Cephalic |
| 8. Posterior | H. Ventral |
| 9. Superficial | I. Dorsal |
| 10. Supine | J. lying face up |
| 11. Anterior | K. to the side |
| 12. Medial | L. Middle |
| 13. Proximal | M. bottom or lower part of an organ |
| 14. superior | N. located away from point of attachment to the body |

3. Give the opposites of the following terms

1. Deep
2. Medial
3. Proximal
4. Dorsal
5. Supine
6. Superior
7. Anterior

4. Write the meaning of the following suffixes

1. -ism

2. -ose

3. -plasm =

4. -some =

5. -type =

A. Body

B. Condition

C. pertaining to

D. Formation

E. Classification

5. Match right column with the left column

- | | |
|--|--------------|
| 1. malignant tumor of flesh tissue | A. Distal |
| 2. picture of the chromosomes in the cell nucleus | B. Neural |
| 3. pertaining to far from the beginning of a structure | C. Sarcoma |
| 4. pertaining to spinal cord | D. Thoracic |
| 5. pertaining to nerves | E. Karyotype |
| 6. pertaining to the chest | F. Spinal |

6. Match right column with the left column

- | | |
|-----------------------------------|--------------------|
| 1. on the surface of the body | A. Inferior/caudal |
| 2. pertaining to above | B. Superficial |
| 3. pertaining to the tail | C. Ventral |
| 4. pertaining to away from origin | D. Superior |
| 5. pertaining to the belly side | E. Anterior |
| 6. pertaining to the front | F. Distal |
| 7. pertaining to the head | G. cephalic |

7. Circle the correct term to complete the following sentences.

1. Dr. Tate felt that Mrs. Snow's condition of thrombocytopenia was a clear **(analysis, synthesis, contraindication)** to performing elective surgery.
2. Roberts 82-year-old grandfather complained of **(malaise, dialysis, insomnia)** despite taking the sleeping medication that his doctor prescribed.
3. Many times, people with diabetes accidentally take too much insulin. This results in lowering their blood sugar so much that they may be admitted to the emergency department with **(hyperplasia, hypoglycemia, hyperglycemia)**.

7. Circle the correct term to complete the following sentences.

4. After hiking in the Grand Canyon without an adequate water supply, Julie experienced **(hyperglycemia, dehydration, hypothyroidism)**.
5. At 65 years of age, Paul Smith often felt fullness in his urinary bladder but had difficulty urinating. He visited his **(cardiologist, nephrologist, urologist)**, who examined his prostate gland and diagnosed **(hypertrophy, atrophy, ischemia)**.
6. After running the Boston Marathon, Elizabeth felt nauseated and dizzy. She realized that she was experiencing **(malaise, euphoria, hypoglycemia)** and drank a sports drink containing sugar. which made her feel better.

8. Match

- **Craniotomy** **Mediastinoscopy** **Arthroscopy**
 - **Thoracotomy** **Tracheotomy** **Peritoneoscopy**
 - **Diskectomy** **Laryngectomy**
1. Emergency effort to remove foreign material from the windpipe
 2. Inspection and repair of torn cartilage in the knee
 3. Removal of a diseased or injured portion of the brain
 4. Inspection of lymph nodes in the region between the lungs
 5. Removal of a squamous cell carcinoma in the voice box
 6. Open heart surgery, or removal of lung tissue
 7. Inspection of abdominal organs and removal of diseased tissue
 8. Relief of symptoms from a bulging intervertebral disk

9. Match

Cardiology
Orthopedics

Gynecology
Otorhinolaryngology

Ophthalmology

1. John is a musician who plays an electric bass guitar and is experiencing difficulty in hearing soft voices. He would consult a physician in
2. Ruth is a stock trader with the Chicago Board of Trade. She has had a pounding and racing heartbeat. She would consult a physician specializing in
3. Mary is experiencing excessive bleeding from fibroid tumors. She would consult a specialist in
4. Jose has persistent pain in his lower back. He would be seen for an examination by a physician in
5. A physician who performs eye exams is specializing in the field of

Chapter 3

Integumentary System

Vocabulary

- **Abrasion:**
 - A scraping away of the skin surface by friction
- **Abscess:**
 - A collection of pus in the skin
- **Albino:**
 - A genetic condition in which the person is unable to make melanin. Characterized by white hair and skin, and red pupils due to the lack of pigment
- **Alopecia:**
 - Absence or loss of hair, especially of the head. Commonly called baldness
- **Cicatrix:**
 - A scar
- **Comedo:**
 - Collection of hardened sebum in hair follicle. Also called a blackhead.
- **Contusion:**
 - Injury caused by a blow to the body; causes swelling, pain, and bruising. The skin is not broken.

Vocabulary

- **Cyanosis:**
 - Bluish tint to the skin caused by deoxygenated blood.
- **Cyst:**
 - Fluid-filled sac under the skin
- **decubitus ulcer:**
 - Open sore caused by pressure over bony prominences cuffing off the blood flow to the overlying skin. These can appear in bedridden patients who lie in one position too long and can be difficult to heal. Also called bedsore or pressure sore.
- **Depigmentation:**
 - Loss of normal skin color or pigment.
- **Dermatologist:**
 - Physician who specializes in the treatment of diseases and conditions of the integumentary system.
- **Dermatology:**
 - Study of diseases and conditions of the integumentary system.
- **Diaphoresis:**
 - Profuse sweating.

Vocabulary

- **Ecchymosis:**
 - Skin discoloration caused by blood collecting under the skin following blunt trauma to the skin. A bruise
- **Erythema:**
 - Redness or flushing of the skin.
- **Fissure:**
 - Crack-like lesion or groove on the skin
- **Frostbite:**
 - Freezing or the effect of freezing on a part of the body. Exposed areas such as ears, nose, cheeks, fingers, and toes are generally affected
- **Hemangioma:**
 - Benign tumor of dilated blood vessels
- **Hirsutism:**
 - Excessive hair growth over the body.
- **Hyperemia:**
 - Redness of the skin due to increased blood flow.

Vocabulary

- **Hyperpigmentation:**
 - Abnormal amount of pigmentation in the skin.
- **Keloid:**
 - Formation of a raised and thickened hypertrophic scar after an injury or surgery
- **Keratosis:**
 - Skin condition with an overgrowth and thickening of the epidermis.
- **Macule:**
 - Flat, discolored area that is flush with the skin surface. An example would be a freckle or a birthmark
- **male pattern baldness:**
 - Pattern of baldness most commonly seen in men. Begins as a receding hairline and progresses to full baldness on top of the head and a fringe of hair around the edges.
- **Nevus:**
 - Pigmented congenital skin blemish, birthmark, or mole. Usually benign but may become cancerous

Vocabulary

- **Nodule:**
 - Firm, solid mass of cells in the skin
- **Papule:**
 - small, solid, circular raised spot on the surface of the skin. Less than 1 cm in diameter
- **Pediculosis:**
 - Infestation with lice. The eggs laid by the lice are called nits and cling tightly to hair.
- **Petechiae:**
 - Pinpoint purple or red spots from minute hemorrhages under the skin
- **Photosensitivity:**
 - Condition in which the skin reacts abnormally when exposed to light, such as the ultraviolet (UV) rays of the sun.
- **Polyp:**
 - Small tumor with a pedicle or stem attachment. They are commonly found in mucous membranes such as the nasal cavity.
- **Pruritus:**
 - Severe itching.

Vocabulary

- **Purpura:**
 - Hemorrhages into the skin due to fragile blood vessels. Commonly seen in elderly people
- **Purulent:**
 - Containing or producing pus.
- **Pustule:**
 - Raised spot on the skin containing pus
- **Scabies:**
 - Contagious skin disease caused by an egg-laying mite that burrows through the skin and causes redness and intense itching; often seen in children.
- **Suppurative:**
 - Containing or producing pus.
- **Ulcer:**
 - Open sore or lesion in skin or mucous membrane
- **Urticaria:**
 - Also called hives; a skin eruption of pale reddish wheals with severe itching. Usually associated with food allergy, stress, or drug reactions.

Vocabulary

- **Verruca:**
 - Commonly called warts; a benign growth caused by a virus. Has a rough surface that is removed by chemicals and/or laser therapy.
- **Vesicle:**
 - A blister; small, fluid-filled raised spot on the skin
- **Vitiligo:**
 - Disappearance of pigment from the skin in patches, causing a milk-white appearance. Also called leukoderma.
- **Wheal:**
 - Small, round, raised area on the skin that may be accompanied by itching
- **Acne:**
 - Inflammatory disease of the sebaceous glands and hair follicles that results in papules and pustules.
- **acne rosacea:**
 - Form of acne seen in adults, especially on the nose and cheeks.
- **Acne vulgaris:**
 - Common form of acne seen in teenagers. Characterized by comedo, papules. and pustules.

Vocabulary

- **basal cell carcinoma:**
 - Cancerous tumor of the basal cell layer of the epidermis. A frequent type of skin cancer that rarely metastasizes or spreads. These cancers can arise on sun-exposed skin.
- **Burn:**
 - Damage to the skin that can result from exposure to open fire, electricity, ultraviolet light from the sun, or caustic chemicals. Seriousness depends on the amount of body surface involved and the depth of the burn. Extent of a burn is estimated using the Rule of Nines. Depth is determined by the number of layers of skin involved. **burn, 1st degree:** Damage to the epidermis layer of the skin. Characterized by hyperemia, but no blisters or scars. **burn, 2nd degree:** Damage extends through the epidermis and into the dermis, causing vesicles to form. Scarring may occur. Also called *partial thickness burn*. **burn, 3rd degree:** Damage to full thickness of skin and into underlying tissues. Infection is a major concern with 3rd degree burns, and fluid loss can be life threatening. Grafts are usually required and scarring will occur. Also called *full-thickness burn*

Vocabulary

- **Carbuncle:**
 - Furuncle involving several hair follicles
- **Cellulitis:**
 - A diffuse, acute infection and inflammation of the skin
- **Dry gangrene:**
 - Late stages of gangrene characterized by the affected area becoming black and leathery.
- **Eczema:**
 - Superficial dermatitis of unknown cause accompanied by papules, vesicles, and crusting.
- **Furuncle:**
 - Bacterial infection of a hair follicle. Characterized by redness, pain, and swelling Also called a *boil*
- **Gangrene:**
 - Tissue necrosis usually due to deficient blood supply.
- **Ichthyosis:**
 - Condition in which the skin becomes dry, scaly, and keratinized.

Vocabulary

- **Impetigo:**
 - A bacterial infection of the skin with pustules that rupture and become crusted over
- **Kaposi's sarcoma:**
 - Form of skin cancer frequently seen in acquired immunodeficiency syndrome (AIDS) patients. Consists of brownish-purple papules that spread from the skin and metastasize to internal organs. Named for Moritz Kaposi, an Austrian dermatologist.
- **Leukoplakia:**
 - Change in mucous membrane that results in thick, white plate-like patches on the mucous membrane of the tongue and cheek. Considered precancerous, it is associated with smoking.
- **malignant melanoma:**
 - Dangerous form of skin cancer caused by an uncontrolled growth of melanocytes. May quickly metastasize or spread to internal organs
- **Onychia:**
 - Infected nail bed.

Vocabulary

- **Paronychia:**
 - Infection around a nail.
- **pemphigus vulgaris:**
 - Skin condition in which blisters form in the skin and mucous membranes.
- **Psoriasis:**
 - Chronic inflammatory condition consisting of crusty papules forming patches with circular borders
- **Rubella:**
 - Contagious viral skin infection, Commonly called *German measles*.
- **sebaceous cyst:**
 - Sac under the skin filled with sebum or oil from a sebaceous gland. This can grow to a large size and may need to be excised.
- **Shingles:**
 - Eruption of vesicles along a nerve path, causing a rash and pain. Caused by the same virus as chicken pox.

Vocabulary

- **systemic lupus erythematosus:**
 - Chronic disease of the connective tissue that injures the skin, joints, kidneys, nervous system and mucous membranes. May produce a characteristic butterfly rash across the cheeks and nose.
- **Tinea:**
 - Fungal skin disease resulting in itching, scaling lesions.
- **tinea capitis:**
 - Fungal infection of the scalp. Commonly called *ringworm*.
- **tinea pedis:**
 - Fungal infection of the foot. Commonly called *athlete's foot*
- **Varicella:**
 - Contagious viral skin infection. Commonly called *chicken pox*
- **wet gangrene:**
 - Area of gangrene becoming infected by pus-producing bacteria.
- **Squamous cell carcinoma:**
 - Epidermal cancer that may go into deeper tissue but does not generally metastasize.

Diagnostic Procedures Relating to the Integumentary System

- **Biopsy:**
 - A piece of tissue is removed by syringe and needle, knife, punch, or brush to examine under a microscope. Used to aid in diagnosis.
- **culture and sensitivity (C&S):**
 - A laboratory test that grows a colony of bacteria. removed from an infected area in order to identify the specific infecting bacteria and then determine its sensitivity to a variety of antibiotics.
- **exfoliative cytology:**
 - Scraping cells from tissue and then examining them under a microscope.
- **frozen section (FS):**
 - thin piece of tissue is cut from a frozen specimen for rapid examination under a microscope.
- **fungal scrapings:**
 - Scrapings, taken with a curette or scraper, of tissue from lesions are placed on a growth medium and examined under a microscope to identify fungal growth.

Diagnostic Procedures Relating to the Integumentary System

- **needle biopsy:**
 - Using a sterile needle to remove tissue for examination under a microscope.
- **skin tests (ST):**
 - Test to determine the patient's reaction to a suspected allergen by injecting a small amount under the skin (intradermal) with a needle. The reaction of the patient to this material is then read to indicate any allergy. Examples of such tests are the tuberculin (TB) test, Mantoux (PPD) test, patch test, and Schick test.
- **sweat test:**
 - Test performed on sweat to determine the level of chloride. An increase in skin chloride is seen with the disease cystic fibrosis.

Therapeutic Procedure Relating to Integumentary System

- **Adipectomy:**
 - Surgical removal of fat.
- **Allograft:**
 - Skin graft from one person to another; donor is usually a cadaver.
- **Autograft:**
 - Skin graft from a person's own body
- **Cauterization:**
 - Destruction of tissue with a caustic chemical, electric current, freezing, or hot iron.
- **Chemabrasion:**
 - Abrasion using chemicals. Also called a chemical peel
- **Cryosurgery:**
 - The use of extreme cold to freeze and destroy tissue.
- **Curettage:**
 - Removal of superficial skin lesions with a curette (surgical instrument shaped like a spoon) or scraper.
- **Placation:**
 - Taking tucks surgically in a structure to shorten it.

Therapeutic Procedure Relating to Integumentary System

- **Rhytidectomy:**
 - Surgical removal of excess skin to eliminate wrinkles. Commonly referred to as a face lift.
- **Skin graft:**
 - The transfer of skin from a normal area to cover another site. Used to treat burn victims and after some surgical procedures.
- **Xenograft:**
 - Skin graft from an animal of another species (usually a pig) to a human. Also called heterograft.
- **Debridement:**
 - Removal of foreign material and dead or damaged tissue from a wound.
- **Dermabrasion:**
 - Abrasion or rubbing using wire brushes or sandpaper. Performed to remove acne scars, tattoos, and scar tissue.
- **Dermatome:**
 - Instrument for cutting the skin or thin transplants of skin.
- **Dermatoplasty:**
 - Skin grafting; transplantation of skin.

Therapeutic Procedure Relating to Integumentary System

- **Electrocautery:**
 - To destroy tissue with an electric current.
- **Heterograft:**
 - Skin graft from an animal of another species (usually a pig) to a human.
Also called *xenograft*.
- **incision and drainage (I&D):**
 - Making an incision to create an opening for the drainage of material such as pus.
- **laser therapy:**
 - Removal of skin lesions and birthmarks using a laser beam that emits intense heat and power at a close range. The laser converts frequencies of light into one small, powerful beam.

Pharmacology Relating to the Integumentary System

- **Anesthetics:**
 - Applied to the skin to deaden pain.
- **Antibiotics:**
 - Kill bacteria causing skin infections.
- **Antifungals:**
 - Kill fungi infecting the skin.
- **anti-inflammatory drugs:**
 - Reduce skin inflammation or itching.
- **Antiparasitics:**
 - Kill mites or lice.
- **Antipruritics:**
 - Reduce severe itching.
- **Antiseptics:**
 - Used to kill bacteria in skin cuts and wounds or at a surgical site.
- **corticosteroid cream:**
 - Specific type of powerful anti-inflammatory cream.

1) Match the combining form with its meaning

- | | |
|-----------|-------------|
| 1. fat. | A. melan/o |
| 2. Black | B. trich/o |
| 3. Fungus | C. erythr/o |
| 4. Nail | D. xer/o |
| 5. Red | E. myc/o |
| 6. Hair | F. seb/o |
| 7. Dry | G. onych/o |
| 8. Oil | H. steat/o |

2) Match the following

- | | |
|-------------------------|------------------------|
| 1. Pediculosis capitis. | A. Mole |
| 2. Cicatrix. | B. black and blue mark |
| 3. seborreic dermatitis | C. Blackhead |
| 4. Urticaria | D. Boil |
| 5. Verruca | E. Crabs |
| 6. Nevus | F. Cradle cap |
| 7. Furuncle | G. Head lice |
| 8. Comedo. | H. Hives |
| 9. Ecchymosis | I. Scar |
| 10. Pediculosis pubis. | J. wart |

3) Match the definition with the medical term

a. Fissure

c. Paronychia

e. Shingles

b. Petechie

d. Xeroderma

f. Scabies

1. Meyer has a painful eruption of vesicles along a nerve. This condition is called _____
2. The winter climates can cause dry skin. The medical term is _____
3. Kim has experienced small pinpoint purplish spots caused by bleeding under the skin. This is called _____
4. An infection around the entire nail is called _____
5. A crack or groove in the skin is referred to as a _____
6. contagious skin disease caused by a mite is _____

4. Give the Medical Term

1. inflammation of the skin
 2. any abnormal skin condition
 3. surgical repair of the skin
 4. a black tumor
 5. an abnormal condition of the hair caused by a fungus
 6. Softening of the nails
 7. infection around the nail
 8. nail eating (biting)
 9. excision of the nail
- a) Onychomalacia
 - b) Dermatosis
 - c) Tricomycosis
 - d) Dermatoplasty
 - e) Paronychia
 - f) Onychophagia
 - g) Dermatitis
 - h) Melanoma
 - i) Onychectomy

5) Match the definition with the medical term

1. A pus-containing raised spot on the skin is called
2. A small, flat, discolored area, such as a freckle, is called a
3. A small tumor with a pedicle or stem is called
4. Ali has a bacterial skin infection that results in pustules and crusts

- A. Polyp**
- B. Macule**
- C. Pustule**
- D. Impetigo**

6. Match the definition with the medical term

- | | |
|--------------------------|----------------|
| 1. decubitus ulcer | A. Nevus |
| 2. lack of skin pigment | B. Lipoma |
| 3. hardened skin | C. Urticaria |
| 4. white patches | D. Bedsore |
| 5. Birthmark | E. Leukoplakia |
| 6. excessive hair growth | F. Hirsutism |
| 7. death of tissue | G. Alopecia |
| 8. fatty tumor | H. Gangrene |
| 9. Hives | I. Scleroderma |
| 10. Baldness | J. Albino |

7. Match the definition with the medical term

- | | |
|--|------------------|
| 1. surgical removal of wrinkled skin | A. Debridement |
| 2. instrument to cut thin slices of skin | B. Lipectomy |
| 3. surgical removal of fat | C. Dermatoplasty |
| 4. skin grafting | D. Rhytidectomy |
| 5. remove skin with brushes | E. Dermatome |
| 6. remove damaged skin | F. Dermabrasion |
| 7. thickened cicatrix | G. Keloid |
| 8. large blisters | H. Bullae |
| 9. increase growth of epidermal layer due to excess friction | I. Callus |

8. Give the meanings for the following combining forms.

1. xanth/o

2. myc/o

3. onych/o

4. pil/o

5. xer/o

6. trich/o

7. erythem/o

8. hidr/o

9. steat/o

10. rhytid/o

9. Match the following medical terms with their more common meanings below.

- | | |
|--|--------------------------|
| 1. Blackheads | A. seborrheic dermatitis |
| 2. warts | B. tinea pedis |
| 3. athlete's foot | C. comedones |
| 4. Dandruff | D. Verrucae |
| 5. dry skin | E. Psoriasis |
| 6. Red, scaly patches. | F. Xeroderma |
| 7. pertaining to under the skin | G. Subcutaneous |
| 8. abnormal condition of lack of sweat | H. Anhydrosis |
| 9. destruction of tissue with electric current | I. cauterization |

Dermatology Consultation Report

- **Reason for Consultation:**

- Evaluate patient for excision of recurrent basal cell carcinoma.

- **History of Present Illness:**

- Patient is a 74-year-old male first seen by his regular physician 5 years ago for persistent facial lesion. Biopsies revealed basal cell carcinoma in two lesions, one on the nasal tip and the other on the left cheek. These were excised and healed with a normal cicatrix. The patient noted that the left cheek lesion returned approximately one year ago. Patient admits to not following his physician's advice to use sun screen and a hat. Patient reports pruritus and states the lesion is growing larger. Patient has been referred for dermatology evaluation regarding deep excision of the lesion and dermatoplasty

- **Past Medical History:**

- Patient's activity level is severely restricted due to congestive heart failure with dyspnea, lower extremity edema, and cyanosis. He takes several cardiac medications daily and occasionally requires oxygen by nasal canula. History is negative for other types of cancer.

Dermatology Consultation Report

- **Results of Physical Exam:**

- Examination revealed a 10 x 14 mm lesion on left cheek 20 mm anterior to the ear. The lesion displays marked erythema and poorly defined borders. The area immediately around the lesion shows depigmentation with vesicles. There is a well-healed cicatrix on the nasal tip with no evidence of the neoplasm returning.

- **Assessment:**

- Even without a biopsy, this is most likely a recurrence of this patient's basal cell carcinoma.

- **Recommendations:**

- Due to the lesion's size, shape, and reoccurrence, recommend deep excision of the neoplasm through the epidermis and dermis layers. The patient will then require dermatoplasty. The most likely donor site will be the proximal-medial thigh. This patient is at high risk for basal cell carcinoma and should never go outside without sunscreen and a hat. In light of his cardiac status, if he decides to proceed with the surgery, he will need a thorough workup by his cardiologist.

Chart Note

Reword the underline word with a medical term

1. A 64-year-old female with an ulcer on her right leg is seen by the dermatologist.
2. Patient states that she first noticed an area of pain, pruritus and erythema of the skin distal to her right knee about 6 weeks ago. One week later pustules appeared. Patient states the pustules ruptured and become an ulcer.
3. The patient has a deep open sore 5 x 3 cm: it is 4 cm distal to the knee on the lateral aspect of the right leg. It appears to extend into the dermis and the edges show signs of necrosis. The ulcer has a small amount of drainage but there is no odor. cultur and sensitivity of the drainage revealed *Staphylococcus* bacteria in the ulcer.
4. **Diagnosis:** cellulitis
5. **Treatment:** debridment of the ulcer followed by application of an antibiotic cream. Patient was instructed to return to the dermatologist office in 2 weeks, or sooner if the open sore does not heal, or if it begins draining pus.

10. For the following terms, write out the prefixes (P), roots (R), suffixes (S), and definition

1. Dermatologist

– R:

– S:

– Definition:

2. Onycholysis

3. Dysplasia

4. Leukoplakia

5. Hyperkeratosis

6. hypodermic

7. Epidermal

8. Subcutaneous

1. Anhidrosis

2. Histopathology

3. Paronychia

4. Erythrodermatitis

5. Lipoma

6. Adiposis

7. Melanocyte

8. Xerosis

9. Seborrhea

10. Xanthoma

Chapter 4

Musculoskeletal

1. Identify the prefix (P), root (R), suffix (S) and give the meaning of the medical term. ■

- **Achondroplasia.**

- **P:** -a = no; not; without
- **R:** chondr/o = cartilage
- **S:** plasia = development, formation, growth
- **Definition:** defect in the formation of the cartilage at the epiphysis produce dwarfism.

1. Identify the prefix (P), root (R), suffix (S) and give the meaning of the medical term.

1. Arthralgia.
2. Arthritis
3. Arthrocentesis.
4. Arthroclasia
5. Arthrodesis.
6. Arthroscopy.
7. Arthrotomy.
8. Bursectomy
9. Bursitis.
10. Bursolith
11. Chondrectomy
12. Chondromalacia.
13. Chondroplasty
14. Chondroma.
15. Chondrosarcoma.
16. Craniotome.
17. Craniotomy
18. Electromyogram
19. Electromyography.
20. Epiphysitis.
21. Fascietomy.
22. Fasciitis

1. Identify the prefix (P), root (R), suffix (S) and give the meaning of the medical term. ■

23. Fasciorrhaphy

24. Fasciotomy

25. Fibromyalgia.

26. Hemarthrosis.

27. Hydrarthrosis.

28. Intervertebral

29. Intracranial

30. Kyphoplasty.

31. Kyphosis.

32. Laminectomy.

33. Leiomyoam.

34. Leiomyofibroma

35. Leiomyosarcoma.

36. Lordosis.

37. Lumbodynia.

38. Metacarpectomy.

39. Metatarsalgia.

40. Myalgia.

41. Myeloma

42. Myocardial.

43. Myopathy

44. Myoplasty

1. Identify the prefix (P), root (R), suffix (S) .
and give the meaning of the medical term.

45. Myorrhaphy

46. Myositis.

47. Orthopedics.

48. Ostealgia.

49. Osteitis.

50. Osteoarthritis.

51. Osteocarcinoma

52. Osteochondroma

53. Osteoclasia

54. Osteodystrophy.

55. Osteogenesis.

56. Osteogenic sarcoma.

57. Osteomalacia.

58. Osteomyelitis.

59. Osteopathy

60. Osteopenia.

61. Osteoplasty.

62. Osteoporosis

63. Osteotome

64. Osteotomy

65. Periarthritis.

66. Polyarthritis.

1. Identify the prefix (P), root (R), suffix (S) .
and give the meaning of the medical term.

67. polymyositis

68. Rhabdomyolysis

69. Rhabdomyoma

70. Rhabdomyosarcoma

71. Scoliosis.

72. Subcostal.

73. Supraclavicular.

74. Tarsectomy.

75. Tendinitis

76. Tendinous

77. Tendoplasty

78. Tendotomy

79. Tenodynia

80. Tenomyopathy

81. Tenorrhaphy

82. Tenorrhaphy.

Callus	The mass of bone tissue that forms at a fracture site during its healing.
Crepitation	The noise produced by bones or cartilage rubbing together in conditions such as arthritis.
exostosis	A bone spur.
kyphosis	Abnormal increase in the outward curvature of the thoracic spine. Also known as hunchback or humpback
Lordosis	Abnormal increase in the forward curvature of the lumbar spine. Also known as swayback.
Orthopedics	Branch of medicine specializing in the diagnosis and treatment of conditions of the musculoskeletal system
orthopedist	Physician who specializes in treatment of conditions of the musculoskeletal system.

Orthotics	A brace or splint used to prevent or correct deformities.
Orthotist	Person skilled in making and fitting orthotics.
podiatrist	Specialist in treating disorders of the feet.
prosthesis	Artificial device that is used as a substitute for a body part that is either congenitally missing or is absent as a result of accident or disease (for instance, an artificial leg or hip).
prosthetist	Person who fabricates and fits prostheses.

ankylosing spondylitis	Inflammatory spinal condition that resembles rheumatoid arthritis. Results in gradual stiffening and fusion of the vertebrae. More common in men than women.
bunion	Inflammation of the bursa of the great toe
carpal tunnel syndrome	Pain caused by compression of the nerve as it passes between the bones and ligaments of the wrist.
closed fracture	A fracture in which there is no open skin wound. Also called a simple fracture
Colles' fracture	A common type of wrist fracture
compound fracture	Fracture in which the skin has been broken through to the fracture. Also called an <i>open fracture</i>
dislocation	Occurs when the bones in a joint are displaced from their normal alignment

Ewing's sarcoma	Malignant growth found in the shaft of long bones that spreads through the periosteum . Removal is treatment of choice, because this tumor will metastasize or spread to other organs. Named for James Ewing, an American pathologist.
fracture (FX, Fx)	A broken bone.
gout	Inflammation of the joints caused by excessive uric acid.
greenstick fracture	Fracture in which there is an incomplete break; one side of bone is broken and the other side is bent. This type of fracture is commonly found in children due to their softer and more pliable bone structure.
herniated nucleus pulposus	Herniation or protrusion of an intervertebral disk; also called herniated disk. May require surgery.
impacted fracture	Fracture in which bone fragments are pushed into each other.
myeloma	Malignant tumor originating in the bone marrow

oblique fracture	Fracture at an angle to the bone
open fracture	Fracture in which the skin has been broken through to the fracture. Also called a compound fracture
osteoarthritis	Arthritis resulting in degeneration of the bones and joints, especially those bearing weight. results in bone rubbing against bone.
osteogenic sarcoma	The most common type of bone cancer. Usually begins in osteocytes found at the ends of long bones.
osteomalacia	Softening of the bones caused by a deficiency of calcium. It is thought that in children the cause is insufficient sunlight and vitamin D.
osteoporosis	Decrease in bone mass that results in a thinning and weakening of the bone with resulting fractures. The bone becomes more porous, especially in the spine and pelvis.
Paget's disease	A fairly common metabolic disease of the bone from unknown causes. It usually attacks middle-aged and elderly people and is characterized by bone destruction and deformity. Named for Sir James Paget, a British surgeon.

pathologic Fracture	Fracture caused by diseased or weakened bone.
rheumatoid arthritis	Chronic form of arthritis with inflammation of the joints, swelling, stiffness, pain, and changes in the cartilage that can result in crippling deformities
rickets	Deficiency in calcium and vitamin D found in early childhood that results in bone deformities, especially bowed legs
scoliosis	Abnormal lateral curvature of the spine. See Figure 4.14 for an illustration of abnormal spine curvatures.
simple fracture	A fracture in which there is no open skin wound. Also called a closed fracture
spina bifida	A congenital anomaly that occurs when a vertebra fails to fully form around the spinal cord.
spinal stenosis	Narrowing of the spinal canal causing pressure on the cord and nerves.

spiral fracture	Fracture in which the fracture line spirals around the shaft of the bone, Can be caused by a twisting injury and is often slower to heal than other types of fractures.
Spondyl-o-lis-thesis	The forward sliding of a lumbar vertebra over the vertebra below it.
Spondy-losis	A degenerative condition of the vertebral column.
Strain	Damage to the ligaments surrounding a joint due to overstretching, but no dislocation of the joint.
Systemic lupus erythematosus	Chronic inflammatory disease of connective tissue that causes injury to the joints, skin, kidneys, heart, lungs, and nervous system. A characteristic butterfly rash or erythema may be present.

talipes	Congenital deformity of the foot. Also referred to as a clubfoot.
transverse fracture	Complete fracture that is straight across the bone at right angles to the long axis of the bone
whiplash	Injury to the bones in the cervical spine as a result of a sudden movement forward and backward of the head and neck. Can occur as a result of a rear-end auto collision.

Arthrography	Visualization of a joint by radiographic study after injection of a contrast medium into the joint space.
Arthroscopy	Examination of the interior of a joint by entering the joint with an arthroscope. Torn ligaments can be repaired while the patient is undergoing arthroscopy. The arthroscope contains a small television camera that allows the physician to view the interior of the joint on a monitor during the procedure.
bone scan	Patient is given a radioactive dye and then scanning equipment is used to visualize bones. It is especially useful in observing progress of treatment for osteomyelitis and cancer metastases to the bone.
Myelography	Study of the spinal column after injection opaque contrast material; useful in identifying herniated nucleus pulposus.
photon absorptiometry	Measurement of bone density using an instrument for the purpose of detecting osteoporosis.

Amputation	Partial or complete removal of a limb for a variety of reasons, including tumors, gangrene, intractable pain, crushing injury, or uncontrollable infection.
Arthroscopic surgery	Use of an arthr-o-scope to facilitate performing surgery on a joint.
bone graft	Piece of bone taken from the patient that is used to take the place of a removed bone or a bony defect another site.
Bunion-ectomy	Removal of the bursa at the joint of the great toe.
carpal tunnel release	Surgical cutting of the ligament in the wrist to relieve nerve pressure caused by carpal tunnel syndrome, which can result from repetitive motion such as typing.
cast	Application of a solid material to immobilize an extremity or portion of the body as a result of a fracture, dislocation, or severe injury. It is most often made of plaster of Paris

Disk-ectomy	removal of a herniated intervertebral disk.
reduction	Correcting a fracture by realigning the bone fragments. Closed reduction is doing this manipulation without entering the body. Open reduction is the process of making a surgical incision at the site of the fracture to do the reduction. This is commonly necessary when bony fragments need to be removed.
spinal fusion	Surgical immobilization of adjacent vertebrae. This may be done for several reasons, including correction for a herniated disk.
total knee replacement	Surgical reconstruction of a knee joint by implanting a prosthetic knee joint. Also called total knee arthroplasty
lamin-ectomy	Removal of the vertebral posterior arch to correct severe back problems and pain caused by compression of a spinal nerve.

bone reabsorption inhibitors	Conditions that result in weak and fragile bones, such as osteoporosis and Paget's disease, are improved by medications that reduce the reabsorption of bones.
calcium supplements and Vitamin D therapy	Maintaining high blood levels of calcium in association with vitamin D helps maintain bone density and treats osteomalacia, osteoporosis, and rickets.
corticosteroids	A hormone produced by the adrenal cortex that has very strong anti-inflammatory properties. It is particularly useful in treating rheumatoid arthritis.
Non-steroidal anti-inflammatory drugs (NSAIDs)	A large group of drugs including aspirin and ibuprofen that provide mild pain relief and anti-inflammatory benefits for conditions such as arthritis

Adhesion	Scar tissue forming in the fascia surrounding a muscle, making it difficult to stretch the muscle.
Contracture	An abnormal shortening of a muscle, making it difficult to stretch the muscle
spasm	A sudden, involuntary, strong muscle contraction.
Torticollis	Severe neck spasms pulling the head to one side. Commonly called wryneck or a crick in the neck
Fibromyalgia	A condition with wide spread aching and pain in the muscle and soft tissues
ganglion	Cyst that forms on tendon sheath, usually on hand, wrist, or ankle.
Lateral epicondylitis	inflammation of the muscle attachment to the lateral epicondyle of the elbow. Often caused by strongly gripping. Commonly called tennis elbow.
Muscular dystrophy	Inherited disease causing a progressive muscle degeneration, weakness, and atrophy.

Pseudo-hypertrophic muscular dystrophy	One type of inherited muscular dystrophy in which the muscle tissue is gradually replaced by fatty tissue, making the muscle look strong. Also called Duchenne's muscular dystrophy.
sprain	Damage to the muscle and soft tissue due to overuse or overstretching.
creatine phosphokinase	A muscle enzyme found in skeletal muscle and cardiac muscle. Blood levels become elevated in disorders such as heart attack, muscular dystrophy, and other skeletal muscle pathologies.
deep tendon reflexes	Muscle contraction in response to a stretch caused by striking the muscle tendon with a reflex hammer. Test used to determine if muscles are responding properly.
Electromyography	Study and record of the strength and quality of muscle contractions as a result of electrical stimulation. -
muscle biopsy	Removal of muscle tissue for pathological examination.

Abbreviations

- **CPK** = creatine phosphokinase
- **DTR** = deep tendon reflex
- **EMG** = electromyogram
- **IM** = intramuscular
- **MD** = muscular dystrophy
- **ROM** = range of motion
- **ADL** = activity of daily living

2) Provide the meaning to the following

1. Inflammation of a tendon.
 2. Benign tumor of cartilage.
 3. Malignant tumor of cartilage.
 4. Incision of a joint.
 5. Softening of cartilage.
 6. Blood in a joint.
 7. Inflammation of a sac of fluid near the joint.
 8. Suture of a tendon.
- A. Chondromalacia
 - B. Bursitis.
 - C. Arthrotomy.
 - D. Chondroma
 - E. Tendinitis
 - F. Tenorrhaphy.
 - G. Chondrosarcoma
 - H. hemarthrosis

3) Match the term for muscle action in with its meaning

- | | |
|---------------------------------------|---------------------|
| 1. Movement away from the midline | A. Extension. |
| 2. Turning the palm backward. | B. Rotation. |
| 3. Turning the palm forward | C. Flexion. |
| 4. Straightening out a limb or joint. | D. Adduction. |
| 5. Bending the foot downward. | E. Pronation. |
| 6. Circular movement around an axis. | F. Dorsiflexion. |
| 7. Bending a limb. | G. Plantar flexion. |
| 8. Movement toward the midline | H. Abduction. |
| 9. Bending of the foot upward. | I. Supination. |

4. Match the combining form that corresponds to the meaning given:

- | | |
|----------------|---------------|
| 1. Cartilage | A. Chondr/o. |
| 2. Vertebra | B. Myel/o. |
| 3. Bone marrow | C. Cervic/o. |
| 4. Neck. | D. Arthr/o. |
| 5. Chest | E. my/o. |
| 6. Joint | F. Spondyl/o. |
| 7. Rib | G. Thorac/o. |
| 8. Muscle | H. Cost/o. |

5. Give the medical term

1. porous bone
 2. surgical repair of the bone
 3. incision of the bone
 4. instrument to cut bone
 5. inflammation of the bone and bone marrow
 6. softening of the bones
 7. tumor composed of both bone and cartilage
 8. Muscle disease
 9. surgical repair of muscle
 10. suture of muscle
- a) Myorrhaphy
 - b) Osteoporosis
 - c) Myoplasty
 - d) Osteoplasty
 - e) Osteotomy
 - f) Osteochondroma
 - g) Myopathy
 - h) Osteotome
 - i) Osteomalacia
 - j) Osteomyelitis

6. Give the medical term

1. Skeletal muscle tumor
 2. skeletal muscle destruction
 3. tendon pain
 4. tendon and muscle disease
 5. Surgical fusion of a joint
 6. surgical repair of a joint
 7. incision into a joint
 8. inflammation of a joint
 9. inflammation of joint and cartilage
 10. pain in the joints
 11. surgical incision into the skull
 12. surgical repair of the skull
 13. pertaining to inside the skull
- A. Rhabdomyoma
 - B. Arthritis
 - C. Arthroplasty
 - D. Arthrochondritis
 - E. Arthralgia
 - F. Arthodesis
 - G. Craniotomy
 - H. intracranial
 - I. Rhabdomyolysis
 - J. Tenodynia
 - K. tendomyopathy
 - L. Arthrotomy
 - M. Cranioplasty

7. Write the suffix and provide an example

- a) Desis
- b) Clasia
- c) Asthenia
- d) Kinesia
- e) Malacia
- f) porosis

- 1. fuse
- 2. Weakness
- 3. abnormal softening
- 4. to surgically break
- 5. Movement
- 6. Porous

8. Define the following terms

1. Chondroplasty
 2. Bradykinesia
 3. Lordosis
 4. Atrophy
 5. Myeloma
 6. Phalanges
 7. Coccyx
 8. Arthrocentesis
 9. Bursolith
- A. Puncture a joint to withdraw fluid
 - B. Surgical repair of cartilage
 - C. swayback
 - D. Lack of development
 - E. Bone marrow tumor
 - F. Finger bone
 - G. Tail bone
 - H. Stone in a bursa
 - I. Slow movement

9. Give the meaning

1. arthroscopy
 2. intervertebral
 3. chondromalacia
 4. Diskectomy
 5. Orthopedics
 6. podiatrist
 7. orthotics
 8. Prosthetist
- A. Between vertebrae
 - B. A brace or splint used to prevent or correct deformities.
 - C. Specialist in treating disorders of the feet.
 - D. Physician who specializes in musculoskeletal system.
 - E. Softening of cartilage
 - F. excision of an intervertebral disk.
 - G. To see inside the joint.
 - H. Person who fabricates and fits prostheses.

Abbreviations

1. DJD
2. EMG
3. CI
4. T6
5. IM
6. ROM
7. JRA
8. LLE
9. Ortho
10. CTS

Write the Abbreviations

1. congenital dislocation of hip =
2. total knee replacement =
3. herniated nucleus pulposus =
4. deep tendon reflex =
5. upper extremity =
6. fifth lumbar vertebra =
7. bone density testing =
8. above the knee =
9. fracture =
10. nonsteroidal anti-inflammatory drug =

10. Match

- lateral epicondylitis
- rickets
- osteoporosis
- Whiplash

1. Sara, age 84, is being treated for a broken hip. Her physician will be running tests for what potential ailment?
2. Jamie, age 6 months, is being given orange juice and vitamin supplements to avoid what condition?
3. George began to have severe elbow pain after playing tennis several days in a row. He most probably has what condition?
4. Marshall was involved in a rear-end collision. He is complaining of severe headaches and neck stiffness. He most probably has what condition?

10. Match

- **osteogenic sarcoma**
- **pseudotrophic muscular dystrophy**
- **systemic lupus erythematosus**

Scoliosis

5. Mr. Jefferson's physician has discovered a tumor at the end of his femur. He has been admitted to the hospital for a biopsy to rule out what type of bone cancer?
6. The school nurse has asked Janelle to bend over so that she may examine her back to see if she is developing a lateral curve. What is the nurse looking for?
7. Gerald has experienced a gradual loss of muscle strength over the past 5 years even though his muscles look large and healthy. The doctors believe he has an inherited muscle disease. What is that disease?
8. Roberta has suddenly developed arthritis in her hands and knees, an aversion to the sun, and a butterfly rash across her nose and cheeks. What is one of the diseases that her physician will wish to rule out?

Case Study

- **Admitting Diagnosis:**
 - Osteoarthritis bilateral knees.
- **Final Diagnosis:**
 - Osteoarthritis bilateral knees with prosthetic right knee replacement
- **History of Present Illness:**
 - Patient have knee pain and swelling. Arthroscopy revealed a torn lateral meniscus and chondromalacia of patella on the right. He had an arthroscopic meniscectomy. The orthopedic surgeon required a CT scan that indicated bilateral osteoarthritis. He was referred to a physiatrist who prescribed Motrin and physical therapy for ROM.
 - Patient's other medical history includes hypertension, CAD
- **Summary of Hospital Course:**
 - surgical procedure went well. Physical therapy for ROM and gait training. Occupational therapy instruction in ADLs. He was able to ambulate by the 3rd postop day. His right knee flexion was 90° and he lacked 5° of full extension.

Determine the medical term

- Patient suffered a wrist fracture 2 years earlier that required cast. Following this fracture. Her orthopedist diagnosed her with moderate osteoporosis on the basis of a CAT scan
- Patient reported severe left hip pain, she held her hip in a flexion position and could not tolerate extention position. CRX of the left hip and leg are taken.
- Diagnosis: comminuted fracture in the neck of the left femur
- Treatment: total hip replacement on the left.

Nervous System

Chapter 12

Word Building

1. Acrophobia.
2. Akinetic.
3. Analgesia.
4. Anencephaly.
5. Anesthesia.
6. Aphasia.
7. Apraxia.
8. Ataxia.
9. Cephalalgia
10. Cerebellar
11. cerebellitis
12. Cerebellopontine.
13. Cerebral
14. Cerebrospinal
15. Craniotomy.
16. Dyskinesia.
17. Dyslexia.
18. Dysphasia.
19. Dystaxia.
20. Electroencephalogram

Word Building

21. Encephalitis
22. Encephalomalacia
23. Encephalosclerosis
24. Epidural hematoma.
25. Glial cells
26. Gnosia.
27. Hemiparesis.
28. Hemiplegia.
29. Hydrocephalic.
30. Hyperalgesia.
31. Hyperesthesia.
32. Hypnotic.
33. Meningioma.
34. Meningitis
35. Meningocele.
36. meningomyelocele.
37. Myelitis
38. Myelogram.
39. Myelomalacia
40. Myelomeningocele
41. Narcolepsy.

Word Building

42. Neuralgia.

43. Neurasthenia.

44. Neurectomy

45. Neurologist

46. Neurology

47. Neurolysis

48. Neuroma

49. Neuropathy.

50. Neuroplasty

51. Neurorrhaphy

52. Neurotomy

53. Paraplegia.

54. Paresthesia.

55. Poliomyelitis

56. Polyneuritis

57. Pont

58. Quadriplegia.

59. Radiculitis

60. Radiculopathy.

61. Syncopal.

62. Thalamotomy.

63. Vertebral.

Vocabulary of the Nervous System

- **Aura**
 - Sensations, such as seeing colors or smelling an unusual odor, that occur just prior to an epileptic seizure.
- **Chorea**
 - Involuntary nervous disorder that results in muscular twitching of the limbs or facial muscles.
- **Coma**
 - Abnormal deep sleep or stupor resulting from an illness or injury.
- **Conscious**
 - Condition of being awake and aware of surroundings.
- **Convulsion**
 - Severe involuntary muscle contractions and relaxations. These have a variety of causes, such as epilepsy, fever, and toxic conditions.

Vocabulary of the Nervous System

- **Delirium**
 - An abnormal mental state characterized by confusion, disorientation and agitation.
- **Dementia**
 - Progressive impairment of intellectual function that interferes with performing the activities of daily living. Patients have little awareness of their condition. Found in disorders such as Alzheimer's.
- **Focal**
 - A localized epileptic seizure often affecting one limb.
- **Grand mal seizure**
 - A type of severe epileptic seizure characterized by a loss of consciousness and convulsions. It is also called a *tonic-clonic seizure*, indicating that the seizure alternates between strong continuous muscle spasms (tonic) and rhythmic muscle contraction and relaxation (clonic).

Vocabulary of the Nervous System

- **hemiparesis**
 - Weakness or loss of motion on one side of the body.
- **hemiplegia**
 - Paralysis on only one side of the body.
- **intrathecal**
 - Pertaining to within the meninges.
- **lethargy**
 - Condition of sluggishness or stupor.
- **neurosurgeon**
 - A physician specialized in treating conditions and diseases of the nervous systems by surgical means.
- **palsy**
 - Temporary or permanent loss of the ability to control movement.
- **paralysis**
 - Temporary or permanent loss of function or voluntary movement.

Vocabulary of the Nervous System

- **paraplegia**
 - Paralysis of the lower portion of the body and both legs.
- **paresthesia**
 - An abnormal sensation such as burning or tingling.
- **petit mal seizure**
 - A type of epileptic seizure that lasts only a few seconds to half a minute, characterized by a loss of awareness and an absence of activity. It is also called an *absence seizure*.
- **sciatica**
 - Pain in the low back that radiates down the back of a leg caused by pressure on the sciatic nerve from a herniated nucleus pulposus.
- **seizure**
 - Sudden attack of severe muscular contractions associated with a loss of consciousness. This is seen in grand mal epilepsy.

Vocabulary of the Nervous System

- **sleep disorder**
 - Any condition that interferes with sleep other than environmental noises. Can include difficulty sleeping (insomnia), extreme sleepiness (somnolence), nightmares, night terrors, sleepwalking, and apnea.
- **syncope**
 - Fainting.
- **tic**
 - Spasmodic, involuntary muscular contraction involving the head, face, mouth, eyes, neck, and shoulders.
- **tremor**
 - Involuntary quivering movement of a part of the body.
- **unconscious**
 - Condition or state of being unaware of surroundings, with the inability to respond to stimuli

Pathology Relating to the Nervous System

- **Alzheimer's**
 - Chronic, organic mental disorder consisting of dementia, which is more prevalent in adults between 40 and 60. Involves progressive disorientation, apathy, speech and gait disturbances, and loss of memory. Named for Alois Alzheimer, a German neurologist.
- **Amyotrophic lateral sclerosis**
 - Disease with muscular weakness and atrophy due to degeneration of motor neurons of the spinal cord. Also called *Lou Gehrig's disease*, after the New York Yankees baseball player who died from the disease.
- **Astrocytoma**
 - Tumor of the brain or spinal cord that is composed of astrocytes, one of the types of neuroglial cells.

Pathology Relating to the Nervous System

- **Bell's palsy**
 - One-sided facial paralysis with an unknown cause. The person cannot control salivation, tearing of the eyes, or expression. The patient will eventually recover. Named for Sir Charles Bell, a Scottish surgeon.
- **brain tumor**
 - Intracranial mass, either benign or malignant. A benign tumor of the brain can still be fatal since it will grow and cause pressure on normal brain tissue.
- **cerebral aneurysm**
 - Localized abnormal dilatation of a blood vessel, usually an artery; the result of a congenital defect or weakness in the wall of the vessel. A ruptured aneurysm is a common cause of a hemorrhagic CVA.

Pathology Relating to the Nervous System

- **cerebral contusion**
 - Bruising of the brain from a blow or impact. Symptoms last longer than 24 hours and include unconsciousness, dizziness, vomiting, unequal pupil size, and shock.
- **cerebral palsy**
 - Nonprogressive brain damage resulting from a defect or trauma at the time of birth.
- **cerebrovascular accident (CVA)**
 - Commonly called a *stroke*. The development of an infarct due to loss in the blood supply to an area of the brain. Blood flow can be interrupted by a ruptured blood vessel (hemorrhage), a floating clot (embolus), a stationary clot (thrombosis), or compression . The extent of damage depends on the size and location of the infarct and often includes dysphasia and hemiplegia.

Pathology Relating to the Nervous System

- **Concussion**
 - Injury to the brain that results from the brain being shaken inside the skull from a blow or impact. Can result in unconsciousness, dizziness, vomiting, unequal pupil size, and shock. Symptoms last 24 hours or less.
- **Encephalocele**
 - Congenital gap in the skull with the brain protruding through the gap.
- **epidural hematoma**
 - Mass of blood in the space outside the dura mater of the brain and spinal cord.
- **epilepsy**
 - Recurrent disorder of the brain in which seizures and loss of consciousness occur as a result of uncontrolled electrical activity of the neurons in the brain.

Pathology Relating to the Nervous System

- **Guillan-Barre syndrome**

- Disease of the nervous system in which nerves lose their myelin covering. May be caused by an autoimmune reaction. Characterized by loss of sensation and/or muscle control in the arms and legs. Symptoms then move toward the trunk and may even result in paralysis of the diaphragm.

- **Huntington's chorea**

- Disease of the central nervous system that results in progressive dementia with bizarre involuntary movements of parts of the body. Named for George Huntington, an American physician.

- **Hydrocephalus**

- Accumulation of cerebrospinal fluid within the ventricles of the brain, causing the head to be enlarged. It is treated by creating an artificial shunt for the fluid to leave the brain.

Pathology Relating to the Nervous System

- **Meningioma**
 - Slow-growing tumor in the meninges of the brain.
- **meningocele**
 - Congenital condition in which the meninges protrude through an opening in the vertebral column.
- **migraine**
 - A specific type of headache characterized by severe head pain, photophobia, vertigo, and nausea.
- **multiple sclerosis**
 - Inflammatory disease of the central nervous system in which there is extreme weakness and numbness due to loss of myelin insulation from nerves.
- **myasthenia gravis**
 - Disease with severe muscular weakness and fatigue due to insufficient neurotransmitter at a synapse.

Pathology Relating to the Nervous System

- **Myelomeningocele**
 - Congenital condition in which the meninges and spinal cord protrude through an opening in the vertebral column. See *spine bifida*.
- **Narcolepsy**
 - Chronic disorder in which there is an extreme uncontrollable desire to sleep.
- **Parkinson's disease**
 - Chronic disorder of the nervous system with fine tremors, muscular weakness, rigidity, and a shuffling gait. Named for Sir James Parkinson, a British physician.
- **Reye's syndrome**
 - Combination of symptoms first recognized by H. D. K. Reye, an Australian pathologist, in which there is acute encephalopathy and various organ damage. This occurs in children under 15 years of age who have had a viral infection. For this reason, it's not recommended for children to use aspirin.

Pathology Relating to the Nervous System

- **shingles**
 - Eruption of vesicles on the trunk of the body along a nerve path. Can be painful and generally occurs on only one side of the body. Thought to be caused by the *Herpes zoster virus*
- **Spina bifida**
 - Congenital defect in the walls of the spinal canal in which the laminae of the vertebra do not meet or close. Results in a meningocele or a myelomeningocele. Can also result in other defects, such as hydrocephalus.
- **spinal cord injury (SCI)**
 - Damage to the spinal cord as a result of trauma. Spinal cord may be bruised or completely severed.

Pathology Relating to the Nervous System

- **Subdural hematoma**
 - Mass of blood forming beneath the dura mater if the meninges are torn by trauma. May exert fatal pressure on the brain if the hematoma is not drained by surgery
- **Tic douloureux**
 - Painful condition in which the trigeminal nerve is affected by pressure or degeneration. The pain is of a severe stabbing nature and radiates from the jaw and along the face.
- **Transient ischemic attack**
 - Temporary interference with blood supply to the brain, causing neurological symptoms such as dizziness, numbness, and hemiparesis. May eventually lead to a full-blown stroke (CVA).

Diagnostic Procedures Relating to the Nervous System

- **Babinski's reflex**
 - Reflex test developed by Joseph Babinski, a French neurologist, to determine lesions and abnormalities in the nervous system. The Babinski reflex is present if the great toe extends instead of flexes when the lateral sole of the foot is stroked. The normal response to this stimulation is flexion of the toe.
- **brain scan**
 - Injection of radioactive isotopes into the circulation to determine the function and abnormality of the brain.
- **cerebral angiography**
 - X-ray of the blood vessels of the brain after the injection of a radiopaque dye.
- **cerebrospinal fluid analysis**
 - Laboratory examination of the clear, watery, colorless fluid from within the brain and spinal cord. Infections and the abnormal presence of blood can be detected in this test.

Diagnostic Procedures Relating to the Nervous System

- **echoencephalography**
 - Recording of the ultrasonic echoes of the brain. Useful in determining abnormal patterns of shifting in the brain.
- **Electroencephalography**
 - Recording the electrical activity of the brain by placing electrodes at various positions on the scalp. Also used in sleep studies to determine if there is a normal pattern of activity during sleep.
- **electromyography**
 - Recording of the contraction of muscles as a result of receiving electrical stimulation.
- **lumbar puncture**
 - Puncture with a needle into the lumbar area (usually the fourth intervertebral (LP) space) to withdraw fluid for examination and for the injection of anesthesia. Also called *spinal puncture* or *spinal tap*.

Diagnostic Procedures Relating to the Nervous System

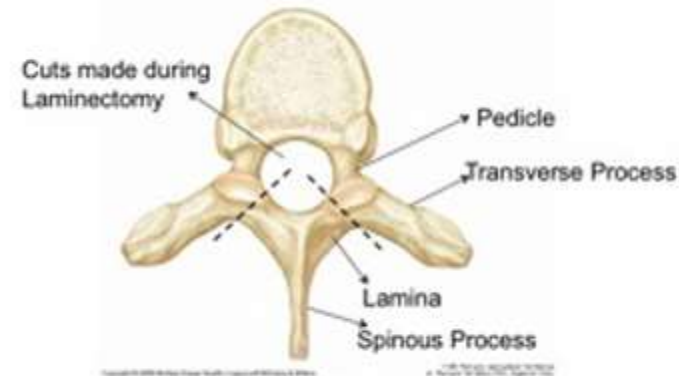
- **Myelography**
 - Injection of a radiopaque dye into the spinal canal. An X-ray is then taken to examine the normal and abnormal outlines made by the dye.
- **Pneumoencephalography**
 - X-ray examination of the brain following withdrawal of cerebrospinal fluid and injection of air or gas via spinal puncture.
- **positron emission tomography**
 - Use of positive radionuclides to reconstruct brain sections. Measurement can be taken of oxygen and glucose uptake, cerebral blood flow, and blood (PET) volume. The amount of glucose the brain uses indicates how metabolically active the tissue is.
- **Romberg's (ROM bergs) test**
 - Test developed by Moritz Romberg, a German physician that is used to establish neurological function; the person is asked to close his or her eyes and place the feet together. This test for body balance is positive if the patient sways when the eyes are closed.

Therapeutic Procedures Relating to the Nervous System

- **carotid endarterectomy**
 - Surgical procedure for removing an obstruction within the carotid artery, a major artery in the neck that carries oxygenated blood to the brain. Developed to prevent strokes, but is found to be useful only in severe stenosis with TIA.
- **cerebrospinal fluid shunts**
 - A surgical procedure in which a bypass is created to drain cerebrospinal fluid. It is used to treat hydrocephalus by draining the excess cerebrospinal fluid from the brain and diverting it to the abdominal cavity.
- **cordectomy**
 - Removal of part of the spinal cord.
- **cryosurgery**
 - Use of extreme cold to destroy brain tissue. Used to control bleeding and treat brain tumors.

Therapeutic Procedures Relating to the Nervous System

- **Laminectomy**
 - Removal of a portion of a vertebra in order to relieve pressure on the spinal nerve.
- **nerve block**
 - Method of regional anesthetic to stop the passage of sensory stimulation along a nerve path.
- **sympathectomy**
 - Excision of a portion of the sympathetic nervous system. Could include a nerve or a ganglion.



Pharmacology Relating to the Nervous System

- **analgesic**
 - Non-narcotic medication to treat minor to moderate pain. Includes aspirin, acetaminophen, and ibuprofen
- **anesthetic**
 - Drugs that produce a loss of sensation or a loss of consciousness.
- **anticholinergic**
 - Blocks function of the parasympathetic nervous system Used to treat intestinal, bladder, and bronchial spasms
- **Anticonvulsant**
 - Reduces the excitability of neurons and therefore prevents the Uncontrolled neuron activity associated with seizures.
- **Barbiturate**
 - A drug that depresses CNS activity. Used as a sedative and an anticonvulsant

Pharmacology Relating to the Nervous System

- **dopaminergic drugs**
 - Group of medications to treat Parkinson's disease by either replacing the dopamine that is lacking or increasing the strength of the dopamine that is present.
- **hypnotic**
 - Drugs that promote sleep.
- **narcotic**
 - Morphine and related drugs used to treat severe pain. These drugs have the potential to be habit forming if taken for a prolonged time. Also called *opiates*.
- **sedative**
 - A drug that has a relaxing or calming effect.

2) Match the medical term with the description below:

- | | |
|---|-------------------------|
| 1. record of electrical brain impulses. | A. Spondylosyndesis |
| 2. spinal fusion. | B. Craniotomy |
| 3. excision of part of the skull. | C. Hyperesthesia |
| 4. increased sensations. | D. Dysphasia |
| 5. condition of difficulty speaking. | E. Analgesia |
| 6. loss of sense of pain. | F. Electroencephalogram |

3) Match the combining form with its meaning:

- | | |
|---------------|-----------------|
| 1. hypn/o | A. Brain. |
| 2. myel/o | B. Movement. |
| 3. encephal/o | C. Speech. |
| 4. kinesi/o | D. Body. |
| 5. Lex/o | E. Spinal cord. |
| 6. gnos/o | F. Sensation. |
| 7. top/o | G. Place. |
| 8. somat/o | H. Sleep. |
| 9. esthesi/o | I. knowing |

4) Write the correct medical term for each of the following:

- **Paresthesia** **Meningitis** **Diskectomy**
- **Parkinson disease** **Coma** **Spina bifida**

1. Inflammation of the meninges.
2. Excision of a herniated disk.
3. degeneration of nerves in the brain characterized by tremor, rigidity of muscles, and slow movements.
4. Numbness and tingling.
5. State of unconsciousness.
6. Congenital defect of spinal column resulting in pouching of spinal membranes.

5) Match the medical term with the description below.

1. Condition of absence of a brain.
 2. Inflammation of the gray matter of the spinal cord.
 3. Disease of nerve roots (of spinal nerves).
 4. Hernia of the spinal cord and meninges.
- A. Poliomyelitis.
 - B. Radiculopathy
 - C. Epidural hematoma.
 - D. Myelomeningocele

6) Match the following neurologic symptoms with the meanings below.

- | | |
|---|------------------|
| 1. Reading disorder | A. Aphasia |
| 2. Condition of no coordination | B. Dyslexia |
| 3. Condition of increased sensation | C. Narcolepsy |
| 4. Seizure of sleep; uncontrollable compulsion to sleep | D. Ataxia |
| 5. Inability to speak | E. Motor apraxia |
| 6. Inability to perform a task | F. Hyperesthesia |

7) Match the following terms with their descriptions below.

Huntington disease.

Amyotrophic lateral

Hydrocephalus

Bell palsy.

Myasthenia gravis.

Multiple sclerosis.

1. Destruction of myelin sheath (demyelination) and its replacement by hard plaques
2. Atrophy of muscles and paralysis caused by damage to motor neurons in the spinal cord and brainstem
3. Patient displays bizarre, abrupt, involuntary, dance-like movements, as well as decline in mental functions
4. Cerebrospinal fluid accumulates in the head (in ventricles of brain)
5. Loss of muscle strength due to the inability of a neurotransmitter (acetylcholine) to transmit impulses from nerve cells to muscle cells
6. Unilateral facial paralysis

8) Match the term in Column I with the letter

- | | |
|--|------------------|
| 1. Peculiar sensation experienced by patient before seizure. | A. Aura |
| 2. Transient ischemic attack | B. mini-stroke. |
| 3. Virus that causes chickenpox and shingles. | C. Herpes zoster |
| 4. Relieving, but not curing. | D. Palliative |
| 5. Blockage. | E. Occlusion |

9. State the described terms using the combining forms provided

- | | |
|---|----------------------|
| 1. disease of the brain | A. Cerebromeningitis |
| 2. inflammation of the brain | B. Encephalopathy |
| 3. protrusion of the brain | C. Cerebrospinal |
| 4. inflammation of brain and spinal cord | D. Cerebral |
| 5. pertaining to the cerebrum and spinal cord | E. Encephalitis |
| 6. hardening of the cerebrum | F. Encephalocele |
| 7. any disease of the cerebrum | G. Encephalomyelitis |
| 8. inflammation of the cerebrum and meninges | H. Cerebroclerosis |
| 9. pertaining to the cerebrum | I. Cerebroopathy |

10. Match

1. chorea
 2. meningitis
 3. palsy
 4. shingles
 5. syncope
 6. lethargy
 7. petit mal
 8. grand mal.
 9. meningocele
- A. Sluggishness
 - B. bizarre movements
 - C. Convulsion
 - D. congenital hernia of membranes
 - E. Mild epilepsy.
 - F. inflammation of meninges
 - G. painful virus on nerves
 - H. Fainting
 - I. paralysis

11. Match

- | | |
|-----------------------------|--|
| 1. cerebrovascular accident | A. sleep disorder |
| 2. aphasia | B. Alzheimer's disease |
| 3. Narcolepsy | C. Stroke |
| 4. Dementia | D. loss of ability to speak |
| 5. narcotics | E. morphine and related drugs |
| 6. anticonvulsant | F. prevents neuron activity associated with seizures |

12. Define the following terms.

1. glioma
2. epilepsy
3. Anesthesia
4. Hemiparesis
5. Neuralgia
6. analgesia

13. Define the following combining forms.

1. mening/o
2. encephal/o
3. cerebell/o
4. myel/o
5. cephal/o
6. thalam/o
7. Gli/o
8. radicul/o
9. Cerebr/o
10. Pont/o

Discharge Summary

- **Admitting Diagnosis:**
 - Paraplegia following motorcycle accident.
- **Final Diagnosis:**
 - Comminuted L2 fracture with epidural hematoma and spinal cord damage resulting in complete paraplegia at the L2 level.
- **History of Present Illness:**
 - Patient is a 23-year-old male who was involved in a motorcycle accident. He was unconscious for 35 minutes but was fully aware of his surroundings upon regaining consciousness. He was immediately aware of total anesthesia and paralysis below the waist.

Discharge Summary

- **Summary of Hospital Course:**

- CT scan revealed extensive bone destruction at the fracture site and that the spinal cord was severed. Lumbar puncture revealed sanguinous cerebrospinal fluid. Patient was unable to voluntarily contract any lower extremity muscles and was not able to feel touch or pinpricks. Lumbar laminectomy with spinal fusion was performed to stabilize the fracture and remove the epidural hematoma. The immediate postoperative recovery period proceeded normally with one incidence of pneumonia due to extended bed rest. It responded to antibiotics and respiratory therapy treatments. Patient began intensive rehabilitation with physical therapy and occupational therapy to strengthen upper extremities, as well as transfer and ADL training. After 2 months, X-rays indicated full healing of the spinal fusion and patient was transferred to a rehabilitation institute.

Discharge Summary

- **Discharge Plans:**

- Patient was transferred to a rehabilitation institute to continue intensive PT and OT. He will require skilled nursing care to evaluate his skin for the development of decubitus ulcers and intermittent urinary catheterization for incontinence. Since spinal cord was severed, it is not expected that this patient will regain muscle function and sensation. However, long-term goals include independent transfers, independent mobility with a wheelchair, and independent ADLs.

Chart Note

- **Current Complaint:**
 - Patient is a 38-year-old female referred to the neurologist by her family physician with complaints of dysphonia, hemiparesis, and convulsion.
- **Past History:**
 - Patient is married and nulliparous. Has been well prior to current symptoms.

Chart Note

- **Signs and Symptoms:**

- Her husband reports he first noted loss of motion on one side of the body when she began to drag her left foot. It has progressed to involve both left upper and lower extremities, with approximately a 50% loss in control of left lower extremity and a 25% loss of control in left upper extremity. Difficulty with speech is mild and mainly with recalling the names of common objects. Severe involuntary muscle contractions appear to be triggered by stress and last approximately 2 minutes. Results of a recording of the electrical activity of the brain and a puncture with a needle into the low back to withdraw fluid for examination were normal. However an injection with radioactive isotope revealed the presence of a mass in the right cerebral cortex

Chart Note

- **Diagnosis:**
 - *Astrocyte tumor* in the right *outer layer of the largest section of the brain*
- **Treatment:**
 - A right *skull incisions* was performed to permit *the surgical use of extreme cold* to destroy the tumor. Patient experienced moderate improvement in *loss of motion on one side of the body* and *severe involuntary muscle contractions*, but *difficulty with speech* was unchanged.

Chapter 13

The Special Senses

Word Building

1. Acoustic.
2. Amblyopia.
3. Aphakia.
4. Aqueous fluid.
5. Aqueous.
6. Audiogram
7. Audiologist
8. Audiology
9. Audiometer
10. Audiometry.
11. Auditory
12. Aural
13. Auricular
14. Binocular.
15. Blehaoplasty.
16. Blepharectomy.
17. Blepharitis.
18. Blepharoptosis.
19. Ceruminosis.
20. Cerurminolysis.

Word Building

21. Cochlear

22. Conjunctivitis.

23. Conjunctivoplasty.

24. Corneal.

25. Cyclopedic.

26. Dacryocystitis.

27. Dacryolithiasis.

28. Diplopia.

29. Hyperacusis.

30. Hyperopia.

31. Intraocular.

32. Iridectomy.

33. Iridoplegia.

34. Iridosclerotomy.

35. Iridotomy.

36. Iritis.

37. Keratitis.

38. Keratoplasty.

39. Keratotomy.

40. Labyrinthectomy

Word Building

41. Labyrinthitis

42. Lacrimal.

43. Myringitis

44. Myringoplasty.

45. Myringotomy.

46. Ocular.

47. Oculomycosis.

48. Ophthalmalgia.

49. Ophthalmic.

50. Ophthalmologist.

51. Ophthalmology.

52. Ophthalmoplegia.

53. Ophthalmorrhagia.

54. Ophthalmoscope.

55. Optic.

56. Optician.

57. Optometer.

58. Optometry.

59. Otodynia.

60. Otorrhea.

Word Building

61. Ototoxic.

62. Papillary.

63. Papilledema.

64. Phacoemulsification.

65. Phacolysis.

66. Photophobia.

67. Presbyopia.

68. Presbyopia.

69. Retinal.

70. Retinopathy.

71. Retinopexy.

72. Salpingitis

73. Salpingoscope.

74. Salpingotomy

75. Scleritis.

76. Scleromalacia.

77. Sclerotomy.

78. Stapedectomy

79. Tympanocentesis.

80. Uveitis.

81. Vitrectomy.

82. Vitreous.

Vocabulary Relating to the Eye

- **Accommodation**
 - Ability of the eye to adjust to variations in distance.
- **Convergence**
 - The eyes moving inward to see close object.
- **Ectropion**
 - refers to eversion (turning outward) of the eyelid.
- **Entropion**
 - Refers to inversion (turning inward) of the eyelid.
- **Emmetropia or emmetropic eye**
 - State of normal vision.
- **Esotropia**
 - Inward turning of the eye. An example of a form of strabismus (muscle weakness of the eye).

Vocabulary Relating to the Eye

- **Exotropia**
 - Outward turning of the eye. Also an example of strabismus (muscle weakness of the eye).
- **Exophthalmos**
 - Abnormal protrusion of the eyeball. Can be due to hyperthyroidism.
- **Nyctalopia**
 - Difficulty seeing in dim light. Usually due to damaged rods.
- **Optician**
 - Specialist in grinding corrective lenses.
- **Optometrist**
 - A doctor of optometry specializing in testing visual acuity and prescribing corrective lenses.
- **Papilledema**
 - Swelling of the optic disk. Often as a result of increased intraocular pressure. Also called *choked disk*

Vocabulary Relating to the Eye

- **Photophobia**
 - translates to *fear of light*, it actually means a strong sensitivity to bright light. The person has a strong aversion to bright light.
- **Presbyopia**
 - Visual loss due to old age, resulting in difficulty in focusing for near vision (such as reading).
- **refraction**
 - Eye examination performed to determine and correct refractive errors in the eye
- **refractive error**
 - Defect in the ability of the eye to accurately focus the image that is hitting it. Occurs in farsightedness and nearsightedness.
- **visual field**
 - The size of the area perceived by one eye when it is stationary.
- **Xerophthalmia**
 - Dry eyes.

Pathology Relating to the Eye

- **Blindness:**
 - a total absence of vision; caused by total damage to the eye or optic pathway
- **Scotomas:**
 - A blind spot in the field of vision, other than the optic disc. Permanent abnormalities that are fixed in position.
- **Floaters:**
 - spot that drift; temporary phenomena
- **achromatopsia**
 - Color blindness. unable to perceive one or more colors; more common in males.
- **Amblyopia**
 - Loss of vision not as a result of eye pathology. Usually occurs in patients who see two images. In order to see only one image, the brain will no longer recognize the image being sent to it by one of the eyes. May occur if strabismus is not corrected. This condition is not treatable with a prescription lens. Commonly referred to as *lazy eye*.

Pathology Relating to the Eye

- **Blepharochalasis**
 - In this condition, the upper eyelid increases in size due to a loss of elasticity, which is followed by swelling and recurrent edema of the lids. The skin may droop over the edges of the eyes when the eyes are open.
- **cataract**
 - Damage to the lens causing it to become opaque or cloudy, resulting in diminished vision, Treatment is usually surgical removal of the cataract
- **chalazion**
 - Small hard tumor or mass, similar to a sebaceous cyst, developing on the eyelids. May require incision and drainage
- **corneal abrasion**
 - Scraping injury to the cornea, If it does not heal, it may develop into an ulcer.

Pathology Relating to the Eye

- **diabetic retinopathy**
 - small hemorrhages and edema develop in the retina as a result of diabetes mellitus, Laser surgery and vitrectomy may be necessary for treatment.
- **glaucoma**
 - Increase in intraocular pressure, which, if untreated, may result in atrophy (wasting away) of the optic nerve and blindness. Glaucoma is treated with medication and surgery. There is an increased risk of developing glaucoma in persons over 60 years of age, in people of African ancestry, in persons who have sustained a serious eye injury, and in anyone with a family history of diabetes or glaucoma.
- **Hemianopia**
 - Loss of vision in half of the visual field. A stroke patient may suffer from this disorder.

Pathology Relating to the Eye

- **hordeolum**
 - Refers to a *stye* (or *sty*), a small purulent inflammatory infection of a sebaceous gland of the eye; treated with hot compresses and surgical incision.
- **Hyperopia or farsighted**
 - With this condition a person can see things in the distance but has trouble reading material at close range. This condition is corrected with converging or biconvex lenses.
- **macular degeneration**
 - Deterioration of the macular area of the retina. May be treated with laser surgery to destroy the blood vessels beneath the macula.
- **monochromatism**
 - Unable to perceive one color.

Pathology Relating to the Eye

- **Myopia or nearsighted**
 - With this condition a person can see things close up but distance vision is blurred. This condition is corrected with diverging or biconcave lenses.
- **nystagmus**
 - Jerky-appearing involuntary eye movements, usually left and right. Often an indication of brain injury.
- **pink eye**
 - A common term for conjunctivitis.
- **retinal detachment**
 - Occurs when the retina becomes separated from the choroid layer. This separation seriously damages blood vessels and nerves, resulting in blindness.
- **Astigmatism**
 - A condition in which light rays are focused unevenly on the retina, which causes a distorted image, due to an abnormal curvature of the cornea.

Pathology Relating to the Eye

- **retinitis pigmentosa**
 - Progressive disease of the eye that results in the retina becoming hard (sclerosed) and pigmented (colored), and atrophying (wasting away). There is no known cure for this condition.
- **Retinoblastoma**
 - A malignant eye tumor that occurs in children, usually under the age of 3. Requires enucleation.
- **strabismus**
 - An eye muscle weakness resulting in the eyes looking in different directions at the same time. May be corrected with glasses, eye exercises, and/or surgery.
- **trachoma**
 - Chronic infectious disease of the conjunctiva and cornea caused by bacteria. occurs more commonly in people living in hot, dry climates. Untreated, it may lead to blindness when the scarring invades the cornea. Trachoma can be with antibiotics

Diagnostic Procedures Relating to the Eye

- **Keratometry**
 - Measurement of the curvature of the cornea using an instrument called a keratometer.
- **Ophthalmoscopy**
 - Examination of the interior of the eyes using an instrument called an ophthalmoscope. The physician dilates the pupil in order to see the cornea, lens, and retina. Used to identify abnormalities in the blood vessels of the eye and some systemic diseases.
- **slit lamp microscope**
 - Instrument used in ophthalmology for examining the posterior surface of the cornea.

Diagnostic Procedures Relating to the Eye

- **Snellen's chart**
 - Chart used for testing distance vision named for Hermann Snellen, a Dutch ophthalmologist. It contains letters of varying size and it is administered from a distance of 20 feet. A person who can read at 20 feet what the average person can read at this distance is said to have 20/20 vision.
- **tonometry**
 - Measurement of the intraocular pressure of the eye using a tonometer to check for the condition of glaucoma. After a local anesthetic is applied, the physician places the tonometer lightly on the eyeball and a pressure measurement is taken. Generally part of a normal eye exam for adults.
- **Visual acuity**
 - Measurement of the sharpness of a patient's vision. Usually, a Snellen's chart is used for this test in which the patient identifies letters from a distance of 20 feet.

Therapeutic Procedures Relating to the Eye

- **Cryoextraction**
 - Procedure in which cataract is lifted from the lens with an extremely cold probe.
- **Cryoretinopexy**
 - Surgical fixation of the retina by using extreme cold.
- **Enucleation**
 - Surgical removal of an eyeball.
- **Keratoplasty**
 - Surgical repair of the cornea (corneal transplant).
- **laser photocoagulation**
 - The use of a laser beam to destroy very small precise areas of the retina. May be used to treat retinal detachment or macular degeneration.

Therapeutic Procedures Relating to the Eye

- **phacoemulsification**
 - Use of high-frequency sound waves to emulsify (liquefy) a lens with a cataract, which is then aspirated (removed by suction) with a needle.
- **photorefractive keratectomy**
 - Use of a laser to reshape the cornea and correct errors of refraction.
- **strabotomy**
 - Incision into the eye muscles in order to correct strabismus.
- **anesthetic ophthalmic solution**
 - Eye drops for pain relief associated with eye infections and corneal abrasions.
- **antibiotic ophthalmic solution**
 - Eye drops for the treatment of bacterial eye infections.
- **antiglaucoma medications**
 - A group of drugs that reduce intraocular pressure by lowering the amount of aqueous humor in the eyeball. May achieve this by either reducing the production of aqueous humor or increasing its outflow

Pharmacology Relating to the Eye

- **artificial tears**
 - Medications, many of them over the counter, to treat dry eyes.
- **cycloplegic**
 - Drug paralyzes the ciliary body. useful in eye exam and surgery
- **miotic**
 - Any substance causes the pupil to constrict.
- **mydriatic**
 - A substance causes pupil dilation. Used in eye exam and surgery

Vocabulary Relating to the Ear

- **Hertz**
 - Measurement of the frequency or pitch of sound. The lowest pitch on an audiogram is 250 Hz. The measurement can go as high as 8000 Hz, which is the highest pitch measured.
- **Interpreter**
 - Person with training in areas such as sign language, fingerspelling, and speech, who can transmit verbal or written messages to people with hearing impairments.
- **Monaural**
 - Referring to ear.
- **otorhinolaryngologist**
 - A physician who specializes in the treatment of diseases of the ear, nose, and throat.
- **otorhinolaryngology**
 - Branch of medicine that treats diseases of the ear, nose, and throat. Also referred to as *ENT*

Vocabulary Relating to the Ear

- **American sign language**
 - Nonverbal method of communicating in which the hands and fingers are used to indicate words and concepts. Used by both persons who are deaf and persons with speech impairments
- **Binaural**
 - Referring to both ears.
- **Decibel**
 - Measures the intensity or loudness of a sound. Zero decibels is the quietest sound measured and 120dB is the loudest sound commonly measured.
- **presbycusis**
 - Normal loss of hearing that can accompany the aging process.
- **residual hearing**
 - Amount of hearing that is still present after damage has occurred to the auditory mechanism.

Pathology relating to the Ear

- **acoustic neuroma**
 - Benign tumor of the eighth cranial nerve sheath. The pressure causes symptoms such as tinnitus headache, dizziness, and progressive hearing loss.
- **anacusis**
 - Total absence of hearing; inability to perceive sound. Also called *deafness*.
- **deafness**
 - The inability to hear or having some degree of hearing impairment.
- **hearing impairment**
 - Loss of hearing sufficient to interfere with a person's ability to communicate.
- **labyrinthitis**
 - Also referred to as an *inner ear infection*. May affect both the hearing and equilibrium portions of the inner ear.

Pathology relating to the Ear

- **Speech reading**
 - Ability to watch a person's mouth and word formation during speaking to interpret what they are saying. Also referred to as *lipreading*.
- **Tinnitus:** Ringing in the ears.
- **Vertigo:** Dizziness.
- **Otosclerosis**
 - Loss of mobility of the stapes bone, leading to progressive hearing loss.
- **Ménière's disease**
 - Abnormal condition within the labyrinth of the inner ear that can lead to a progressive loss of hearing. The symptoms are dizziness or vertigo, hearing loss, and tinnitus. Named for Prosper Ménière, a French physician.
- **otitis externa**
 - External ear infection. Most commonly caused by fungus. Also called *otomycosis* and commonly referred to as *swimmer's ear*.

Pathology relating to the Ear

- **otitis media**
 - Commonly referred to as a *middle ear infection*; seen frequently in children. Often preceded by an upper respiratory infection. Fluid accumulates in the middle ear cavity. The fluid may be watery, *serous otitis media*, or full of pus, *purulent otitis media*.
- **Hearing level**
 - Audiometer reading in decibels (dB) corresponding to the listener's hearing threshold ratio that corresponds to the softest sound the listener can hear.
- **audiometry**
 - Test of hearing ability by determining the lowest and highest intensity (decibels) and frequencies (hertz) that a person can distinguish. The patient may sit in a soundproof booth and receive sounds through earphones as the technician decreases the sound or lowers the tones

Diagnostic Procedures Relating to the Ear

- **Falling test**
 - Test used to observe balance and equilibrium. The patient is observed balancing on one foot, then with one foot in front of the other, and then walking forward with eyes open. The same test is conducted with the patient's eyes closed. Swaying and falling with the eyes closed can indicate an ear and equilibrium malfunction.
- **Otoscopy**
 - Use of a lighted otoscope to examine the auditory canal and middle ear
- **Tympanometry**
 - Measurement of the movement of the tympanic membrane. Can indicate the presence of pressure in the middle ear.
- **Amplification device**
 - Used to increase certain sounds for people with hearing impairments. Also known as *hearing aid*.

Therapeutic Procedures Relating to the Ear

- **myringotomy**
 - Surgical puncture of the eardrum with removal of fluid and pus from the middle ear to eliminate a persistent ear infection and excessive pressure on the tympanic membrane. A polyethylene tube is placed in the tympanic membrane to allow for drainage of the middle ear cavity.
- **otoplasty**
 - Corrective surgery to change the size of the external ear or pinna. The surgery can either enlarge or decrease the size of the pinna.
- **otoscopy**
 - Examination of the ear canal, eardrum, and outer ear using the otoscope. Foreign material can be removed from the ear canal with this procedure
- **hearing aid**
 - Apparatus or mechanical device used by persons with impaired hearing to amplify sound. Same as *amplification device*

Therapeutic Procedures Relating to the Ear

- **polyethylene tube**
 - Small tube surgically placed in a child's eardrum to assist in drainage of infection.
- **stapedectomy**
 - Removal of the stapes bone to treat otosclerosis (hardening of the bone). A prosthesis or artificial stapes may be implanted.
- **tympanoplasty**
 - Another term for the surgical reconstruction of the eardrum. Also called *myringoplasty*
- **antibiotic otic solution**
 - Eardrops to treat otitis externa.
- **antihistamines**
 - Some types of antihistamine medications are effective in treating the nausea associated with vertigo.

Pharmacology Relating to the Ear

- **anti-inflammatory otic solution**
 - Reduces inflammation, itching, and edema associated with otitis externa.
- **oral antibiotics**
 - Oral antibiotics are required to treat otitis media and labyrinthitis because the tympanic membrane prevents eardrops from reaching the middle ear cavity.
- **cochlear implant**
 - Mechanical device surgically placed under the skin behind the outer ear (pinna) that converts sound signals into magnetic impulses to stimulate the auditory nerve. Can be beneficial for those with profound sensorineural hearing loss.

Abbreviations Relating to the Ear

- **AD** = right ear
- **AS** = left ear
- **ASL** = American Sign Language
- **AU** = both ears
- **BC** = bone conduction
- **dB** = decibel
- **EENT** = eyes, ears, nose, throat
- **ENT** = ear, nose, and throat
- **HEENT** = head, ears, eyes, nose, throat
- **Hz** = hertz
- **OM** = otitis media
- **Oto** = otology
- **PE tube** = polyethylene tube placed in the eardrum
- **PORP** = partial ossicular replacement prosthesis
- **SEE-2** = Signing Exact English
- **SOM** = serous otitis media
- **TOR** = total ossicular replacement prosthesis
- **OL** = oculus lae'vus
- **OD** = oculus dex'ter

2) Circle the combining form that corresponds to the meaning given.

1. eardrum	salping/o	ot/o	myring/o
2. hearing	ot/o	audi/o	angi/o
3. wax	cerumino	crin/ o	scler/o
4. eustachian tube	tympan/o	miring/o	salping/o
5. ear	rhin/o	ot/o	or/o
6. ear	acr/o	aur/i	aer/ o

3) Match the following:

- | | |
|--|---------------------|
| 1. One who studies hearing impairment. | A. presbycusis |
| 2. Bleeding from the ear. | B. otalgia |
| 3. Partial or complete hearing loss. | C. cochlear implant |
| 4. Hearing impairment of old age. | D. otorrhea |
| 5. Discharge from the ear. | E. otorrhagia |
| 6. Auditor prosthetic. | F. deafness |
| 7. Ear ache. | G. audiologist |

4) Circle the combining form that corresponds to the meaning given.

- | | | | |
|---------------------|----------|------------|--------------|
| 1. eye | or/o | opt/o | ot/o |
| 2. old age | presby/o | sclera/o | phas/o |
| 3. glassy | aque/o | vitre/o | hydr/o |
| 4. light | phon/o | phot/o | opt/o |
| 5. white of the eye | corne/o | vitre/o | scler/o |
| 6. lens (lentic) | phac/o | scler/o | conjunctiv/o |
| 7. Tear | dacry/o | hydr/o | aque/o |
| 8. eyelid | ocul/o | ophthalm/o | blephar/o |
| 9. water | aque/o | hydr/o | vitro/o |

5) Write the correct medical term for each of the following:

- | | |
|--------------------------------|-------------------|
| 1. Pinkeye. | A. Mydriasis |
| 2. Inflammation of the eyelid. | B. Hordeolum |
| 3. Dilate the pupil. | C. Conjunctivitis |
| 4. Sty. | D. cataract |
| 5. Clouding of the lens. | E. Blepharitis |

6) Match the following

- | | |
|----------------|----------------------------------|
| 1. Myopia | A. old-age loss of accommodation |
| 2. Strabismus | B. lazy eye |
| 3. Presbyopia | C. double vision |
| 4. Astigmatism | D. distorted vision |
| 5. Hyperopia | E. Nearsightedness |
| 6. Amblyopia | F. crossed eyes |
| 7. Scotoma | G. Farsightedness |
| 8. Diplopia | H. blind spot in vision |

7) Match the Medical terms

1. inflammation of the eyelid
 2. surgical repair of the eyelid
 3. relaxation of the upper eyelid
 4. a disease of the retina
 5. surgical fixation of the retina
 6. the study of the eye
 7. pertaining to the eye
 8. an eye examination using a scope
 9. iris paralysis
 10. excision of the iris
 11. iris softening
- A. Blepharitis
 - B. Ophthalmoscopy
 - C. Iridioplegia
 - D. Blepharochalasis
 - E. Retinopathy
 - F. Retinopexy
 - G. Iridectomy.
 - H. Iridomalacia
 - I. Blepharoplasty
 - J. Ophthalmology
 - K. Ophthalmic

8. Match the Medical terms

- | | |
|----------------------------------|-----------------|
| 1. ear surgical repair | A. Otology |
| 2. pus flow from the ear | B. Otoplasty |
| 3. pain in the ear | C. Audiogram |
| 4. inflammation of the ear | D. Audiometer |
| 5. hardening of the ear | E. Otagia |
| 6. study of the ear | F. Otitis |
| 7. record of hearing | G. Otosclerosis |
| 8. instrument to measure hearing | H. audiology |
| 9. study of hearing | I. Otopyorrhea |

9. Define the following

- | | |
|-------------|------------|
| 1. Cornea | A. dacry/o |
| 2. Tear | B. Uve/o |
| 3. Vascular | C. aque/o |
| 4. Glassy | D. phot/o |
| 5. double | E. kerat/o |
| 6. Water | F. vitre/o |
| 7. Light | G. dipl/o |
| 8. to turn | H. -tropia |
| 9. Vision | I. -opia |
| 10. hearing | J. -cusis |

10. Define the following

1. salping/o
2. presby/o
3. ambly/o
4. aur/o
5. staped/o
6. myring/o

- a) Dull or dim
- b) Eardrum
- c) Old age
- d) Ear
- e) Eustachian tube
- f) Stapes

11. Match

1. Amblyopia
2. Diplopia
3. Miotic
4. Tinnitus
5. Tympanometry
6. Eustachian tube
7. Labyrinth
8. otitis media

- A. Measure movement of eardrum**
- B. Auditory tube**
- C. Inner ear**
- D. Double vision**
- E. Constrict pupil**
- F. Ringing in the ear**
- G. Middle ear infection**
- H. Dull/dim vision**

12. Match

1. Myringotomy

2. Tympanoplasty

3. otoplasty

4. stapedectomy

a) removal of stapes bone

b) reconstruction of eardrum

c) surgical puncture of
eardrum

d) change size of pinna

13. Match

Emmetropia

conjunctivitis

Tonometry

Chalazion

Hordeolum

1. Cheri is having a regular eye checkup. The pressure reading test that the physician will do to detect glaucoma is
2. Sara has developed a painful, hard mass/tumor on her eyelid. This is called
3. Carlos's ophthalmologist tells him that he has normal vision. This is called
4. Ana has been given an antibiotic eye ointment for pink eye. The medical term for this condition is
5. Roberto has developed a sty on the corner of his left eye. He has been told to treat it with hot compresses. This condition is called

13. Match

cataract

entropion

myopia

hyperopia

Exophthalmos

6. 5. Adrian is nearsighted and cannot read signs in the distance. This is called
7. Ivan is scheduled to have surgery to have the opaque lens of his right eye removed. This condition is a(n)
8. Lorenzo has an uncomfortable disorder in which his eyelashes are rubbing his cornea, due to inversion of his eyelid. This condition is called
9. Beth is farsighted and has difficulty reading textbooks. Her eyeglass correction will be for
10. Tina suffered from a lack of iodine in her diet and developed a thyroid problem. After her thyroid problem was corrected, she still had protruding eyeballs. This is called

13. Match

Ménière's disease
Strabismus

inner ear
presbycusis

11. Grace was told by her physician that her hearing loss was a part of the aging process. The term for this is
12. Judith has twin boys with crossed eyes that will require surgical correction. The medical term for this condition is
13. Warren was told that his dizziness may be caused by a problem in the _____.
14. Shantel is suffering from an abnormal condition of the inner ear, vertigo, and tinnitus. She may have

Ophthalmology Consultation Report

- **Reason for Consultation:**
 - Evaluation of progressive loss of vision in OD.
- **HPI:**
 - Patient has noted gradual deterioration of vision and increasing photophobia during the past 1 year, particularly in the OD. She states that it feels like there is a film over her OD. She denies any change in vision in her OS.
- **PMH:**
 - Patient has used corrective lenses her entire adult life to correct hyperopia. She is not married and is nulligravida. PMH includes left breast cancer successfully treated with left breast mastectomy 10 years ago and cholelithiasis necessitating a cholecystectomy 2 years ago. She has no history of cardiac problems or hypertension.

Ophthalmology Consultation Report

- **Results of Physical Examination:**
 - Visual acuity test showed no change in this patient's long-standing hyperopia. The eye muscles function properly and there is no evidence of conjunctivitis or nystagmus. The pupils react properly to light. Intraocular pressure is normal. Ophthalmoscopy after application of mydriatic drops revealed presence of large opaque cataract in lens of right eye. There is a very small cataract forming in the left eye. There is no evidence of retinopathy, macular degeneration, or keratitis.
- **Assessment:**
 - Diminished vision in OD secondary to cataract.
- **Recommendations:**
 - Phacoemulsification of cataract followed by aspiration of lens and prosthetic lens implant.

Chart Note

- **CC:**

- An 8-year-old female was referred to the ENT by her pediatrician for evaluation of chronic left otitis media.

- **Signs and Symptoms:**

- Binaural otoscopy revealed the tympanic membrane is normal on the AD and bulging on the AS. An excessive amount of cerumen was noted in AU. Tympanometry indicates that there is a buildup of fluid in the left middle ear. Audiometric test report normal hearing on the AD and conductive hearing loss on the AS. Patient also noted to have acute pharyngitis with purulent drainage at time of evaluation.

- **Tx:**

- Myringotomy with placement of polyethylene tube for drainage.

Chapter 11

Endocrine System

Building Words

1. Acromegaly.
2. Adenitis.
3. Adenoma
4. Adrenalectomy
5. Adrenalitis
6. Adrenomegaly
7. Adrenopathy
8. Adrenotrophic.
9. Androgen
10. Android.
11. Endocrine.
12. Endocrinologist
13. Endocrinology
14. Endocrinopathy
15. Estrogen
16. Euglycemia.
17. Glycosuria.
18. Hormonal.
19. Hypercalcemia
20. Hyperkalemia

Building Words

21. Hypocalcemia

22. Hyponatremia

23. Ketosis.

24. Pancreatogenic.

25. Parathyroid.

26. Parathyroidectomy

27. Parathyroidoma

28. Polydipsia.

29. Polyuria.

30. Thyme.

31. Thyromegaly

32. Thyroptosis.

33. Thyrotoxicosis.

Vocabulary Relating to the Endocrine System

- **edema**
 - Condition in which the body tissues contain excessive amounts of fluid.
- **Exophthalmos**
 - Condition in which the eyeballs protrude, such as in Graves' disease. This is generally caused by an overproduction of thyroid hormone
- **Gynecomastia**
 - The development of breast tissue in males. May be a symptom of adrenal feminization.
- **hirsutism**
 - Condition of having an excessive amount of hair. Term generally used to describe females who have the adult male pattern of hair growth. Can be the result of a hormonal imbalance.
- **Hypersecretion**
 - Excessive hormone production by an endocrine gland.

Vocabulary Relating to the Endocrine System

- **Hyposecretion**
 - Deficient hormone production by an endocrine gland.
- **metabolism**
 - Sum of all chemical and physical changes that take place in the body.
- **obesity**
 - Having an abnormal amount of fat in the body.
- **syndrome**
 - Group of symptoms and signs that, when combined, present a clinical picture of a disease or condition.

Pathology Relating to the endocrine System

- **acidosis**
 - Excessive acidity of body fluids due to the accumulation of acids, as in diabetic acidosis.
- **Acromegaly**
 - Chronic disease of adults that results in an elongation and enlargement of the bones of the head and extremities. There can also be mood changes. Due to an excessive amount of growth hormone in an adult.
- **Addison's disease**
 - Disease named for Thomas Addison, a British physician, that results from a deficiency in adrenocortical hormones. There may be an increased pigmentation of the skin, generalized weakness, and weight loss.
- **Adenocarcinoma**
 - A cancerous tumor in a gland that is capable of producing the hormones secreted by that gland. One cause of hypersecretion pathologies

Pathology Relating to the endocrine System

- **adrenal feminization**
 - Development of female secondary sexual characteristics (such as breasts) in a male. Often as a result of increased estrogen secretion by the adrenal cortex.
- **adrenal virilism**
 - Development of male secondary sexual characteristics (such as deeper voice and facial hair) in a female. Often as a result of increased androgen secretion by the adrenal cortex.
- **cretinism**
 - Congenital condition in which a lack of thyroid may result in arrested physical and mental development
- **Cushing's syndrome**
 - Set of symptoms named after Harvey Cushing, an American neurosurgeon, that result from hypersecretion of the adrenal cortex. This may be the result of a tumor of the adrenal glands. The syndrome may present symptoms of weakness, edema, excess hair growth, skin discoloration, and osteoporosis

Pathology Relating to the endocrine System

- **diabetes insipidus**
 - Disorder caused by the inadequate secretion of a hormone by the posterior lobe of the pituitary gland. There may be polyuria and polydipsia. This is more common in the young.
- **diabetes mellitus**
 - Chronic disorder of carbohydrate metabolism that results in hyperglycemia and glycosuria. There are two distinct forms of diabetes mellitus: insulin-dependent diabetes mellitus (IDDM) or type 1, and non-insulin-dependent diabetes mellitus (NIDDM)
- **diabetic retinopathy**
 - Secondary complication of diabetes that affects the blood vessels of the retina, in resulting in visual changes and even blindness.
- **dwarfism**
 - Condition of being abnormally short in height. It may be the result of a hereditary condition or a lack of growth hormone.

Pathology Relating to the endocrine System

- **gigantism**
 - Excessive development of the body due to the overproduction of the growth hormone by the pituitary gland in a child or teenager. The opposite of dwarfism
- **goiter**
 - Enlargement of the thyroid gland
- **Graves' disease**
 - Condition named for Robert Graves, an Irish physician, that results in overactivity of the thyroid gland and can cause a crisis situation. Also called hyperthyroid
- **Hashimoto's disease**
 - Chronic form of thyroiditis, named for a Japanese surgeon.
- **hyperthyroidism**
 - Condition that results from overactivity of the thyroid gland and can cause a crisis situation. Also called Graves' disease.

Pathology Relating to the endocrine System

- **Hypothyroidism**
 - Result of a deficiency in secretion by the thyroid gland. This results in a lowered basal metabolism rate with obesity, dry skin, slow pulse, low blood pressure, sluggishness, and goiter. Treatment is replacement with synthetic thyroid hormone.
- **Insulin-dependent diabetes mellitus**
 - Also called type I diabetes mellitus. It develops early in life when the pancreas stops insulin production. Persons with IDDM must take daily insulin injections.
- **insulinoma**
 - Tumor of the islets of Langerhans cells of the pancreas that secretes an excessive amount of insulin.
- **ketoacidosis**
 - Acidosis due to an excess of acidic ketone bodies (waste products). A serious condition requiring immediate treatment that can result in death for the diabetic patient if not reversed. Also called diabetic acidosis.

Pathology Relating to the endocrine System

- **myxedema**
 - Condition resulting from a hypofunction of the thyroid gland. Symptoms can include anemia, slow speech, enlarged tongue and facial features, edematous skin, drowsiness, and mental apathy
- **Non-Insulin-dependent diabetes mellitus**
 - Also called type 2 diabetes mellitus. It develops later in life when the pancreas produces insufficient insulin. Persons may take oral hypoglycemics to stimulate insulin secretion, or may eventually have to take insulin.
- **Pan-hypo-pituitarism**
 - Deficiency in all the hormones secreted by the pituitary gland. Often recognized because of problems with the glands regulated by the pituitary- adrenal cortex, thyroid, ovaries, and testes.
- **peripheral neuropathy**
 - Damage to the nerves in the lower legs and hands as a result of diabetes mellitus. Symptoms include either extreme sensitivity or numbness and tingling

Pathology Relating to the endocrine System

- **Pheochromocytoma**
 - Usually benign tumor of the adrenal medulla that secretes epinephrine. Symptoms include anxiety, heart palpitations, dyspnea, profuse sweating,
- **tetany**
 - Painful muscle cramps that result from hypocalcemia.
- **thyrotoxicosis**
 - Condition that results from overproduction of the thyroid gland. Symptoms include a rapid heart action, tremors, enlarged thyroid gland, exophthalmos, and weight loss.
- **von Recklinghausen's**
 - Excessive production of parathyroid hormone, which results in degeneration of the bone. Named for Friedrich von Recklinghausen, a German histologist

Diagnostic Procedures Relating to the Endocrine System

- **basal metabolic rate**
 - Somewhat outdated test to measure the energy used when the body is in a state of rest.
- **blood serum test**
 - Blood test to measure the level of substances such as calcium, electrolytes, testosterone, insulin, and glucose. Used to assist in determining the function of various endocrine glands.
- **fasting blood sugar**
 - Blood test to measure the amount of sugar circulating throughout the body after a 12-hour fast.
- **glucose tolerance test**
 - Test to determine the blood sugar level. A measured dose of glucose is given to a patient either orally or intravenously. Blood samples are then drawn at certain intervals to determine the ability of the patient to use glucose. Used for diabetic patients to determine their insulin response to glucose.

Diagnostic Procedures Relating to the Endocrine System

- **protein-bound iodine test**
 - Blood test to measure the concentration of thyroxine (T4) circulating in the bloodstream. The iodine becomes bound to the protein in the blood and can be measured. Useful in establishing thyroid function.
- **radioactive iodine uptake test**
 - Test in which radioactive iodine is taken orally (PO) or intravenously (IV). The amount that is eventually taken into the thyroid gland (the uptake) is measured to assist in determining thyroid function.
- **radioimmunoassay**
 - Test used to measure the levels of hormones in the plasma of the blood.
- **serum glucose tests**
 - Blood test performed to assist in determining insulin levels and useful for adjusting medication dosage.

Diagnostic Procedures Relating to the Endocrine System

- **thyroid echogram**
 - Ultrasound examination of the thyroid that can assist in distinguishing a thyroid nodule from a cyst.
- **thyroid function**
 - Blood test used to measure the levels of T3, T4, and TSH in the bloodstream to assist in determining thyroid function.
- **thyroid scan**
 - Test in which a radioactive iodine is administered that localizes in the thyroid gland. The gland can then be visualized with a scanning device to detect pathology such as tumors.
- **total calcium**
 - Blood test to measure the total amount of calcium to assist in detecting parathyroid and bone disorders.
- **two-hour postprandial glucose tolerance test**
 - Blood test to assist in evaluating glucose metabolism. The patient eats a high carbohydrate diet and fasts overnight before the test. A blood sample is then taken 2 hours after a meal.

Therapeutic Procedures Relating to the Endocrine System

- **chemical thyroidectomy**
 - Large dose of radioactive iodine is given in order to kill thyroid gland cells without having to actually do surgery.
- **laparoscopic adrenalectomy**
 - Excision of the adrenal gland through a small incision in the abdomen and using endoscopic instruments.
- **lobectomy**
 - Excision of only one lobe of the thyroid gland.
- **Parathyroidectomy**
 - Excision of one or more of the parathyroid glands. This is performed to halt the progress of hyperparathyroidism.
- **thymectomy**
 - Removal of the thymus gland
- **thyroidectomy**
 - Removal of the entire thyroid or a portion (partial thyroidectomy) to treat a variety of conditions, including nodules cancer, and hyperthyroidism.

Endocrine System Pharmacology

- **Corticosteroids**
 - Although the function of these hormones in the body is to regulate carbohydrate metabolism, they also have a strong anti-inflammatory action. Therefore they are used to treat severe chronic inflammatory diseases such as rheumatoid arthritis. Long-term use of corticosteroids has adverse side effects such as osteoporosis and the symptoms of Cushing's disease.
- **epinephrine**
 - As a medication, epinephrine is used to constrict blood vessels and block severe allergic reactions.
- **human growth hormone**
 - Therapy with human growth hormone in order to stimulate skeletal growth. Used to treat children with abnormally short stature.

Endocrine System Pharmacology

- **insulin**
 - Administered to replace insulin for type 1 diabetics or to treat severe type 2 diabetics.
- **oral hypoglycemic agent**
 - Medications taken by mouth that cause a decrease in blood sugar. This is not used for insulin-dependent patients. There is no proof that this medication will prevent the agent long-term complications of diabetes mellitus.
- **thyroid replacement hormone**
 - Given to replace thyroid in patients with hypothyroidism or who have had a thyroidectomy.
- **vasopressin ADH**
 - Given to control diabetes insipidus and promote reabsorption of water in the kidney tubules.

2. Match

Endocrinology

Testosterone

ADH

Adenocarcinoma

Pituitary gland

Corticosteroids

T4

Gonads

Estrogen

Exophthalmos

1. The study of the endocrine system
2. The master endocrine gland is the
3. general term for the sexual organs that produce gametes
4. hormones produced by the outer portion of the adrenal cortex
5. hormone produced by the testes
6. Hormone produced by the ovaries
7. Inadequate supply of this hormone causes diabetes insipidus.
8. Another term for thyroxin
9. Protrusion of the eyeballs in Graves' disease
10. General medical term for a hormone-secreting cancerous tumor

3. Match

1. Cushing's disease
2. Goiter
3. Gigantism
4. Hashimoto's disease
5. Graves' disease
6. Addison's disease

- A. enlarged thyroid
- B. overactive adrenal cortex
- C. hyperthyroidism
- D. underactive adrenal cortex
- E. Thyroiditis
- F. excessive growth hormone

4. Match the Medical Terms

- | | |
|---------------------------------------|-------------------|
| 1. Excision of the thyroid. | A. Adrenalectomy |
| 2. Inflammation of the thyroid. | B. Thyroidectomy |
| 3. Normal thyroid | C. Adrenalitis |
| 4. Incision of the thyroid | D. Euthyroid |
| 5. Inflammation of the pancreas | E. Thyroidotomy |
| 6. Removal of the pancreas | F. Thymoma |
| 7. Incision into the pancreas | G. Thyroiditis |
| 8. Excision of an adrenal gland | H. Pancreatotomy |
| 9. Inflammation of the adrenal glands | I. thymectomy |
| 10. Tumor of the thymus gland | J. Pancreatitis |
| 11. Removal of the thymus gland | K. Pancreatectomy |

5. Match the following

1. Cretinism.
 2. Polydipsia.
 3. Hyperthyroidism.
 4. Pituitary gland .
 5. Hypokalemia
 6. Type 2 diabetes.
 7. Adrenal virilism.
 8. Hyponatremia.
 9. Type 1 diabetes.
 10. Diabetes insipidus.
- A. inadequate Antidiuretic hormone.
 - B. excessive thirst.
 - C. low potassium.
 - D. Thyrotoxicosis.
 - E. congenital hypothyroidism.
 - F. Hirsutism.
 - G. not usually insulin dependent.
 - H. hypophysis.
 - I. excessive sodium.
 - J. depends on insulin.

6. Match the following hormones with their action

1. raises heart rate and blood pressure
 2. Promotes male sex characteristics.
 3. Stimulates water reabsorption by kidney tubules.
 4. Increases metabolism in body
 5. Raises blood calcium.
 6. Increases reabsorption of sodium by kidney tubules.
 7. Increases blood sugar.
 8. Develops female sex characteristics.
- A. ADH.
 - B. Epinephrine.
 - C. Parathyroid hormone.
 - D. Estrogen.
 - E. Testosterone
 - F. Aldosterone.
 - G. Thyroxin.
 - H. Cortisol.

7. Build medical terms based on the definitions and word parts given.

1. Abnormal condition (poison) of the thyroid gland:
thyro _____.
2. Removal of the pancreas: _____ ectomy.
3. Deficiency of calcium in the blood: hypo _____.
4. Excessive sugar in the blood: _____ emia.
5. Inflammation of the thyroid gland: _____ itis.
6. Disease condition of the adrenal glands:
adren _____.

8. Indicate whether the following conditions are related to hypersecretion or hyposecretion

<u>Condition</u>	<u>Hypo</u>	<u>Hyper</u>
1. Cushing syndrome.		
2. Tetany.		
3. Graves's disease.		
4. Diabetes insipidus.		
5. Acromegaly.		
6. Myxedema.		
7. Diabetes mellitus.		
8. Addison disease.		
9. Gigantism.		
10. Endemic goiter.		
11. Cretinism.		
12. Pheochromocytoma.		

Discharge Summary

- **Admitting Diagnosis:**
 - Hyperglycemia, ketoacidosis, glycosuria
- **Final Diagnosis:**
 - New-onset type 1 diabetes mellitus
- **History of Present Illness:**
 - Patient presented to pediatrician's office with a 2-month history of weight loss, fatigue, polyuria, and polydipsia. Her family history is significant for a grandfather, mother, and older brother with type I diabetes mellitus. The pediatrician found hyperglycemia with a fasting blood sugar and glycosuria with a urine dipstick. Patient was also noted to be dehydrated and extremely lethargic. She is being admitted at this time for management of new-onset diabetes mellitus.

Discharge Summary

- **Summary of Hospital Course:**

- At admission, the FBS was 300 mg/100 mL and she was in ketoacidosis. She improved after receiving insulin; her serum glucose level normalized, and her lethargy disappeared. The next day a 2-hour postprandial glucose tolerance test confirmed the diagnosis of DM while an abdominal X-ray and a pancreas CT scan were normal. There was no evidence of diabetic retinopathy. Attempts to control hyperglycemia with oral hypoglycemics were not successful and patient was started on insulin injections. She was discharged 3 days later on a protocol of bid insulin injections. The patient and her family were instructed in diet, exercise, symptoms of hypoglycemic coma, and long-term complications of DM.

- **Discharge Plans:**

- Patient was discharged to home. She is on a 2,000-Calorie ADA diet with three meals and two snacks. She may engage in any activity and may return to school Monday. Her parents are to check her serum glucose levels bid. and call the office for insulin dosage. She is to return to the office in 2 weeks.

Chart Note

- **CC:**
 - A 56 y.o. ♀ was referred to the endocrinologist for evaluation of weakness, edema, obesity and an hirsutism.
- **PMH:**
 - Patient has been overweight most of her life in spite of a healthy diet and regular exercise. She was diagnosed with osteoporosis after incurring a pathological rib fracture following a coughing attack.
- **Signs and Symptoms:**
 - Patient has moderate edema in bilateral feet and lower legs as well as a puffy face and an upper lip moustache. She is 100 lbs. over normal body weight for age and height. She moves slowly and appears lethargic. A radioimmunoassay reports increased cortisol. A CT scan demonstrates adenoma in the right adrenal cortex.
- **Dx:**
 - Cushing syndrome secondary to a adenoma in the right adrenal cortex
- **Tx:**
 - adrenalectomy

Chapter 6

Blood

Professions

- **Medical Technologist (MT) or Clinical Laboratory Scientist (CLS)**
 - Performs laboratory tests as ordered by a physician
 - Graduates from an accredited 4-year college or university program
 - Passes a national certification exam
- **Medical Laboratory Technician (MW or Clinical Laboratory Technician (CLT))**
 - Works under the supervision of a medical technologist
 - Graduates from an accredited 2-year laboratory technician program at a community college or vocational education program
 - Passes a national certification exam
- **Phlebotomist**
 - A specialist in drawing venous blood
 - Does not conduct laboratory tests
 - Completes a vocational education program or on-the-job training program
 - Certification exam is available

Identify the prefixes (P), roots (R), and suffixes (S). Then define the word.

- **Dyshematopoiesis**

- P: dys

- CF: hemat/o

- S: poiesis

- Definition: difficult, or faulty/ blood/ formation

Identify the prefixes (P), roots (R), and suffixes (S). Then define the word.

1. Adenoidectomy
2. Adenoiditis
3. Agranulocyte
4. Anemia.
5. Erythroblastosis.
6. Erythrocyte
7. Fibrinogen
8. Fibrinolysis
9. Granulocyte
10. hematology
11. Hematoma
12. Hematopoiesis
13. Hemoglobin
14. Hemolysis
15. Hemorrhage
16. Hemostasis
17. Immunoglobulin
18. Immunology
19. Immunotoxic.
20. Leukocyte
21. Leukocytopenia.
22. Lymphadenectomy
23. Lymphadenitis
24. Lymphadenopathy

Identify the prefixes (P), roots (R), and suffixes (S). Then define the word.

25. Lymphangiogram.

26. Lymphatic

27. Lymphoma

28. Metastasis.

29. Myelodysplasia.

30. Pathogenic

31. Pathology

32. Reticulocyte.

33. Reticulocytosis.

34. Sanguinous

35. Splenectomy.

36. Splenomegaly.

37. Splenopexy

38. Splenorrhagia.

39. Thrombocyte

40. Thymectomy

41. Thymoma

42. Thymopathy

43. Tonsillectomy

44. Tonsillitis

Vocabulary

- **Blood clot**
 - The hard collection of fibrin, blood cells, and tissue debris that is the end result of Hemostasis or the blood-clotting process
- **Coagulate**
 - When a liquid is converted to a gel or solid, as in blood coagulation.
- **Dyscrasia**
 - A general term indicating the presence of a disease affecting blood.
- **Erythropoiesis**
 - The process of forming erythrocytes in the red bone marrow.
- **Hematologist**
 - A physician who specializes in treating diseases and conditions of the blood.
- **hematoma**
 - The collection of blood under the skin as the result of blood escaping into the tissue from damaged blood vessels. Commonly referred to as a bruise.
- **Hemostasis**
 - To stop bleeding or the stagnation of blood flow through the tissues.

Vocabulary

- Packed blood
 - A transfusion of formed elements only, without plasma.
- Whole blood
 - Refers to both plasma and formed elements
- Anemia
 - Many conditions cause it results in less oxygen reaching the tissues due to low number of RBCs or hemoglobin
- Aplastic anemia
 - result from loss of functioning red bone marrow.
 - Treatment may require a bone marrow transplant.
- Erythroblastosis fetalis
 - Mother's antibodies enter the fetus blood during pregnancy and cause anemia, jaundice, edema, and enlargement of the liver and spleen.
 - Also called *hemolytic disease of the newborn*.

Vocabulary

- **Hemolytic anemia**
 - develops as a result of excessive loss of erythrocytes.
- **Hemophilia**
 - Genetic blood disease
 - transmitted by a sex-linked trait from females to males.
 - appears almost exclusively in males.
- **Hyperlipidemia**
 - High level of lipids such as cholesterol in the bloodstream.
 - May cause atherosclerosis and coronary artery disease.
- **pernicious anemia**
 - Due to insufficient vitamin B12.
- **polycythemia Vera**
 - too many blood cells. blood becomes too thick to flow in blood vessels.
- **Septicemia**
 - bacteria in bloodstream. Commonly referred to as blood poisoning.

Vocabulary

- **Hypochromic anemia**
 - result from insufficient hemoglobin in RBCs. Hemoglobin is responsible for the red color of erythrocytes.
- **Iron deficiency anemia**
 - insufficient iron to manufacture hemoglobin.
- **Leukemia**
 - Cancer of WBC results in large number of abnormal and immature WBCs circulating in the blood.
- **sickle cell anemia**
 - genetic disorder. RBCs have a sickle shape. RBCs are fragile and easily damaged, leading to hemolytic anemia.
- **Thalassemia**
 - genetic disorder. The patient unable to make functioning hemoglobin, resulting in anemia.
- **Bleeding time**
 - Test measures the time it takes for blood to coagulate.

Vocabulary

- **Blood culture and sensitivity**
 - Sample of blood is incubated in the laboratory to check for bacterial growth. If bacteria are present, they are identified and tested to determine which antibiotics they are sensitive to.
- **bone marrow aspiration**
 - Sample of bone marrow is removed by aspiration with a needle and examined for diseases such as leukemia or aplastic anemia.
- **Complete blood count (CBC)**
 - Blood test consists of RBC count, WBCs count, hemoglobin (Hgb), Hematocrit (Hct), and WBCs differential.
- **erythrocyte sedimentation rate (ESR).**
 - Blood test determines the rate at which mature RBCs settle out of the blood after the addition of an anticoagulant.
 - It is an indicator of the presence of an inflammatory disease.
- **Hematocrit**
 - Blood test measures RBCs volume in total blood volume

Vocabulary

- Hemoglobin
 - A blood test to measure the amount of hemoglobin present in a given volume of blood.
- phlebotomy
 - incision into a vein in order to remove blood for a diagnostic test. Also called *venipuncture*
- platelet count
 - Blood test to determine the number of platelets in a given volume of blood.
- red blood cell morphology
 - Examination the shape of RBCs. used to determine diseases like sickle cell anemia.
- white blood cell count
 - Blood test measures the number of WBCs in blood.
 - An increase may indicate infection or leukemia. A decrease in WBCs may be caused by radiation or chemotherapy.

Vocabulary

- **prothrombin time**
 - measuring how long it takes for a clot to form after prothrombin has been activated.
- **sequential multiple analyzer computer**
 - Machine for doing multiple blood chemistry tests automatically.
- **white blood cell differential**
 - determines the number of each variety of leukocytes.
- **Autologus transfusion**
 - collecting and storing a patient's own blood to use it later.
- **blood transfusion**
 - transfer blood into the bloodstream
- **bone marrow transplant (BMT)**
 - Patient receives red bone marrow from a donor after the patient's own bone marrow has been destroyed by radiation or chemotherapy.

Vocabulary

- Anticoagulant
 - Prevents blood clot formation
- Anti-hemorrhagic
 - Substance prevents or stops hemorrhaging; a hemostatic agent
- hemostatic
 - Stops the flow of blood; an antihemorrhagic
- Antiplatelet
 - Prolong bleeding by interferes with the action of platelets. commonly referred to as blood thinners.
- hematinic
 - Substance increases the number of RBCs or the amount of hemoglobin in the blood.
- Thrombolytic
 - Able to dissolve existing blood clots
- Plasmapheresis
 - removing plasma from the body without depleting the formed elements.

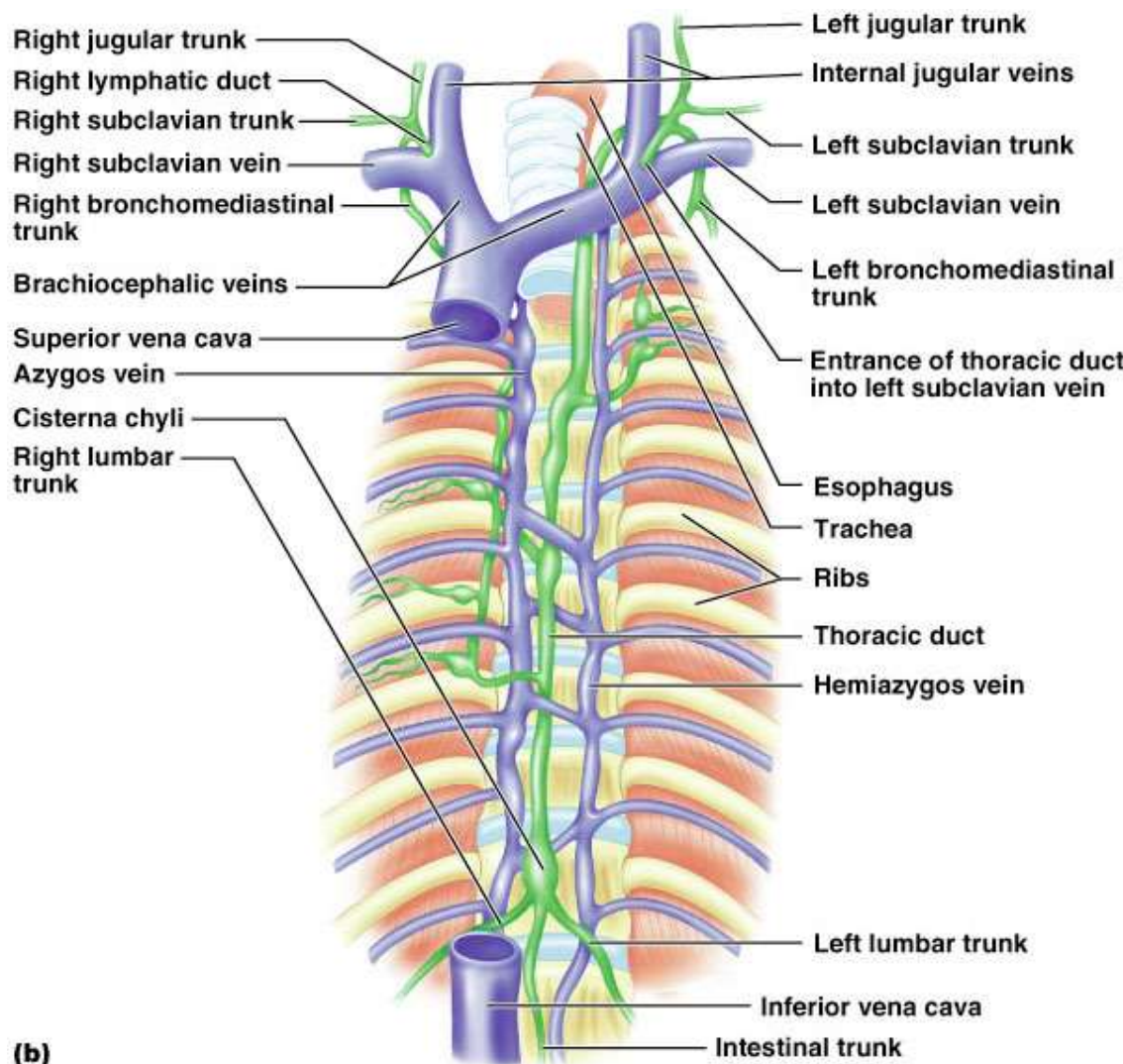
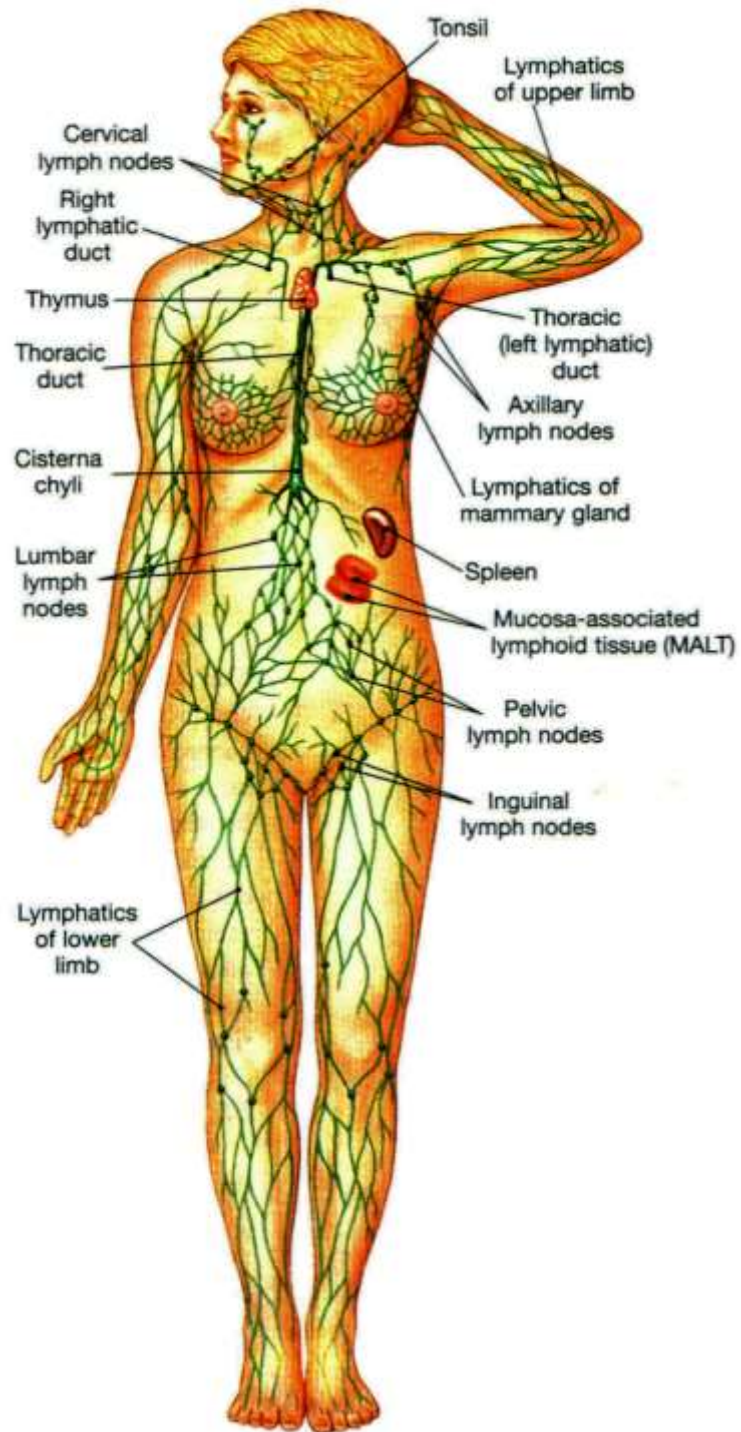
Abbreviations Relating to Blood

1. AHF = antihemophilic factor
 2. Hgb, Hb, HGB = hemoglobin
 3. ALL = acute lymphocytic leukemia
 4. Lymphs = lymphocytes
 5. AML = acute myelogenous leukemia
 6. MCV = mean corpuscular volume
 7. Basos = basophils
 8. Monos = Monocytes
 9. BMT = bone marrow transplant
 10. PA = pernicious anemia
 11. CBC = complete blood count
 12. PCV = packed cell volume
 13. CLL = chronic lymphocytic leukemia
 14. WBC = white blood cell
1. PMN, polys = Polymorphonuclear neutrophil
 2. CML = chronic myelogenous leukemia
 3. PT, pro-time = prothrombin time
 4. Diff = differential
 5. RBC = red blood cell
 6. eosins, eos = eosinophils
 7. Rh+ = Rh-positive
 8. ESA, SR, sed rate = erythrocyte sedimentation rate
 9. Rh- = Rh-negative
 10. HCT, Hct, crit = Hematocrit
 11. SMAC = sequential multiple analyzer computer
 12. HDN = hemolytic disease of the newborn

Lymphatic and Immune System

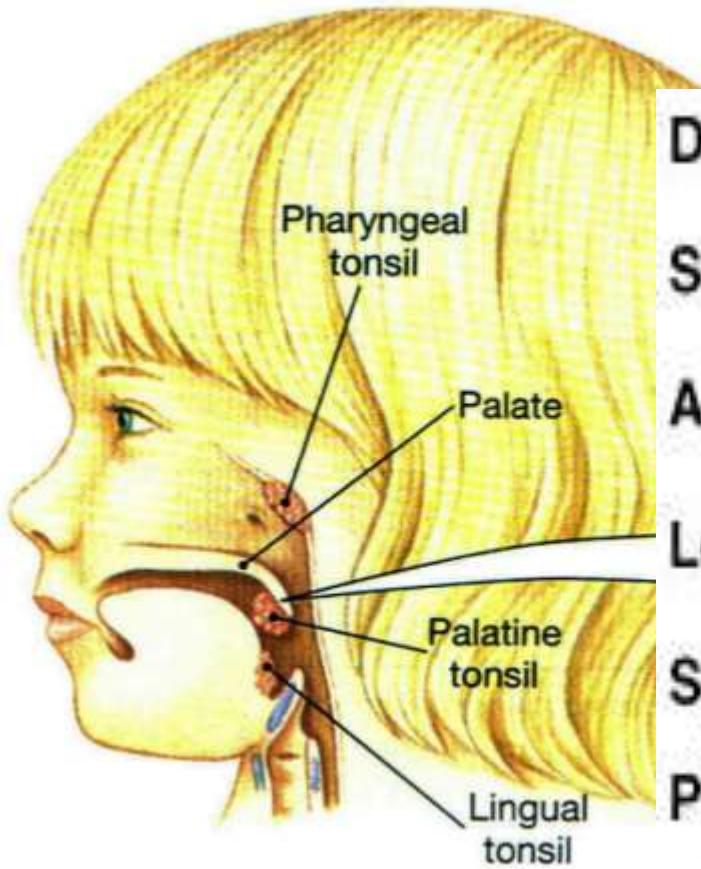
Organization of the Lymphatic System

- **Lymph:**
 - water, white blood cells, nutrients hormones, salts, carbon dioxide, oxygen, and urea.
- **lymphatic vessels or lymphatics**
 - A network of vessels throughout the entire body
 - These vessels begin as very small lymphatic capillaries in the tissues.
 - The capillaries merge into larger lymphatic vessels that have valves to ensure that lymph moves toward the thoracic cavity
 - The vessels drain into one of two large lymphatic ducts, the right lymphatic duct and the thoracic duct.
 - the smaller right lymphatic duct drains the right arm and the right side of the neck and chest. The duct empties lymph into the right subclavian vein.
 - the larger thoracic duct draining lymph from the rest of the body and emptying into the left subclavian vein
 - fluid enters the capillaries to from the tissues toward the thoracic cavity to the circulatory system



(b)

Tonsils



Diaphragm

Spleen

Adrenal gland

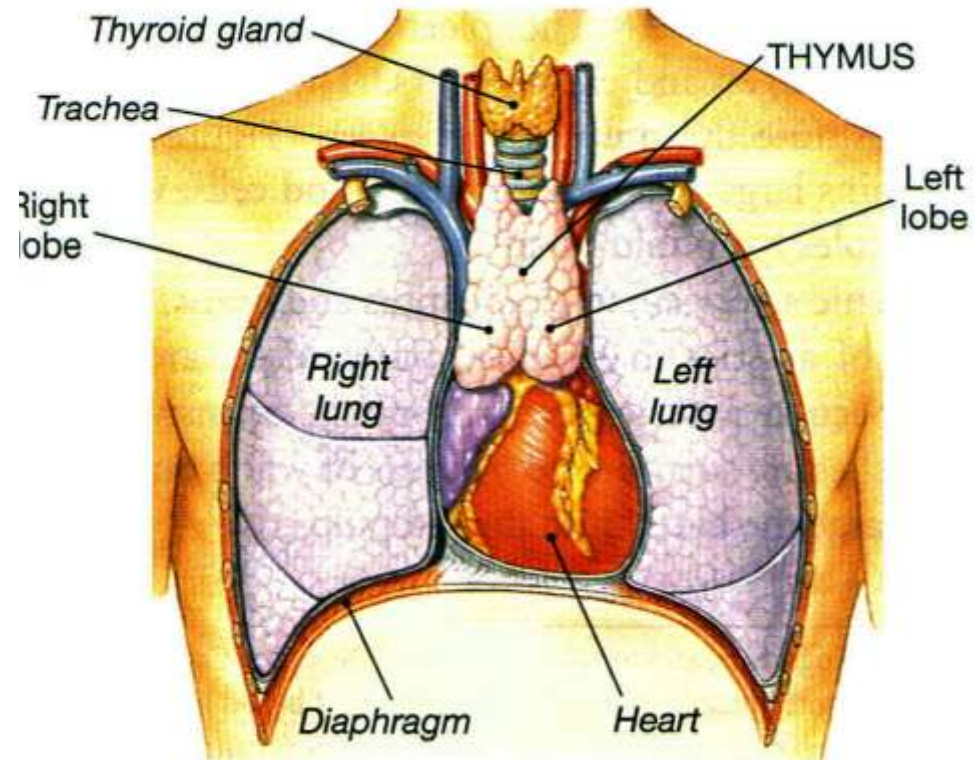
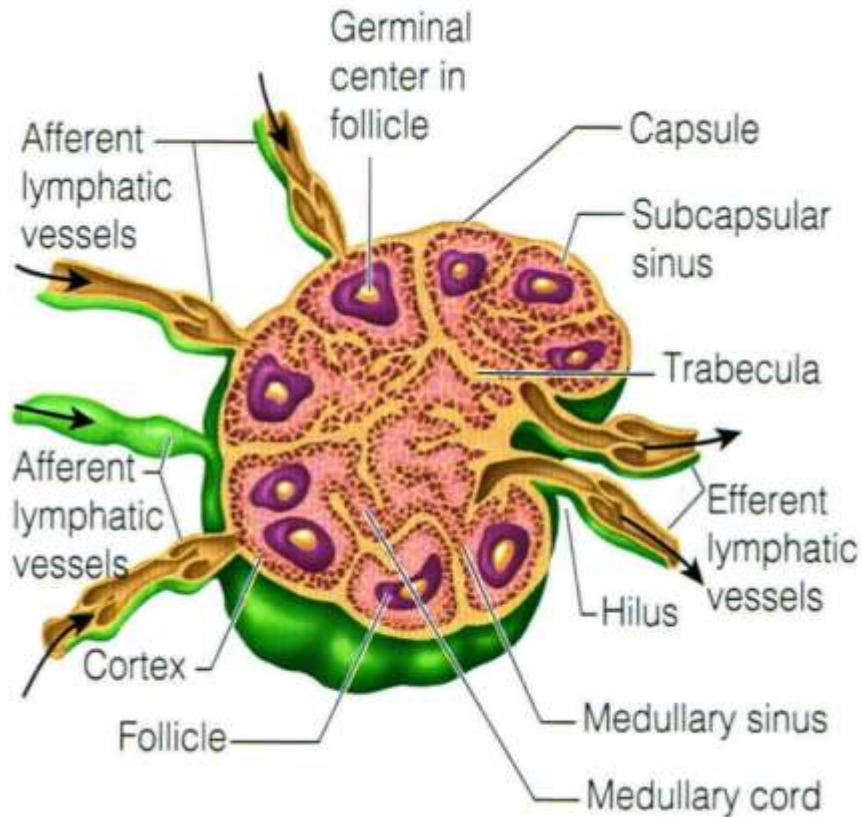
Left kidney

Splenic artery

Pancreas



Thymus



Standard Precautions

1. Wash hands before putting on and after removing gloves and before and after working with each patient or patient equipment.
2. Wear gloves when in contact with any body fluid, mucous membrane, or non intact skin or if you have chapped hands, a rash, or open sores.
3. Wear a non permeable gown or apron during procedures that are likely to expose you to any body fluid, mucous membrane, or nonintact skin.
4. Wear a mask and protective eyewear or a face shield when patients are coughing often or if body fluid droplets or splashes are likely.
5. Wear a face mask and eyewear that seal close to the face during procedures that cause body tissues to be vaporized.
6. Remove for proper cleaning any shared equipment such as a thermometer, stethoscope, or blood pressure cuff that has come into contact with body fluids
7. mucous membrane, or nonintact skin.

Vocabulary

- Allergen:
 - An antigen that causes an allergic reaction.
- Allergist:
 - A physician who specializes in testing for and treating allergies.
- Allergy:
 - hypersensitivity to a common substance in the environment or to a medication
- anaphylaxis:
 - Severe, potentially life-threatening, allergic reaction to an antigen.
- Atypical:
 - abnormal.
- autoimmune disease:
 - the body's immune system attack its own cells
 - Examples: systemic lupus erythematosus, rheumatoid arthritis.

Vocabulary

- **Epstein-Barr virus:**
 - Virus cause of infectious mononucleosis. It was discovered by Anthony Epstein, a British virologist, and Yvonne Barr, a French physician.
- **Hives:**
 - Appearance of wheals as part of an allergic reaction.
- **Human immunodeficiency virus:**
 - Virus that causes AIDS; also known as a retrovirus
- **Immunocompromised:**
 - Having an immune system that is unable to respond properly to
- **Immunoglobulin:**
 - Antibodies secreted by the B cells. They protect the body and its surfaces from bacterial invasion.
- **Immunologist:**
 - A physician specialized in treating infectious diseases and other disorders of the immune system.

Vocabulary

- **Inflammation:**
 - tissues response to injury from pathogens or physical agents. Characterized by redness pain, swelling, and feeling hot to touch
- **Lymphedema:**
 - Edema appearing in the extremities due to an obstruction of the lymph flow through the lymphatic vessels.
- **opportunistic infections:**
 - Infectious diseases associated with patients who have compromised immune systems and therefore a lowered resistance to infections and parasites. May be the results of HIV infection.
- **acquired immunodeficiency syndrome:**
 - Disease that involves a defect in the cell-mediated immunity system. A syndrome of opportunistic infections that occur in the final stages of infection with the human immunodeficiency virus (HIV). This virus attacks T4 lymphocytes and destroys them, which reduces the person's ability to fight infection.

Vocabulary

- **Anaphylactic shock:**
 - Life-threatening condition resulting from a severe allergic reaction. Examples of instances that may trigger this reaction include bee stings, medications, or the ingestion of foods. Circulatory and respiratory problems occur, including respiratory distress, hypotension, edema, tachycardia, and convulsions.
- **Elephantiasis:**
 - Inflammation, obstruction, and destruction of the lymph vessels that result in enlarged tissues due to edema.
- **graft vs. host disease (GVHD):**
 - Serious complication of bone marrow transplant (graft). Immune cells from the donor bone marrow attack the recipient's (host's) tissues.
- **Hodgkin's disease:**
 - Also called Hodgkin's lymphoma. Cancer of the lymphatic cells found in concentration in the lymph nodes. Named after Thomas Hodgkin, a British physician, who first described it.

Vocabulary

- **Kaposi's sarcoma:**
 - Form of skin cancer frequently seen in patients with AIDS, It consists of brownish-purple papules that spread from the skin and metastasize to internal organs. Named for Moritz Kaposi, an Austrian dermatologist.
- **Lymphadenitis:**
 - Inflammation of the lymph nodes. Referred to as ***swollen glands***.
- **malignant lymphoma:**
 - Cancerous tumor of lymphatic tissue; most commonly occurs in lymph nodes, the spleen, or other body sites containing large amounts of lymphatic cells.
- **Mononucleosis:**
 - Acute infectious disease with a large number of atypical lymphocytes. Caused by the Epstein-Barr virus. Abnormal liver function may occur.
- **non-Hodgkin's lymphoma:**
 - Cancer of the lymphatic tissues other than Hodgkin's lymphoma.
- **Peritonsillar**
 - abscess Infection of the tissues between the tonsils and the pharynx. Also called a ***quinsy sore throat***

Vocabulary

- *Pneumocystis carinii* pneumonia:
 - Pneumonia common in AIDS patients that is caused by infection with an opportunistic parasite.
- severe combined immunodeficiency syndrome (SCIDS):
 - Disease seen in children born with a nonfunctioning immune system. Often forced to live in sealed sterile rooms.
- sarcoidosis:
 - Disease of unknown cause that forms fibrous lesions. Lesions commonly appear in the lymph nodes, liver, skin, lungs, spleen, eyes, and small bones of the hands and feet.
- ELISA:
 - A blood test for an antibody to the AIDS virus. A positive test means that the person has been exposed to the virus. There may be a false-positive reading and then the Western blot test would be used to verify the results.
- Lymphangiography:
 - X-ray taken of the lymph vessels after the injection of dye into the foot. The lymph flow through the chest is traced.

Vocabulary

- **Monospot:**
 - test for infectious mononucleosis
- **scratch test:**
 - Form of allergy testing in which the body is exposed to an allergen through a light scratch in the skin
- **Western blot:**
 - Test used as a backup to the ELISA blood test to detect the antibody to I-IIV (AIDS virus) in the blood.
- **Immunization:**
 - Exposure to a weakened pathogen that stimulates the immune response and antibody production in order to confer protection against the full-blown disease. Also called *vaccination*.
- **Immunotherapy:**
 - Giving a patient an injection of immunoglobulins or antibodies in order to treat a disease. The antibodies may be produced by another person or animal, for example, antivenom for snake bites. More recent developments include treatments to boost the activity of the immune system, especially to treat cancer and AIDS

Vocabulary

- **Lymphadenectomy**
 - Excision of a lymph node. This is usually done to test for malignancy.
- **vaccination:**
 - Exposure to a weakened pathogen that stimulates the immune response and antibody production in order to confer protection against the full-blown disease. Also called *immunization*.
- **Antihistamin:**
 - Blocks the effects of histamine that has been released by the body during an allergic reaction.
- **Antiinflammatory:**
 - Reduces the body's inflammatory reaction.
- **Antiviral:**
 - Weakens a viral infection in the body, often by interfering with the virus' ability to replicate.
- **Corticosteroids:**
 - A hormone produced by the adrenal cortex that has very strong anti-inflammatory properties. It is particularly useful in treating autoimmune diseases.

Vocabulary

- **Immunosuppressants:**
 - Blocks certain actions of the immune system. Required to prevent rejection of a transplanted organ.
- **Vasoconstrictors:**
 - Produces contraction of the smooth muscles in the walls of arteries. will raise blood pressure of a patient in anaphylactic shock.
- **nosocomial infection**
 - An infection acquired in the hospital
- **Cross infection**
 - when a person acquires a pathogen from another patient or health care worker.
- **Reinfection**
 - when a person becomes infected again with the same pathogen
- **Self inoculation**
 - when a person becomes infected in a different part of the body by a pathogen from another part of his or her own body

Abbreviations

- **AIDS** = acquired immunodeficiency syndrome
- **ARC** = AIDS-related complex
- **CD4** = Type of T cell affected by HIV infection
- **EBV** = Epstein-Barr virus
- **ELISA** = enzyme-linked immunosorbent assay
- **GVHD** = graft vs. host disease
- **HD** = Hodgkin's disease
- **HIV** = human immunodeficiency virus (causes AIDS)
- **Ig** = immunoglobulins (IgA, IgD, IgE, IgG, IgM)
- **KS** = Kaposi's sarcoma
- **lymphs** = lymphocyte
- **Mono** = mononucleosis
- **NHL** = non-Hodgkin's lymphoma
- **NK** = natural killer cells
- **PCP** = *Pneumocystis carinii* pneumonia
- **SCIDS** = severe combined immunodeficiency syndrome

2) Match the combining form with the meaning below

1. phag/o

2. blast/o

3. thromb/o

4. immun/o

5. chrom/o

6. chyl/o

7. hem/o

8. plas/o

A. clot

B. eat or swallow

C. juice

D. formation

E. color

F. Blood.

G. safe

H. germ or bud

3. Match the following cells with their meanings. Match the following cells with their meanings.

- | | |
|---|----------------------|
| 1. Red blood cell. | A. Erythrocyte. |
| 2. liquid portion of blood. | B. Plasma |
| 3. Coagulation. | C. Microcytosis. |
| 4. Decrease number of red blood cells. | D. Clotting |
| 5. Destruction of red blood cells. | E. Erythrocytopenia. |
| 6. Small red blood cells. | F. Hemolysis. |
| 7. Variation in size of red blood cells. | G. Hematocrit |
| 8. percentage of red blood cells in blood | H. Poikilocytosis. |
| 9. Cells help making blood clot. | I. Platelet. |

4. Give the Medical term

1. The study of the blood is
 2. Enlargement of the spleen
 3. Surgical removal of the spleen
 4. Suture of the spleen
 5. Incision into the spleen
 6. Tumor of the spleen
 7. Softening of the spleen
 8. Lymph cells
 9. Tumor of the lymph system
- A. lymphoma
 - B. Hematology
 - C. Splenoma
 - D. Lymphocyte
 - E. Splenomegaly
 - F. Splenorraphy
 - G. Splenomalacia
 - H. Splenectomy
 - I. Splenotomy

5. Give the Medical term

1. disease of a lymph gland
 2. tumor of a lymph gland
 3. inflammation of a lymph gland
 4. specialist in immune system
 5. study of the immune system
 6. too few blood cells
 7. relating to the blood
 8. blood tumor or mass
 9. blood formation
 10. blood standing still
- a) Lymphadenoma
 - b) Hematoma
 - c) Lymphadenitis
 - d) Hematopoiesis
 - e) Hemostasis
 - f) Lymphadenopathy
 - g) Hematic
 - h) Immunologist
 - i) Hematocytopenia
 - j) Immunology

6. Give the Medical term

- | | |
|-------------------------------|---------------------|
| 1. too few white blood cells | a) Erythrocytosis |
| 2. too few red blood cells | b) Immunoglobulin |
| 3. too few clotting cells | c) Erythropenia |
| 4. too few lymph cells | d) Thrombocytopenia |
| 5. increase in WBC | e) Lymphocytopenia |
| 6. increase in RBC | f) Leukocytosis |
| 7. increase in clotting cells | g) Thrombocytosis |
| 8. immunity protein | h) Leukocytopenia |

7. Match

1. allergy
2. Rh-positive
3. phagocytosis
4. atypical
5. Corticosteroid
6. anemia
7. antibody
8. antigen

- a) Abnormal
- b) stimulates antibody formation
- c) decreased RBCs
- d) hypersensitivity
- e) engulfing
- f) Protective blood protein
- g) strong anti-inflammatory properties
- h) presence of blood factor

8. Match

1. thalassemia

2. nosocomial

3. A,B,AB,O

4. Serum

5. prothrombin time

6. vaccination

7. fibrinogen

a) clotting time test

b) blood type

c) Protein necessary for forming a blood clot

d) type of anemia

e) infection acquired in the hospital

f) has no clotting factors

g) immunization

Match

- Kaposi's sarcoma Mononucleosis Hodgkin's disease
- polycythemia Vera anaphylactic shock AIDS
- *Pneumocystis carinii* HIV Peritonsillar abscess

1. The condition characterized by the production of too many red blood cells is called
2. The Epstein-Barr virus is thought to be responsible for what infectious disease?
3. A life-threatening allergic reaction is
4. The virus responsible for causing AIDS is
5. A cancer that is seen frequently in AIDS patients is
6. An ELISA is used to test for
7. Malignant tumors concentrate in lymph nodes with this disease
8. A type of pneumonia seen in AIDS patients is
9. _____ is also known as quinsy sore throat.

Identify the following abbreviations.

1. basos =
2. CBC =
3. Hgb =
4. PT =
5. GVHD =
6. RBC =
7. PCV =
8. ESR =
9. diff =
10. lymphs =
11. AIDS =
12. ARC =
13. HIV =

Discharge Summary

- **Admitting Diagnosis:**
 - Splenomegaly, weight loss, diarrhea, fatigue, and chronic cough
- **Final Diagnosis:**
 - Non-Hodgkin's lymphoma, primary site spleen; splenectomy
- **History of Present Illness:**
 - Monospot was negative. CRX was negative for pneumonia or bronchitis, but reveal suspicious nodules in the left thoracic cavity. abdominal swelling and splenomegaly detected with palpation. Blood tests were negative for the EBV and hepatitis B. A lymphangiogram identified the nodules to be enlarged lymph gland. Biopsies from the spleen and thoracic lymph glands confirmed the diagnosis of NHL. An MRI failed to demonstrate any additional metastases. patient underwent splenectomy to remove the tumor.
- **Discharge Plans:**
 - Patient was referred to an oncologist for chemotherapy and radiation therapy to treat lymphadenomas

Chart Note

- **Current Complaint:**
 - Patient referred to the hematologist by her internist. Her complaints include fatigue, weight loss, and easy bruising.
- **Past History;**
 - Patient is a college student and was feeling well until symptoms gradually appeared starting approximately 3 months ago.
- **Signs and Symptoms:**
 - ELISA was normal. The prothrombin time indicated that the blood took too long to form a clot. CBC reported erythropenia , thrombocytopenia, and leukocytosis, but they were immature and atypical. A bone marrow aspiration obtained for microscopic examination found an excessive number of immature white blood cells.
- **Diagnosis: Leukemia.**
- **Treatment:** Aggressive chemotherapy for the cancer of the white blood cell forming bone marrow and homologous transfusion to replace the erythrocytes and platelets.

Chapter 5

Cardiovascular System

Write out the prefixes (P), roots (R), and suffixes (S). Then define the term.

- **Angiography.**

- **R:** Angi/o = blood vessel

- **S:** graphy = process of recording

- **Definition:** process of recording blood vessel

Write out the prefixes (P), roots (R), and suffixes (S). Then define the term.

1. Angioplasty.
2. Angiorrhaphy
3. Angiospasm
4. Angiostenosis
5. Aortogram
6. Aortoplasty
7. Arteriogram
8. Arteriography.
9. Arteriole
10. Arteriorrhhexis
11. Arteriosclerosis
12. Arteriostenosis.
13. Atherectomy.
14. Atherogenesis.
15. Atheroma.
16. Atherosclerosis.
17. Atherothrombosis
18. Atrioventricular.
19. Brachial artery.
20. Bradycardia

Write out the prefixes (P), roots (R), and suffixes (S). Then define the term.

21. Cardioaortic
22. Cardiodynia
23. Cardiogenic shock.
24. Cardiomegaly
25. Cardiomyopathy
26. Cardiorrhaphy
27. Cardiotoxic
28. Coronary arteries.
29. Cyanosis.
30. Endocardial
31. Endovascular
32. Hypercholesterol.
33. Hypoxia.
34. Interatrial
35. Interventricular
36. Myocardial
37. Pectoral.
38. Pericardiocentesis.
39. Phlebitis.
40. Phleborrhaphy

Write out the prefixes (P), roots (R), and suffixes (S). Then define the term.

41. Phlebotomy.

42. Tachycardia

43. Thrombolysis.

44. Thrombophlebitis

45. Valvular

46. Valvulitis

47. Valvuloplasty.

48. Varicosis.

49. Vascular.

50. Vasculopathy

51. Vasoconstriction.

52. Vasodilation.

53. Vasospasm

54. Venostomy

55. Venotomy

56. Ventricular

57. Venule

58. Ventriculogram

Auscultation: Process of listening to the sounds within the body by using a stethoscope

Bruit: Term used interchangeably with the word *murmur*. A gentle, blowing sound that is heard during auscultation

Cardiology: The branch of medicine relating to the cardiovascular system.

Infarct: Area of tissue within an organ or part that undergoes necrosis (death) following the loss of its blood supply.

Cyanosis: Slightly bluish color of the skin due to a deficiency of oxygen and an excess of carbon dioxide in the blood. It is caused by a variety of disorders, ranging from chronic lung disease to congenital and chronic heart problems.

Ischemia: Localized and temporary deficiency of blood supply due to an obstruction to the circulation.

Lumen: The space, cavity, or channel within a tube or tubular organ or structure in the body.

Murmur: An abnormal heart sound such as a soft blowing sound or harsh click, It may be soft and heard only with a stethoscope, or so loud it can be heard several feet away. Also referred to as a *bruit*

Palpitation: Pounding, racing heartbeat.

Pulse: Expansion and contraction of a blood vessel wall produced by blood as it moves through an artery. The pulse can be taken at several pulse points throughout the body where an artery is close to the surface.

Sphygmomanometer: Instrument for measuring blood pressure. Also referred to as a *blood pressure Cuff*.

Stent: A stainless steel tube placed within a blood vessel or a duct to widen the lumen

Stethoscope: Instrument for listening to body sounds (auscultation), such as the chest, heart, or intestines.

Aneurysm: Weakness in the wall of an artery that results in localized widening of the artery. Although an aneurysm may develop in any artery, common sites include the aorta in the abdomen and the cerebral arteries in the brain

angina pectoris: Condition in which there is severe pain with a sensation of constriction around the heart. Caused by a deficiency of oxygen to the heart muscle.

Angi-o-card-it is: Inflammation of blood vessels and the heart.

Angi-oma: Tumor, usually benign, consisting of a network of blood vessels.

Angi-o-spasm: Spasm or contraction of smooth muscle in the walls of a blood vessel.

Aortic stenosis: Narrowing of the aorta.

Arrhythmia: Irregularity in the heartbeat or action. Comes in many different forms; some are not serious, while others are life threatening

Arteriosclerosis: Thickening, hardening, and loss of elasticity of the walls of the arteries. Most often due to atherosclerosis

Arteriosclerotic heart disease: Chronic heart disorder caused by a hardening of the walls of the coronary arteries. May lead to coronary artery disease, angina pectoris, and myocardial infarction

Atherosclerosis: The most common form of arteriosclerosis. Caused by the formation of yellowish plaques of cholesterol on the inner walls of arteries.

cardiac arrest: Complete stopping of heart activity.

Cardiomyopathy: General term for a disease of the myocardium. Can be caused by alcohol abuse, parasites, viral infection, and congestive heart failure. One of the most common reasons a patient may require a heart transplant.

Coarctation of the aorta: Severe congenital narrowing of the aorta.

Congenital septal defect: A hole, present at birth, in the septum between two heart chambers; results in a mixture of oxygenated and deoxygenated blood. There can be an atrial septal defect (ASD) and a ventricular septal defect (VSD).

congestive heart failure: Pathological condition of the heart in which there is a reduced outflow of blood from the left side of the heart because the left ventricle myocardium has become too weak to efficiently pump blood. Results in weakness, breathlessness, and edema.

coronary artery disease: Insufficient blood supply to the heart muscle due to an obstruction of one or more coronary arteries. May be caused by atherosclerosis and may cause angina pectoris and myocardial infarction

Embolus: The obstruction of a blood vessel by a blood clot that has broken off from a thrombus somewhere else in the body and traveled to the point of obstruction. If it occurs in a coronary artery, it may result in a myocardial infarction

Endocarditis: Inflammation of the lining membranes of the heart. May be due to bacteria or to an abnormal immunological response. In bacterial endocarditis, the mass of bacteria that forms is referred to as *vegetation*.

Fibrillation: An extremely serious arrhythmia characterized by an abnormal quivering or contractions of heart fibers. When this occurs in the ventricles, cardiac arrest and death can occur. Emergency equipment to defibrillate, or convert the heart to a normal beat, is necessary.

Flutter: An arrhythmia in which the atria beat too rapidly, but in a regular pattern.

Heart block: Occurs when the electrical impulse is blocked from traveling down the bundle of His or bundle branches. Results in the ventricles beating at a different rate than the atria. Also called a *bundle branch block (BBB)*.

Heart valve prolapse: The cusps or flaps of the heart valve are too loose and fail to shut tightly, allowing blood to flow backward through the valve when the heart chamber contracts. Most commonly occurs in the mitral valve, but may affect any of the heart valves.

Heart valve stenosis: The cusps or flaps of the heart valve are too stiff. Therefore, they are unable to open fully, making it difficult for blood to flow through, or shut tightly, allowing blood to flow backward. This condition may affect any of the heart valves.

Hemangioma: A benign mass of blood vessels. Often causing a visible dark red lesion present from birth. Also called a *birthmark*.

Hemorrhoid: Varicose veins in the anal region.

Hypertension: Blood pressure above the normal range.

hypertensive Heart disease: Heart disease as a result of persistently high blood pressure, which damages the blood vessels and ultimately the heart.

Hypotension: Decrease in blood pressure Can occur in shock, infection, cancer, anemia, or as death approaches.

myocardial infarction: Condition caused by the partial or complete occlusion or closing of one or more of the coronary arteries.

Symptoms include a squeezing pain or heavy pressure in the middle of the chest (angina pectoris). A delay in treatment could result in death.

Also referred to as ahead *attack*.

Myocarditis: Inflammation of the muscle layer of the heart wall.

patent ductus arteriosus: Congenital heart anomaly in which the fetal connection between the pulmonary artery and the aorta fails to close at birth. This condition requires surgery.

peripheral vascular disease (PVD): Any abnormal condition affecting blood vessels outside the heart. Symptoms may include pain, pallor, numbness, and loss of circulation and pulses.

Polyarteritis: Inflammation of several arteries.

Raynaud's phenomenon: Periodic ischemic attacks affecting the extremities of the body, especially the fingers, toes, ears, and nose. The affected extremities become cyanotic and very painful. These attacks are brought on by arterial constriction due to extreme cold or stress. Named after a French physician, Maurice Raynaud.

tetralogy of Fallot: Combination of four congenital anomalies: pulmonary stenosis, an interventricular septal defect, improper placement of the aorta, and hypertrophy of the right ventricle. Needs immediate surgery to correct. Named for Etienne-Louis Fallot, a French physician.

Thrombophlebitis: Inflammation of a vein that results in the formation of blood clots within the vein.

Thrombus: A blood clot forming within a blood vessel. May partially or completely occlude the blood vessel.

Varicose: veins swollen and distended veins, usually in the legs.

Rheumatic heart disease: Valvular heart disease as a result of having had rheumatic fever

Angiography: X-rays taken after the injection of an opaque material into a blood vessel. Can be performed on the aorta as an aortic angiogram on the heart as an angiocardioqram, and on the brain as a cerebral angiogram.

Cardiac catheterization: Passage of a thin tube (catheter) through a blood vessel leading to the heart. Done to detect abnormalities to collect cardiac blood samples, and to determine the blood pressure within the heart.

Cardiac enzymes: Blood test to determine the level of enzymes specific to heart muscles in the blood. An increase in the enzymes may indicate heart muscle damage such as a myocardial infarction. These enzymes include Troponin I, Troponin T, and Myoglobin

Cardiac scan: Patient is given radioactive thallium intravenously and then scanning equipment is used to visualize the heart. It is especially useful in determining myocardial damage.

Coronary angiography: Radiographic X-ray of the heart and large vessels after the injection of a radiopaque solution. X-rays are taken in rapid sequence as the material moves through the heart.

Doppler ultrasonography: Measurement of sound-wave echoes as they bounce off tissues and organs to produce an image. Can assist in determining heart and blood vessel damage. Named for Christian Doppler, an Austrian physicist.

Echocardiography: Noninvasive diagnostic method using ultrasound to visualize internal cardiac structures. Cardiac valve activity can be evaluated using this method.

Electrocardiography: Record of the electrical activity of the heart, Useful in the diagnosis of abnormal cardiac rhythm and heart muscle (myocardium) damage.

Holter monitor: Portable ECG monitor worn by a patient for a period of a few hours to a few days to assess the heart and pulse activity as the person goes through the activities of daily living. Used to assess a patient who experiences chest pain and unusual heart activity during exercise and normal activities. Named for Norman Holter, an American biophysicist.

Serum lipoprotein: Blood test to measure the amount of cholesterol and triglycerides in the blood. An indicator of atherosclerosis risk.

Stress testing: Method for evaluating cardiovascular fitness. The patient is placed on a treadmill or a bicycle and then subjected to steadily increasing levels of work. An EKG and oxygen levels are taken while the patient exercises. The test is stopped if abnormalities occur on the EKG. Also called an *exercise test* or a *treadmill test*.

Venography: x-ray of the veins by tracing the venous pulse. Also called phlebography

Antiarrhythmic: Reduce or prevent cardiac arrhythmias

Anti-coagulant: Prevent blood clot

Anti-hypertensive: Lowers blood pressure

Anti-lipidemic: Reduces amount of cholesterol and lipids in the bloodstream.

Treats hyper-lipid-emia.

hyper-lipid-emia: increase lipid level in the blood

Cardi-o-tonic: Increases the force of cardiac muscle contraction. Treats congestive heart failure

Diuretic: Increases urine production by the kidneys, which works to reduce plasma and therefore blood volume. This results in lower blood pressure.

Thromb-o-lytic: Dissolves existing blood clots.

Vaso-constrictor: Contracts smooth muscle in walls of blood vessels. Raises blood pressure.

Vaso-dilator: Relaxes the smooth muscle in the walls of arteries, thereby increasing diameter of the blood vessel. Used for two main purposes: increasing circulation to an ischemic area and reducing blood pressure.

Abbreviations

- AF = atrial fibrillation
- IV = intravenous
- AMI = acute myocardial infarction
- JVP = jugular venous pulse
- AS = aortic stenosis, arteriosclerosis
- LDL = low-density lipoproteins
- ASCVD = arteriosclerotic cardiovascular disease
- LVAD = left ventricular assist device
- ASD = atrial septal defect
- LVH = left ventricular hypertrophy
- ASHD = arteriosclerotic heart disease
- MI = myocardial infarction, mitral insufficiency
- AV, A-V = atrioventricular
- mm Hg = millimeters of mercury
- BBB = branch block (L for left; R for right)
- MR = mitral regurgitation
- BP = blood pressure
- MS = mitral stenosis
- bpm = beats per minute
- MVP = mitral valve prolapse
- CABG = coronary artery bypass graft
- CAD = coronary artery disease
- NSR = normal sinus rhythm
- cath = catheterization

Abbreviations

- P = pulse
- CC = cardiac catheterization, chief complaint
- PAC = premature atrial contraction
- CCU = coronary care unit
- PDA = patent ductus arteriosus
- CHF = congestive heart failure
- PTCA = percutaneous transluminal coronary angioplasty
- CoA = coarctation of the aorta
- CP = chest pain
- PVC = premature ventricular contraction
- CPR = cardiopulmonary resuscitation
- S1 = first heart sound
- S2 = second heart sound
- CSD = congenital septal defect
- CV = cardiovascular
- SA, S-A = sinoatrial
- DVT = deep vein thrombosis
- SGOT = serum glutamic oxaloacetic transaminase
- ECC = extracorporeal circulation
- SK = streptokinase
- ECG, EKG = electrocardiogram
- tPA = tissue-type plasminogen activator
- Vfib = ventricular fibrillation
- ECHO = echocardiogram
- HDL = high-density lipoproteins
- VLDL = very low density lipoproteins
- HTN = hypertension
- VSD = ventricular septal defect
- ICU = intensive care unit
- VT = ventricular tachycardia

2) Match the combining form with the meaning given

1. pector/o

2. phleb/o

3. angi/o

4. cardi/o

5. arteri/o

6. thromb/o

7. sphygm/o

8. ather/o

9. valvul/o

10. ventricul/o

11. atri/o

12. steth/o

A. Heart.

B. Chest.

C. Fatty paste.

D. Valve.

E. Pulse.

F. Artery.

G. Clot.

H. Vessel.

I. Atrium

J. Ventricle

K. Vein

3) Match the following terms with their meanings:

- | | |
|----------------------|--|
| 1. Atherosclerosis. | A. Bulging of a vessel. |
| 2. Embolus. | B. Stationary clot. |
| 3. Occlusion. | C. Cramp in leg muscle. |
| 4. Thrombus. | D. Hard, nonelastic condition. |
| 5. Claudication. | E. Traveling clot that obstructs when it lodges. |
| 6. Arteriosclerosis. | F. Buildup of fat |
| 7. Aneurysm | G. Blockage |
| 8. Arteriostenosis | H. narrowing of the arteries |
| 9. Hypotension | I. recording electrical activity of heart |
| 10. EKG | J. low blood pressure |

4) Complete the following terms using the given definitions.

1. Hardening of arteries.
2. Disease condition of heart muscle.
3. Enlargement of the heart.
4. Inflammation of a vein.
5. High levels of cholesterol in the blood.
6. Condition of deficient oxygen.
7. Narrowing of the mitral valve.
8. Breakdown of a clot.

5) Give the meanings of the following terms.

1. Cyanosis.
2. Phlebotomy.
3. Cardiogenic shock.
4. Atheroma.
5. Arrhythmia.
6. Mitral valvulitis.
7. Atherosclerosis.
8. Vasoconstriction.
9. Vasodilation.

6) Match the following terms with their descriptions.

Auscultation

Petechiae

Atherectomy

Embolectomy

Pericardiocentesis

Valvotomy

Essential hypertension

Secondary hypertension.

1. Small, pinpoint hemorrhages.
2. Listening with a stethoscope.
3. High blood pressure in arteries when the etiology is idiopathic.
4. High blood pressure related to kidney disease.
5. Incision of a heart valve.
6. Removal of a clot that has traveled into a blood vessel and suddenly caused occlusion.
7. Surgical puncture to remove fluid from the pericardial Space.
8. Removal of plaque from an artery.

7. State the medical terms

1. pain in the heart
 2. disease of the heart muscle
 3. enlargement of the heart
 4. abnormally fast heart rate
 5. abnormally slow heart rate
 6. inflammation of the heart
 7. inflammation of a vein
 8. opening a vein (to withdraw blood)
 9. suture a vein
 10. hardening of an artery
 11. inflammation of inner lining of heart
 12. inflammation of outer layer of heart
 13. inflammation of muscle of heart
- a) Endocarditis
 - b) Bradicardia
 - c) Cardiodynia
 - d) Myocarditis
 - e) Cardiomegaly
 - f) Tachycardia
 - g) Carditis
 - h) Phlebitis
 - i) Cardiomyopathy
 - j) Phlebotomy
 - k) Phleborrhaphy
 - l) Arteriosclerosis
 - m) Epicarditis

8. Match

1. Arrhythmia
 2. Bruit
 3. Commissurotomy
 4. varicose vein
 5. Catheterization
 6. Sphygmomanometer
- a) swollen, distended veins
 - b) insert thin tubing
 - c) irregular heartbeat
 - d) to change the size of an opening
 - e) blood pressure cuff
 - f) Murmur

9. Match

angina pectoris

varicose veins

hypertension

Defibrillation

pacemaker

murmur

1. Tiffany was born with a congenital condition that results in an abnormal heart sound. This is called
2. Joseph suffered an arrhythmia while hospitalized that resulted in a cardiac arrest. The emergency physician and team used an instrument to give electric shocks to the heart in an attempt to create a normal heart rhythm, This procedure is called
3. Mary has been placed on a low-sodium diet and medication to bring her blood pressure to a normal range. She suffers from
4. Tony has had an artificial device called _____ inserted to control the beating of his heart by producing rhythmic electrical impulses.
5. Derrick has swollen, tortuous veins in the leg
6. Laura has persistent chest pains that require medication. The term for the pain is

Match

Angioma

echocardiogram

MI

angiography

CHF

Holter monitor

1. Stephen is going to have a coronary artery bypass graft to correct the blockage in his coronary artery. He recently suffered a heart attack as a result of this occlusion. His attack is called
2. Stephen's physician scheduled an X-ray to determine the extent of his blood vessel damage. This test is called
3. A patient who is scheduled to have a diagnostic procedure that uses ultrasound to produce an image of the heart valves is going to have
4. Rolando has been diagnosed with a benign tumor of the blood vessels, This is called
5. Eric must wear a device for 24 hours that will keep track of his heart activity as he performs his normal daily routine. This device is called
6. Lydia is 82 years old and is suffering from a heart condition that causes weakness, edema, and breathlessness. Her heart failure is the cause of her lung congestion, This condition is called

Discharge Summary

- **Admitting Diagnosis:**
 - Dyspnea, hypertension, and tachycardia
- **Final Diagnosis:**
 - CHF secondary to mitral valve prolapse
- **History of Present Illness:**
 - Patient brought in because of SOB, tachycardia, and anxiety. The patient had these symptoms for the past 6 months, brought on by exertion. Upon admission to ER, HR was 120 bpm and BP 180/110. The patient was cyanotic around the lips and nail beds and had severe edema in feet and lower legs. The results of an EKG and cardiac enzyme blood tests were normal. Medication improved the symptoms but she was admitted for a complete cardiac workup.

Discharge Summary

- **Summary of Hospital Course:**

- A prolapsed mitral valve was observed on an echocardiogram. A treadmill test had to be stopped early due to onset of severe dyspnea and cyanosis of the lips. ABGs showed low oxygen. Angiocardiology failed to demonstrate significant coronary artery thrombosis. hypertension, tachycardia, anxiety, and pitting edema were controlled with medications. At discharge, HR was 88 bpm, BP was 165/98, and there was no evidence of edema.

- **Discharge Plans:**

- There was no evidence of a MI and significant coronary thrombosis. Angioplasty is not indicated for this patient. Patient was placed on a low-salt and low-cholesterol diet. She received instructions on beginning a carefully graded exercise program. She is to continue medication. If symptoms are not controlled by these measures, a mitral valve replacement will be considered.

Chart Note

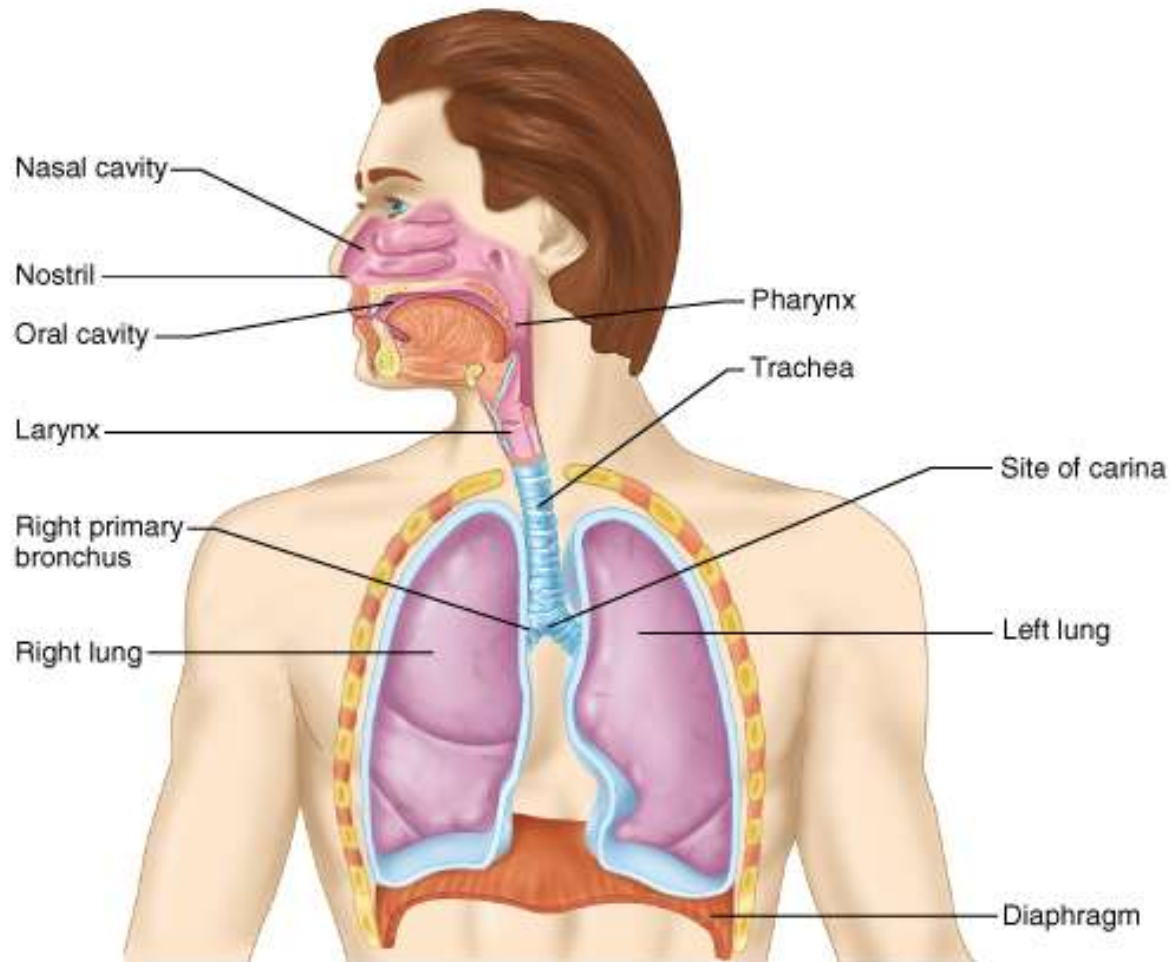
- **Current Complaint (CC):**
 - A 56-year-old male was admitted to **CCU** with **angina pectoris**, **bradycardia**, nausea, and vomiting.
- **Past History:** no **cardiac problems** prior to this episode. He has taken medication for **hypertension** for the past 5 years. His family history is significant for a father and brother who both died in their 50s from **myocardial infarction**.
- **Signs and Symptoms:** severe pain around the heart that radiates into his left jaw and arm. An **EKG** and a **cardiac enzymes** were abnormal.
- **Diagnosis:** An acute **myocardial infarction** resulting from a **coronary thrombosis**.
- **Treatment:** supportive care during the acute phase. evaluate heart damage, **by cardiac catheterization** and **stress test**, perform surgical intervention by either **percutaneous transluminal coronary angioplast (PTCA)** or by **coronary artery bypass graft (CABG)**

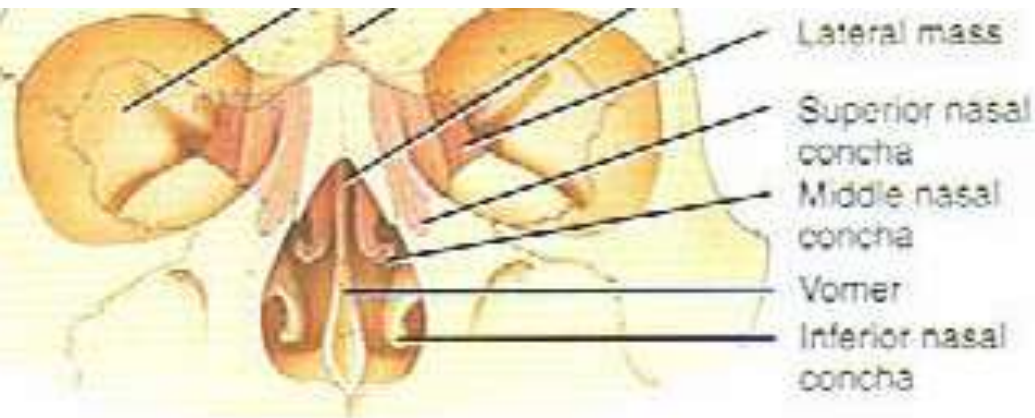
Respiratory System

Chapter 7

Respiratory System Anatomy

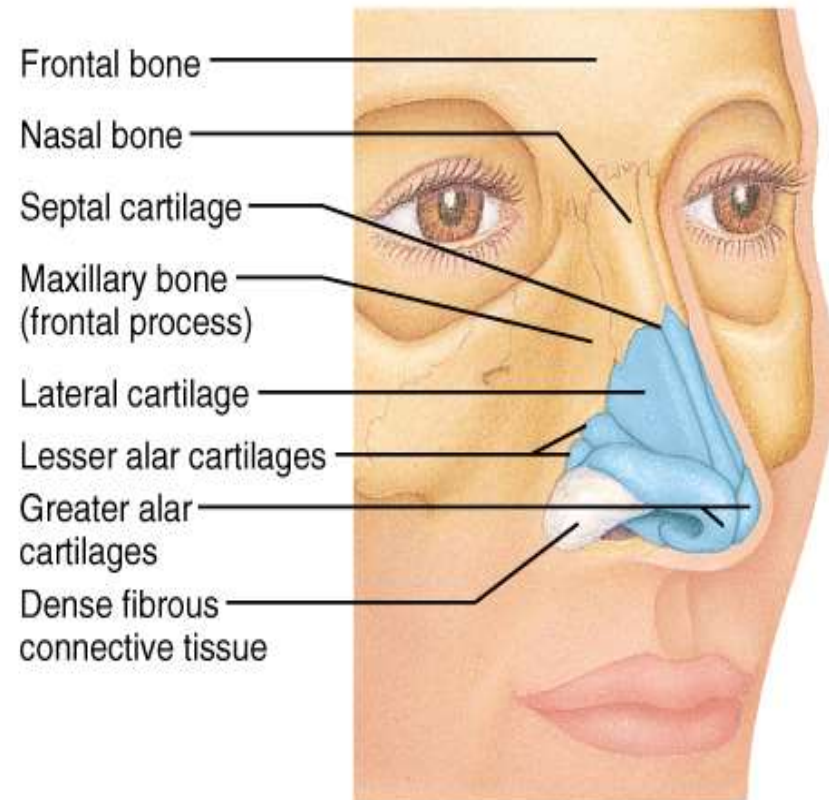
- Cardiovascular and Respiratory systems work together to circulate gases
- **Respiratory System consist of:**
 - Nose
 - Pharynx
 - Larynx
 - Trachea
 - Bronchi
 - Lungs





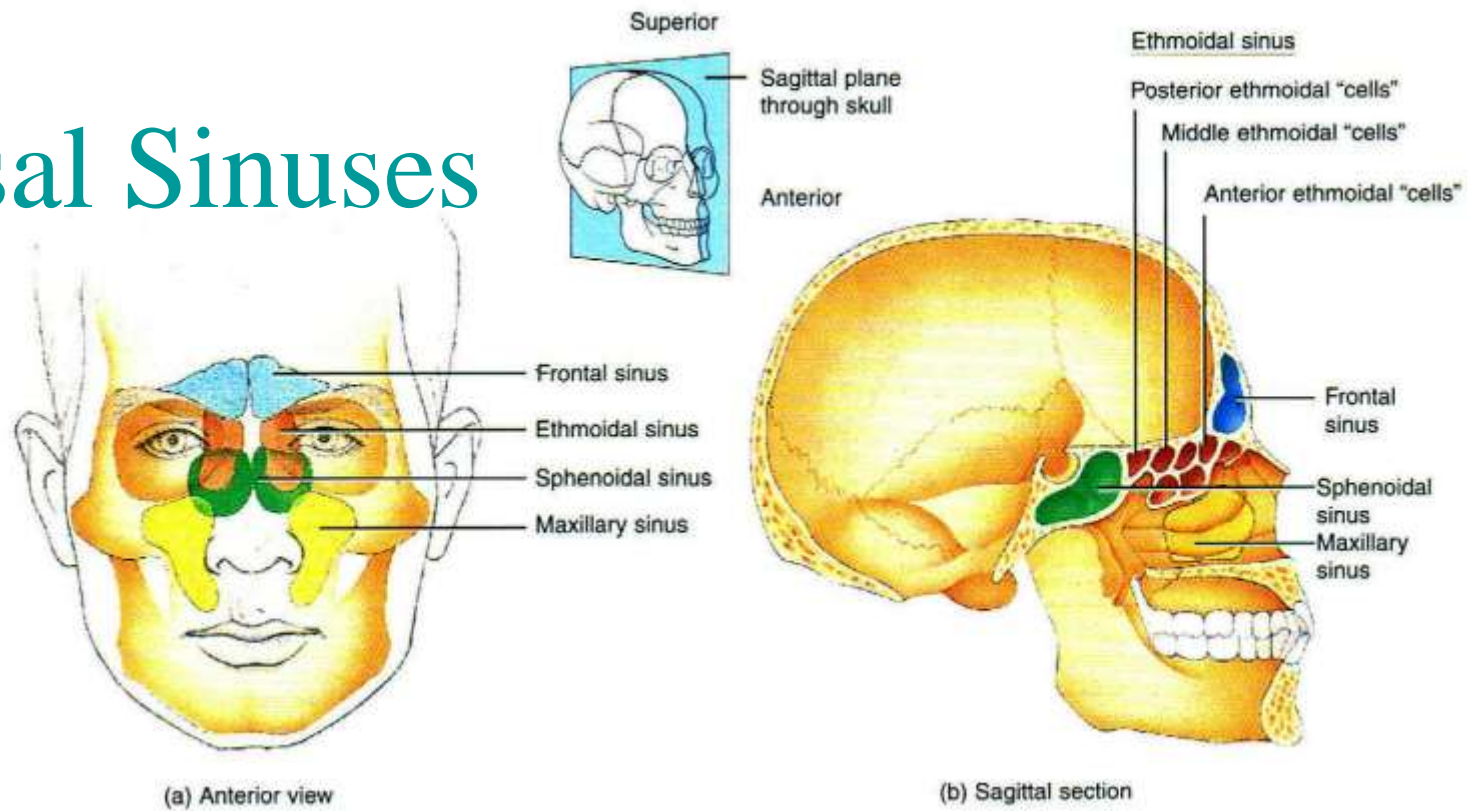
- consist of bon and cartilage
- Divided by the nasal septum
- Nostrils (anterior, external nares)
- Nose Functions

Nose



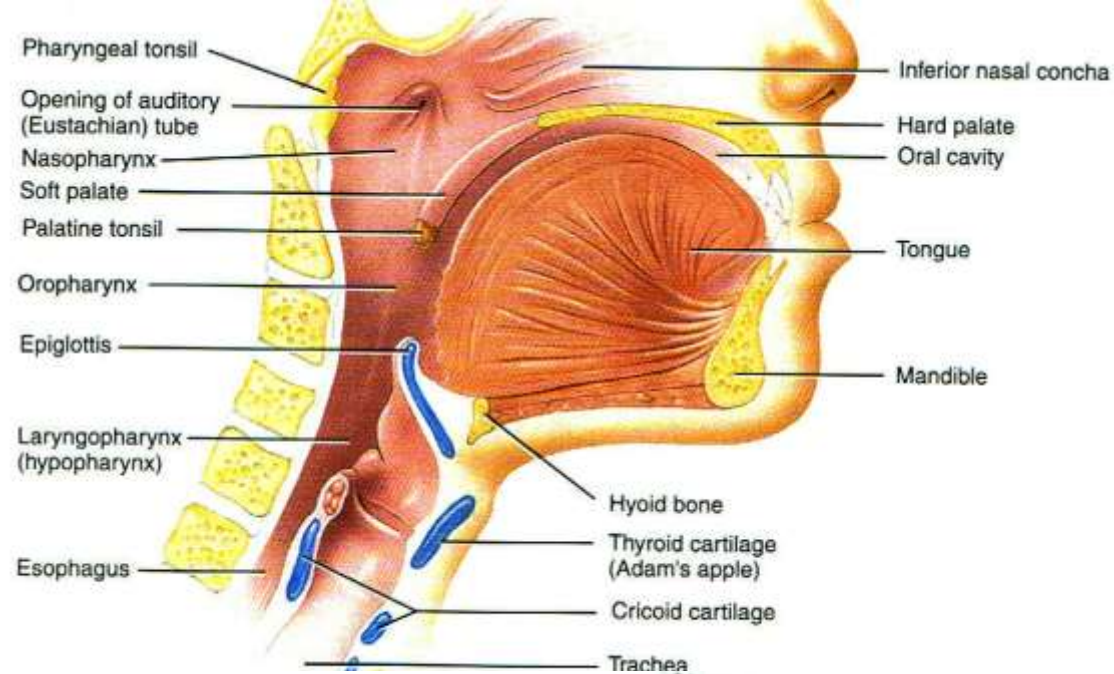
(b)

Paranasal Sinuses

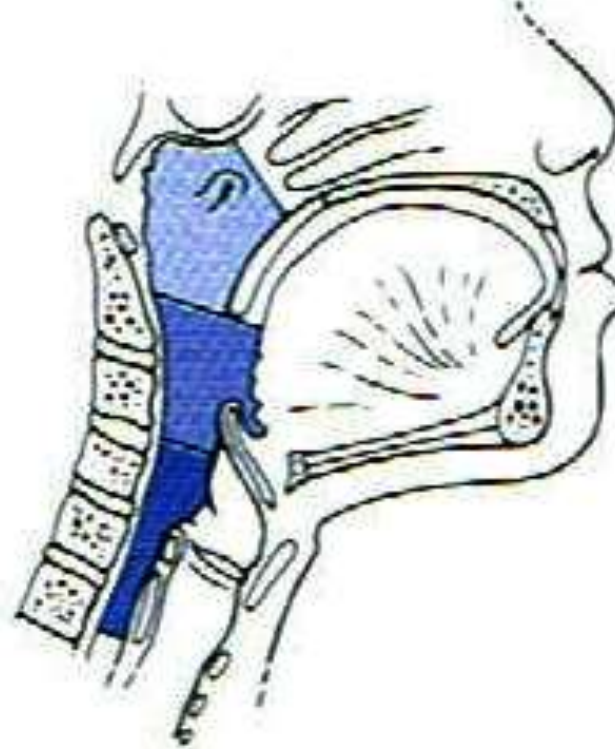


- 4 Paranasal sinuses
- Function

Pharynx

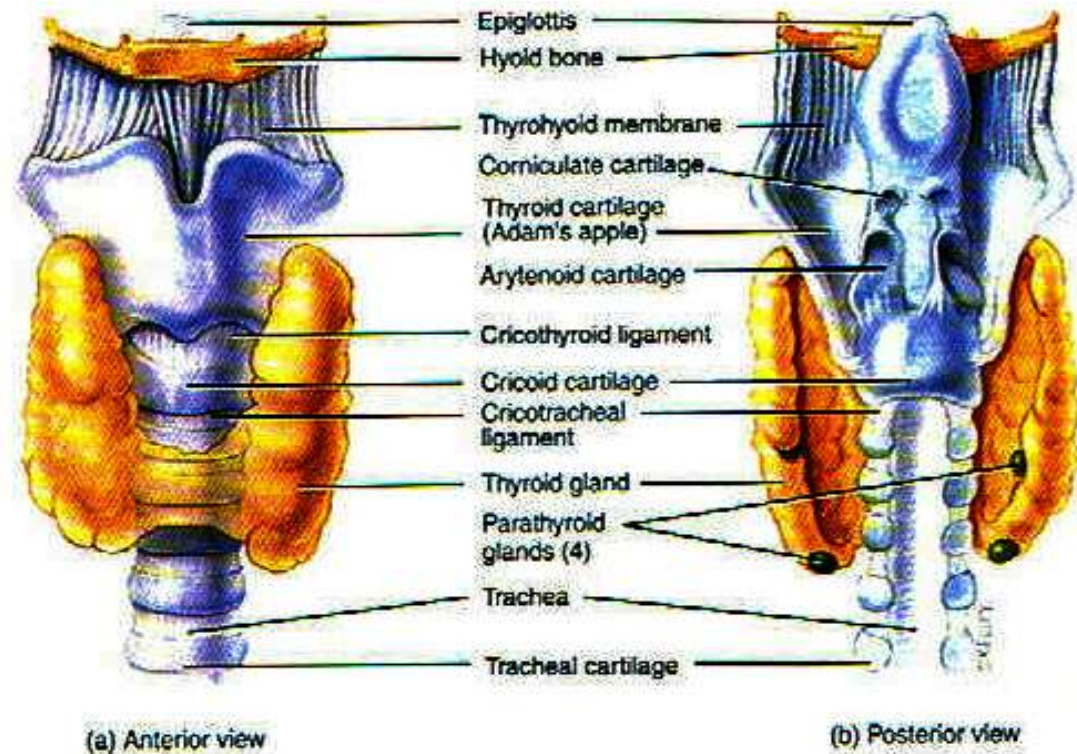


- nasopharynx:
- Oropharynx
- laryngopharynx
- **Function**

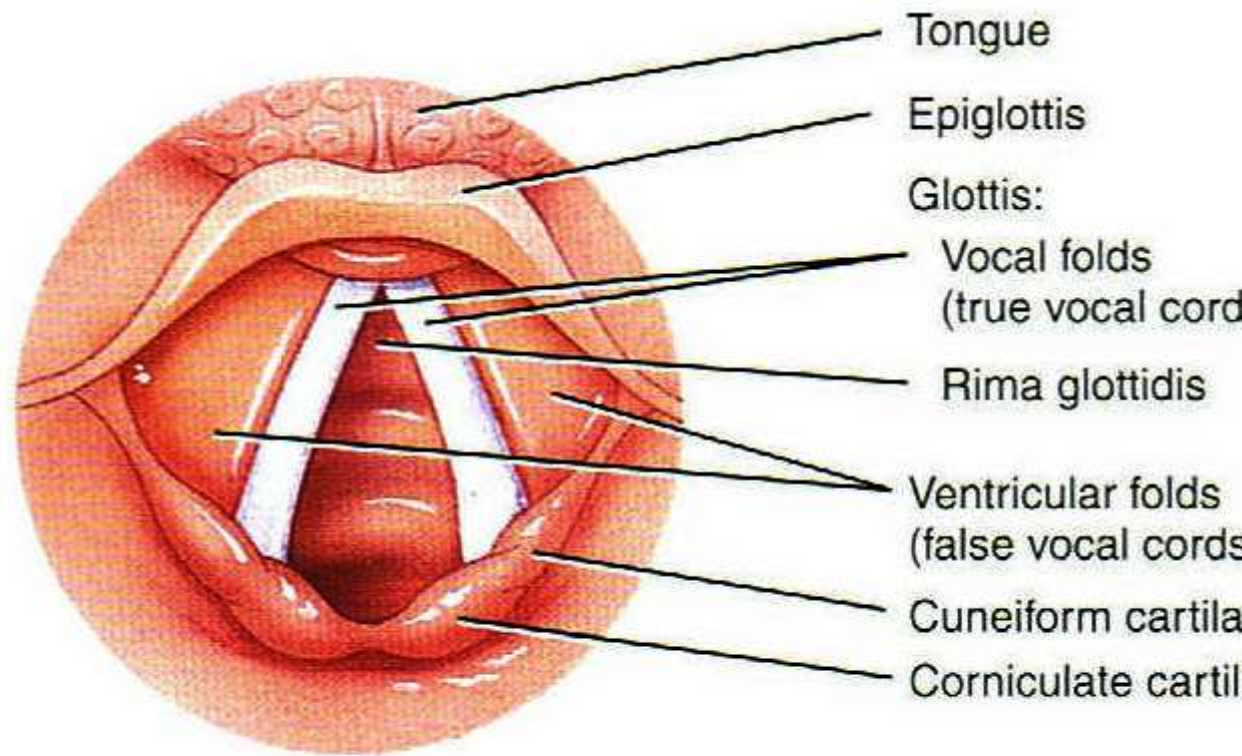


Larynx, Voice box

- 9 cartilages



Structures of Voice Production

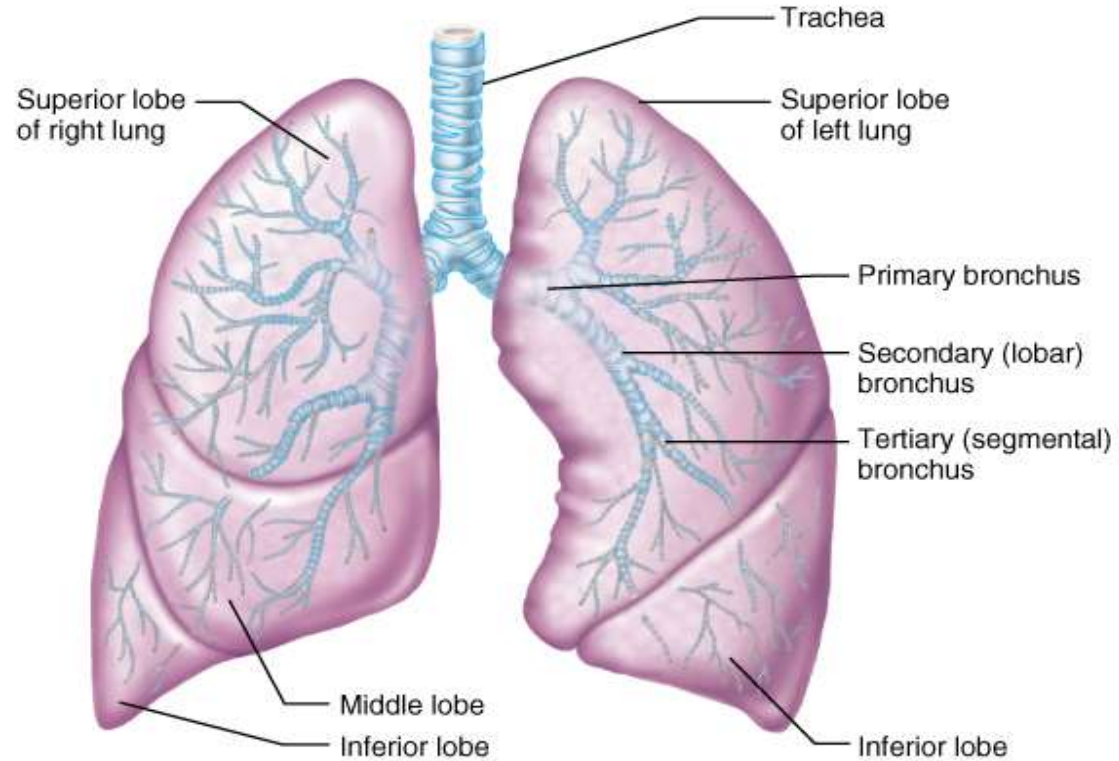


View through a laryngoscope

- **Superior:** false vocal cords
- **Inferior:** true vocal cords

- cartilage rings

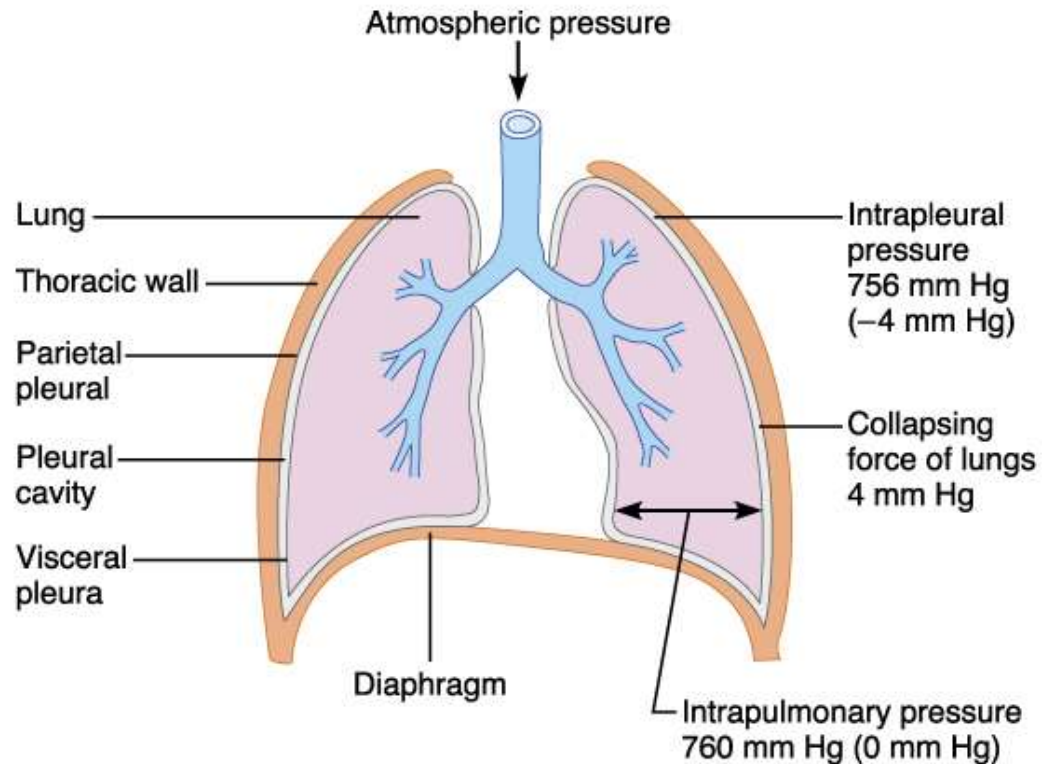
Trachea



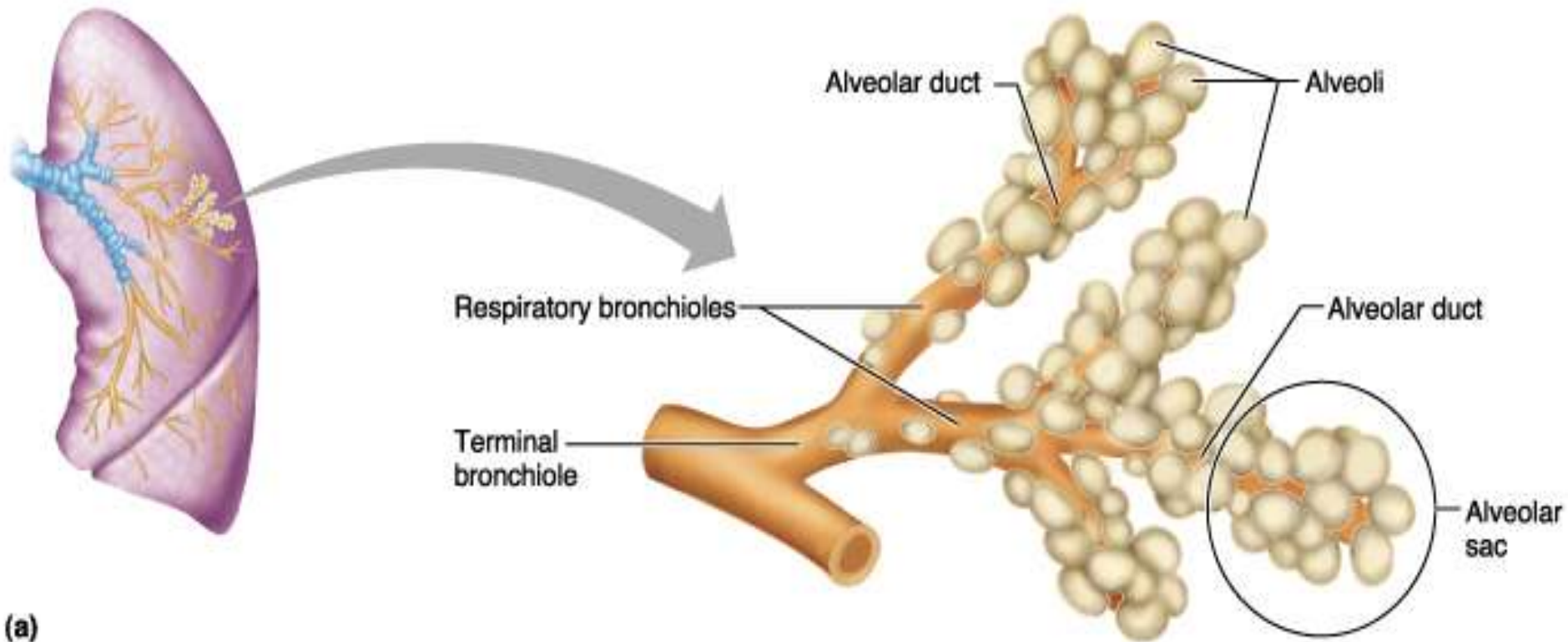
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Bronchial Tubes

- Main bronchi
- Secondary
- Tertiary
- Bronchiole
- Terminal bronchiole
- Respiratory bronchiole
- Alveolar duct
- Alveolar sac
- Alveoli



The lower lung clip

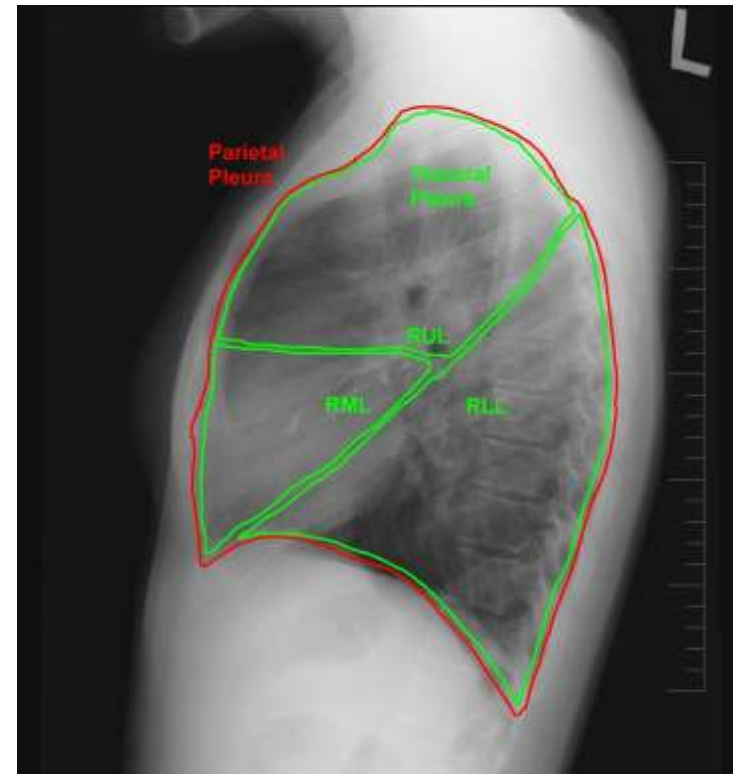
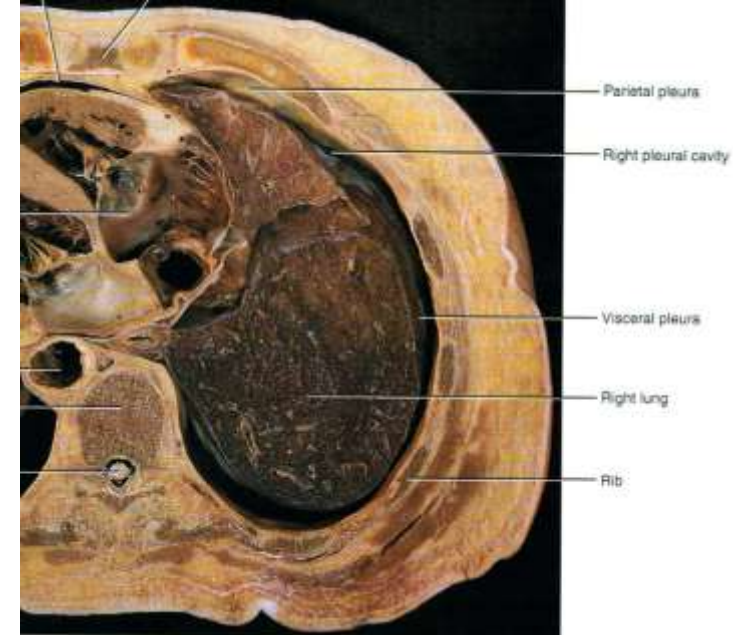


(a)

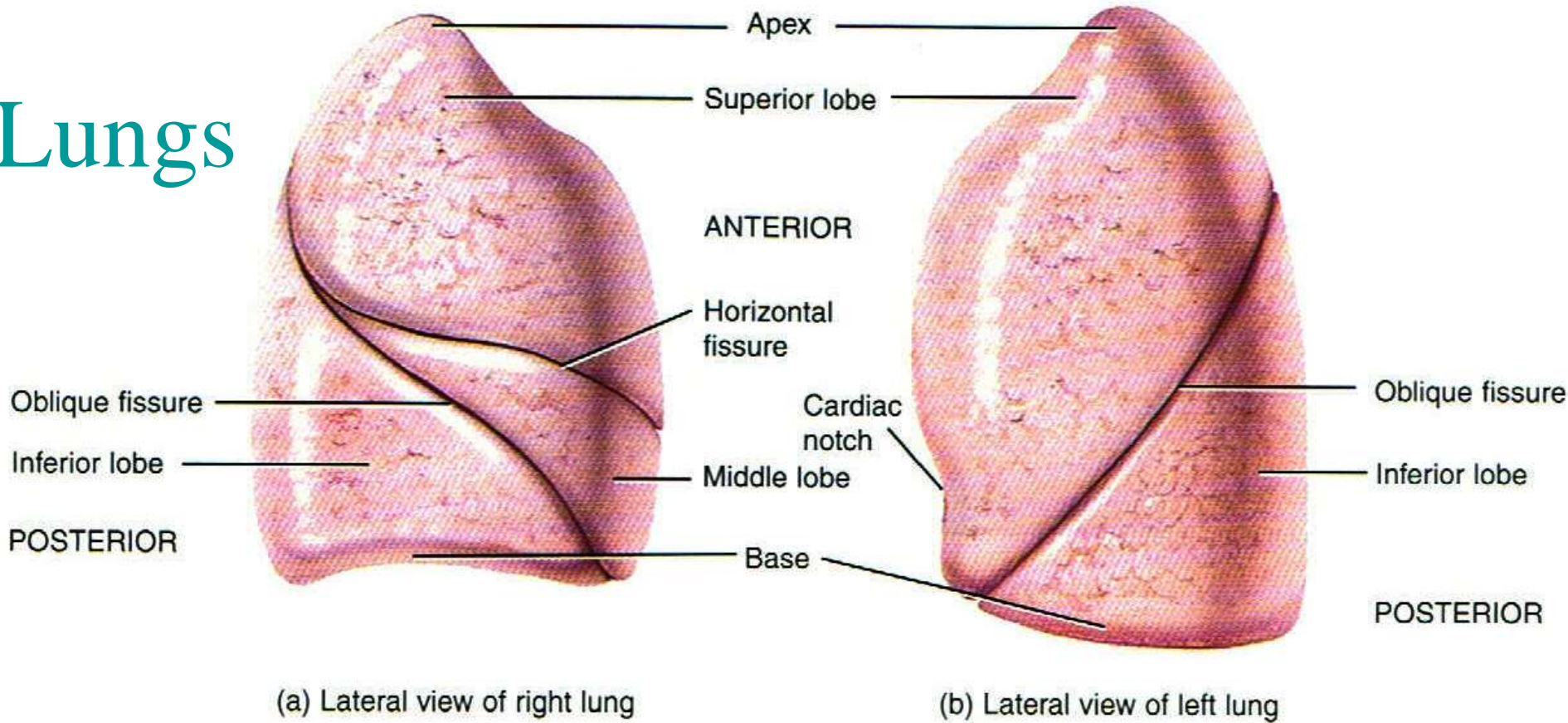
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Pleura

- Two layers enclose and protect the lungs
- **Pleural cavity:**
 - Small space between the two layers
 - Contains small amount of lubricating fluid helps to reduce friction between the membranes



Lungs



- **Base**
- **Apex**
- **left lung has two lobes**
- **right lung: has three lobes**

1. Identify the prefixes (P), roots (R), and suffixes (S). Then define the word.

1. Alveolar
2. Anoxia
3. Bronchiectasis
4. Bronchiolectasis
5. Bronchitis
6. Bronchogram
7. Bronchoplasty
8. Bronchoscope
9. Bronchospasm
10. Endotracheal
11. Hypercarbia
12. Hypoxemia
13. Hypoxia
14. Intranasal
15. Laryngectomy
16. Laryngitis
17. Laryngoplasty
18. Laryngoplegia
19. Laryngospasm
20. Lobectomy

1. Identify the prefixes (P), roots (R), and suffixes (S). Then define the word.

21. Laryngostenosis

22. Nasopharyngoscopy

23. Nasosinusitis

24. Oronasal

25. Pansinusitis

26. Pectoral

27. Phrenoptosis

28. Pleuritis

29. Pleurocentesis

30. Pleuropexy

31. Pneumonic

32. Pulmonary

33. Pulmonology

34. Rhinitis

35. Rhinomycosis

36. Rhinoplasty

37. Rhinorrhagia

38. Rhinorrhea

39. Spirogram

40. Stethoscope

1. Identify the prefixes (P), roots (R), and suffixes (S). Then define the word.

41. Thoracalgia

42. Thoracic

43. Thoracocentesis

44. Thoracostomy

45. Thoracotomy

46. Tonsillectomy

47. Tracheobronchitis

48. Tracheostenosis

49. Tracheostomy

50. Tracheotomy

Vocabulary

- **Anosmia**
 - Loss of the sense of smell.
- **asphyxia**
 - Lack of oxygen that can lead to unconsciousness and death if not corrected immediately. Some of the common causes are drowning, foreign body in the respiratory tract, poisoning, and electric shock.
- **Auscultation**
 - Process of listening for sounds within the body. Generally performed with an instrument to amplify sounds, such as a stethoscope.
- **Cheyne-Stokes respiration**
 - Abnormal breathing pattern in which there are long periods (10 to 60 seconds) of apnea followed by deeper, more rapid breathing. Named for John Cheyne, a Scottish physician, and Sir William Stokes, an Irish surgeon.

Vocabulary

- **Endotracheal intubation**
 - Placing a tube through the mouth, through the glottis, and into the trachea to create a patent airway
- **Epistaxis**
 - Nosebleed.
- **hemoptysis**
 - Coughing up blood or blood-stained sputum
- **Hyperventilation**
 - To breathe both fast (tachypnea) and deep (hyperpnea).
- **Hypoventilation**
 - To breathe both slow (bradypnea) and shallow (hypopnea).
- **Internist**
 - A physician who specializes in treating diseases and conditions of internal organs such as the respiratory system.

Vocabulary

- **nasal canula**
 - Two-pronged plastic device for delivering oxygen into the nose; one prong is inserted into each nares
- **Otorhinolaryngology**
 - Branch of medicine that treats conditions and diseases of the ear, nose, and throat region.
- **patent**
 - open or unblocked, such as a patent airway.
- **Percussion**
 - Using the fingertips to tap on a surface to determine the condition beneath the surface. Determined in part by the feel of the surface as it is tapped and the sound generated.
- **phlegm**
 - Thick mucus secreted by the membranes that line the respiratory tract. When phlegm is coughed through the mouth, it is called *sputum*. Phlegm is examined for color, odor, and consistency.

Vocabulary

- **pleural rub**
 - Grating sound made when the two layers of the pleura rub together during respiration. It is caused when one of the surfaces becomes thicker as a result of inflammation or other disease conditions. This rub can be felt through the fingertips when they are placed on the chest wall or heard through the stethoscope.
- **Pulmonologist**
 - A physician who specializes in treating diseases and disorders of the respiratory system.
- **Purulent**
 - Containing pus or an infection that is producing pus. Pus consists of dead bacteria, white blood cells, and tissue debris.
- **Rales**
 - Abnormal crackling sound made during inspiration. Usually indicates the presence of fluid or mucus in the airways.
- **rhonchi**
 - Somewhat musical sound during expiration, often found in asthma or infection. Caused by spasms of the bronchial tubes. Also called *wheezing*.

Vocabulary

- **shortness of breath (SOB)**
 - Term used to indicate that a patient is having some difficulty breathing. The causes can range from mild SOB after exercise to SOB associated with heart disease.
- **Sputum**
 - Mucus or phlegm that is coughed up from the lining of the respiratory tract. It is tested to determine what type of bacteria or virus is present as an aid in selecting the proper antibiotic treatment.
- **stethoscope**
 - An instrument used to listen to body sounds such as breath sounds or bowel sounds.
- **stridor**
 - Harsh, high-pitched, noisy breathing sound that is made when there is an obstruction of the bronchus or larynx. Found in conditions such as croup in children.
- **Thoracic surgeon**
 - A physician who specializes in treating conditions and diseases of the respiratory system by surgical means.

Vocabulary

- **Adult respiratory distress syndrome**
 - Acute respiratory failure in adults characterized by tachypnea, dyspnea, cyanosis, tachycardia, and hypoxemia.
- **Anthracosis**
 - A type of pneumoconiosis that develops from the collection of coal dust in the lung. Also called black lung or miner's lung.
- **asbestosis**
 - A type of pneumoconiosis that develops from collection of asbestos fibers in the lungs. May lead to the development of lung cancer.
- **Asthma**
 - Disease caused by various conditions, such as allergens, and resulting in constriction of the bronchial airways and labored respirations. Can cause violent spasms of the bronchi (bronchospasms) but is generally not a life-threatening condition. Medication can be very effective.

Vocabulary

- **atelectasis**
 - Condition in which the alveoli in a portion of the lung collapse, which prevents the respiratory exchange of oxygen and carbon dioxide. Can be caused by a variety of conditions, including pressure on the lung from a tumor or other object.
- **Bronchiectasis**
 - Results from a dilation of a bronchus or the bronchi, and can be the result of infection. This abnormal stretching can be irreversible and result in destruction of the bronchial walls. The major symptom is a large amount of purulent (pus-filled) sputum. Rales (bubbling chest sound) and hemoptysis may be present.
- **Bronchogenic carcinoma**
 - Malignant lung tumor that originates in the bronchi. Usually associated with a history of cigarette smoking
- **chronic obstructive pulmonary disease (COPD)**
 - Progressive, chronic, and usually irreversible condition in which the lungs have a diminished

Vocabulary

- **cor pulmonale**
 - Hypertrophy of the right ventricle of the heart as a result of chronic lung disease.
- **Croup**
 - Acute respiratory condition found in infants and children that is characterized by a barking type of cough or stridor.
- **cystic fibrosis**
 - Hereditary condition that causes the exocrine glands to malfunction. The patient produces very thick mucus that causes severe congestion within the lungs and digestive system. Through more advanced treatment, many children are now living into adulthood with this disease.
- **Diaphragmatocele**
 - Hernia in which the stomach protrudes through a hole in the diaphragm and puts pressure on the organs within the thoracic cavity Also known as a *hiatal hernia*.

Vocabulary

- **diphtheria**
 - Bacterial upper respiratory infection characterized by the formation of a thick membranous film across the throat and a high mortality rate. Rare now due to the DPI (diphtheria, pertussis, tetanus) vaccine.
- **Emphysema**
 - Pulmonary condition characterized by the destruction of the walls of the alveoli resulting in a large, overexpanded air sac. Can occur as a result of long-term heavy smoking. Air pollution also worsens this disease. The patient may not be able to breathe except in a sitting or standing position.
- **Empyema**
 - Pus within the pleural space, usually associated with an infection.
- **Histoplasmosis**
 - Pulmonary infection caused by a fungus in dust in the droppings of pigeons and chickens.
- **influenza**
 - Viral infection of the respiratory system characterized by chills, fever, body aches, and fatigue. Commonly called the *flu*.

Vocabulary

- **Legionnaire's disease**
 - Severe, often fatal disease characterized by pneumonia and gastrointestinal symptoms. Caused by a bacteria and named after people who came down with it at an American Legion convention in 1976.
- **paroxysmal nocturnal Dyspnea**
 - Attacks of shortness of breath (SOB) occur only at night and awaken the patient.
- **pertussis**
 - Commonly called *whooping cough*, due to the whoop sound made when coughing. An infectious disease that children receive immunization against as part of their DPT shots.
- **Pharyngitis**
 - Inflammation of the mucous membrane of the pharynx; usually caused by a viral or bacterial infection; commonly called a *sore throat*
- **pleural effusion**
 - Abnormal presence of fluid in the pleural cavity. Physicians can detect the presence of fluid by tapping the chest (percussion) or listening with a stethoscope (auscultation)

Vocabulary

- **pleurisy**
 - Inflammation of the pleura.
- **Pneumoconiosis**
 - Condition that is the result of inhaling environmental particles that become toxic. Can be the result of inhaling coal dust (anthracosis) or asbestos (asbestosis).
- **Pneumocystis carinii pneumonia (PCP)**
 - Pneumonia with a nonproductive cough, very little fever, and dyspnea. Seen in persons with weakened immune systems, such as AIDS patients.
- **Pneumonia**
 - Inflammatory condition of the lung that can be caused by bacterial and viral infections, diseases, and chemicals. Results in the filling of the alveoli and air spaces with fluid.
- **Pneumothorax**
 - Collection of air or gas in the pleural cavity, which may result in collapse of the lung
- **pulmonary edema**
 - Condition in which lung tissue retains an excessive amount of fluid. Results in labored breathing.

Vocabulary

- **pulmonary embolism**
 - Blood clot or air bubble in the pulmonary artery or one of its branches. May cause an infarct in the lung tissue
- **rhinorrhea**
 - Watery discharge from the nose, especially with allergies or a cold. Commonly called a *runny nose*.
- **silicosis**
 - A type of pneumoconiosis that develops from the inhalation of silica (quartz) dust.
- **sudden infant death syndrome**
 - Unexpected and unexplained death of an apparently well infant.
- **Tuberculosis**
 - Infectious disease caused by the tubercle bacillus, *Mycobacterium tuberculosis*. Most commonly affects the respiratory system and causes inflammation and calcification of the system. Tuberculosis is on the increase and is seen in many patients who have AIDS.

Vocabulary

- **Arterial blood gases (ABGs)**
 - Testing for the gases present in the blood. Generally used to assist in determining the levels of oxygen (O₂) and carbon dioxide (CO₂) in the blood.
- **Bronchography**
 - X-ray of the lung after a radiopaque substance has been inserted into the trachea or bronchial tube.
- **Bronchoscopy**
 - Using a bronchoscope to view inside the bronchi
- **Chest X-ray (CXR)**
 - Taking a radiographic picture of the lungs and heart from the back and sides
- **Laryngoscopy**
 - Examination of the interior of the larynx with a lighted instrument.
- **pulmonary angiography**
 - Injecting dye into a blood vessel for the purpose of taking an X-ray of the arteries and veins of the lungs.

Vocabulary

- **pulmonary function test**
 - A group of diagnostic tests that give information regarding air flow in and function test (PFT) out of the lungs, lung volumes, and gas exchange between the lungs and bloodstream.
- **spirometer**
 - Instrument consisting of a container into which a patient can inhale or exhale for the purpose of measuring the air capacity of the lungs.
- **spirometry**
 - Using a device to measure the breathing capacity of the lungs.
- **sputum culture**
 - Testing sputum by placing it on a culture medium and observing any bacterial growth. The specimen is then tested to determine antibiotic effectiveness.
- **sputum cytology**
 - Testing for malignant cells in sputum.
- **sweat test**
 - A test for cystic fibrosis. Patients with this disease have an abnormally large amount of salt in their sweat.

Vocabulary

- **tuberculin skin test**
 - Applying a chemical agent (Tine or Mantoux tests) under the surface of the skin to determine if the patient has been exposed to tuberculosis
- **ventilation-perfusion scan**
 - A nuclear medicine diagnostic test that is especially useful in identifying pulmonary emboli. Radioactive air is inhaled for the ventilation portion to determine if air is filling the entire lung. Radioactive intravenous injection shows whether or not blood is flowing to all parts of the lung.
- **cardiopulmonary resuscitation (CPR)**
 - Emergency treatment provided by persons trained in CPR and given to patients when their respirations and heart stop. CPR provides oxygen to the brain, heart, and other vital organs until medical treatment can restore a normal heart and pulmonary function.
- **Heimlich maneuver**
 - Technique for removing a foreign body from the trachea or pharynx by exerting diaphragmatic pressure. Named for Harry Heimlich, an American thoracic surgeon.

Vocabulary

- **hyperbaric oxygen therapy**
 - Use of oxygen under greater than normal pressure to treat cases of smoke inhalation, carbon monoxide poisoning, and other conditions. In some cases the patient is placed in a hyperbaric oxygen chamber for this treatment.
- **intermittent positive pressure breathing (IPPB)**
 - Method for assisting patients in breathing using a mask that is connected to a machine that produces an increased pressure.
- **Pneumonectomy**
 - Surgical removal of lung tissue
- **postural drainage**
 - Drainage of secretions from the bronchi by placing the patient in a position that uses gravity to promote drainage. Used for the treatment of cystic fibrosis, bronchiectasis, and before a lobectomy.
- **thoracentesis**
 - Surgical puncture of the chest wall for the removal of fluids. Also called *thoracocentesis*.

Vocabulary

- **Thoracostomy**
 - chest tube
- **Tracheostomy**
 - Insertion of a tube into the chest for the purpose of draining off fluid or air. Also called surgical procedure, often performed in an emergency, that creates an opening directly into the trachea to allow the patient to breathe easier
- **antibiotic**
 - Kills bacteria causing respiratory infections
- **Antihistamine**
 - Blocks the effects of histamine that has been released by the body during an allergy attack.
- **Antitussive**
 - Relieves urge to cough.

Vocabulary

- **bronchodilator**
 - Relaxes muscle spasms in bronchial tubes, Used to treat asthma.
- **decongestant**
 - Reduces stuffiness and congestion throughout the respiratory system.
- **Expectorant**
 - Improves the ability to cough up mucus from the respiratory tract.
- **Mucolytic**
 - Liquefies mucus so it is easier to cough and clear it from the respiratory tract.

2. Match the following medical terms with proper description.

- | | |
|--------------------|---|
| 1. Bronchiectasis | A. Dilation of bronchus |
| 2. Spirometry | B. Lung condition caused by prolonged dust inhalation |
| 3. Hypoventilation | C. Surgical repair of the chest |
| 4. Pneumoconiosis. | D. Process of measuring breathing |
| 5. Tachypnea | E. Deficient movement of air in and out of the lungs |
| 6. Dyspnea | F. Normal breathing |
| 7. Eupnea | G. Slow breathing |
| 8. Thoracoplasty | H. Difficulty breathing |
| 9. Bradypnea. | I. Inability to breathe except in upright position |
| 10. Orthopnea. | J. Inability to breathe |
| 11. Apnea. | K. Fast breathing. |

3) Match the following with the descriptions below

1. rhin/o.

2. laryng/o.

3. spir/o.

4. phren/o.

5. pneum/o.

6. pharyng/o.

7. thorac/o

A. Nose.

B. Air or lung.

C. Throat.

D. Chest.

E. Voice box.

F. Breathing.

G. Diaphragm.

4. Select the correct medical term for the following sentences

- | | |
|-------------------|--|
| 1. Thoracentesis. | A. Air in the pleural space. |
| 2. Pneumothorax. | B. Pus in the pleural space. |
| 3. Empyema. | C. Blood in the pleural space. |
| 4. Auscultation. | D. Listening to sounds within the body. |
| 5. Bronchoscope. | E. Endoscope used to examine the airways. |
| 6. Percussion. | F. Coughing up and spitting out material from the lungs. |
| 7. Expectoration. | G. To elicit sounds or vibrations by tapping. |
| 8. Dysphonia. | H. Puncture for aspiration of the chest. |
| 9. Laryngitis. | I. Hoarseness. |
| 10. Hemothorax. | J. Inflammation of the voice box. |
| 11. Hypoxia. | K. Deficient amount of oxygen in tissue cells |

5) Select the correct medical term for the following sentences.

1. Epistaxis.
 2. Stridor.
 3. Atelectasis.
 4. Tracheotomy.
 5. Asthma.
 6. Hyperventilation.
- A. Nosebleed.
 - B. Collapse of lung tissue.
 - C. High-pitched sound a sign of obstruction in the upper airway.
 - D. Surgical creation of an opening in the trachea.
 - E. Disease characterized by wheezing, dyspnea, and cough.
 - F. Excessive movement of air in and out of the lungs.

6) Match the following with their descriptions below.

1. Alveoli.
 2. Bronchi.
 3. Bronchioles.
 4. Epiglottis.
 5. Palatine tonsils.
 6. paranasal sinuses.
 7. Emphysema
- A. Disease characterized by overexpansion of the alveoli with air.
 - B. Lid-like piece of cartilage that covers the voice box.
 - C. Branches of the windpipe that lead into the lungs.
 - D. Air-containing cavities in the Air-containing cavities in the
 - E. Smallest branches of bronchi.
 - F. Collections of lymph tissue in the
 - G. Air sacs of the lung.

7) Match the following terms with the description below.

- | | |
|-----------------------------|---|
| 1. Laryngectomy. | A. Lack of sense of smell. |
| 2. Nasopharyngitis. | B. Removal of the voice box. |
| 3. Glottis. | C. Inflammation of the nose and throat. |
| 4. Tracheal stenosis. | D. Opening to the larynx. |
| 5. Anosmia | E. Narrowing of the windpipe. |
| 6. breathing in | F. Pleurotomy |
| 7. incision into the Pleura | G. Inhalation/inspiration |
| 8. air in pleural cavity | H. Pneumothorax |

8. Match the following term with the description below

- | | |
|-------------------------------|--|
| 1. Hypercapnia. | A. Excessive carbon dioxide in the blood. |
| 2. Hemoptysis. | B. Spitting up blood. |
| 3. Hypoxia. | C. Deficiency of oxygen. |
| 4. Pyothorax. | D. Condition of pus in the pleural cavity. |
| 5. Dysphonia. | E. Hoarseness; voice impairment. |
| 6. Hemothorax. | F. Blood in the pleural cavity. |
| 7. pain in the pleural region | G. Pharyngitis |
| 8. sore throat | H. Pleurisy |
| 9. inflammation of a sinus | I. Sinusitis |

9. Match the Medical Terms

1. inflammation of the nose
 2. rapid flow from the nose
 3. discharge from the nose
 4. surgical repair of the nose
 5. Spasm of the larynx
 6. visual examination of the larynx
 7. incision of the larynx
 8. surgical repair of the larynx
 9. Paralysis of the larynx
 10. bronchial rapid flow
 11. Inflammation of the bronchus
- a) Rhinorrhea
 - b) Laryngoplasty
 - c) Laryngoplegia
 - d) Rhinitis
 - e) Laryngoscopy
 - f) Laryngotomy
 - g) Rhinorrhagia
 - h) Bronchorrhagia
 - i) bronchitis
 - j) Rhinoplasty
 - k) Laryngospasm

10. March the Medical Terms

1. visually examine the interior of bronchus
 2. bronchus disease
 3. spasm of the bronchus
 4. surgical repair of the chest
 5. incision into the chest
 6. chest pain
 7. visual exam inside the chest
 8. cutting into the trachea
 9. surgical repair of the trachea
 10. narrowing of the trachea
 11. tracheal disease
 12. suture the trachea
 13. inflammation of the trachea
 14. forming an artificial opening into trachea
- a) Tracheorrhaphy
 - b) Tracheitis
 - c) tracheostomy
 - d) Tracheotomy
 - e) Bronchopathy
 - f) Tracheoplasty
 - g) Bronchospasm
 - h) Thoracotomy
 - i) Tracheostenosis
 - j) Tracheopathy
 - k) Bronchoscopy
 - l) Thoracalgia
 - m) Thoracoplasty
 - n) Thoracoscopy

Pulmonology Report

- **Reason for Consultation:**

- Evaluation of increasingly severe asthma.

- **Results of Physical Examination:**

- Patient is currently in the ER with a paroxysmal attack with marked dyspnea, cyanosis around the lips, prolonged expiration, and a hacking cough producing thick, nonpurulent phlegm. Thoracic auscultation with stethoscope revealed rhonchi throughout bilateral lung fields. Chest X-ray shows poor pulmonary expansion, with hypoxemia indicated by ABGs. A STAT pulmonary function test reveals moderately severe airway obstruction during expiration. This patient responded to oxygen therapy and IV Alupent and steroids, and he is beginning to cough less and breathe with less effort.

Pulmonology Report

- **Assessment:**
 - Acute [asthma](#) attack with severe airway obstruction. There is [no evidence of pulmonary infection](#). In view of increasing severity and frequency of attacks, all his medications should be reevaluated for effectiveness and all attempts to identify [precipitating factors](#) should be made.
- **Recommendations:**
 - Patient is to continue to use [Alupent](#) for relief of [bronchospasms](#) and [steroids](#) to reduce general [inflammation](#). Instructions for taking medications and controlling severity of asthma attacks were carefully reviewed with the patient and his family. A referral to an [allergist](#) was made to evaluate this young man for presence of [environmental allergies](#).

Chart Notes

- **Current Complaint**

- A 43-year-old female was brought to the ER by her family. She complained of dyspnea, tachypnea, and fever.

- **Signs and Symptoms:**

- respiratory rate is 20 breaths per minute, BP is 165/98, and heart rate is 90 bpm. ABGs indicates a marked hypoxemia. Auscultation of the lungs revealed rales over the left lower chest. She is producing large amounts of purulent sputum and a CXR shows a large cloudy patch in the lower lobe of the left lung.

- **Diagnosis:**

- Left lower lobe pneumonia

- **Treatment:**

- Patient was started on IV antibiotics. She also required a endotracheal intubation for 3 days.

Abbreviations Relating to the Respiratory System

- **ABGs** = arterial blood gases
- **IRV** = inspiratory reserve volume
- **ARD** = acute respiratory disease
- **LLL** = left lower lobe
- **ARDS** = adult respiratory distress syndrome
- **LUL** = left upper lobe
- **ARF** = acute respiratory failure
- **MV** = minute volume
- **Bronch** = bronchoscopy
- **O₂** = oxygen
- **CO₂** = carbon dioxide
- **PCP** = *Pneumocystis carinii* pneumonia
- **COLD** = chronic obstructive lung disease
- **PFT** = pulmonary function test
- **COPD** = chronic obstructive pulmonary disease
- **PND** = paroxysmal nocturnal dyspnea (also postnasal drip)
- **CPR** = cardiopulmonary resuscitation
- **PPD** = purified protein derivative

Abbreviations

- **C&S** = culture and sensitivity
- **R** = respiration
- **CTA** = clear to auscultation
- **RD** = respiratory disease
- **CXR** = chest X-ray
- **RDS** = respiratory distress syndrome
- **DOE** = dyspnea on exertion
- **RLL** = right lower lobe
- **DPT** = diphtheria, pertussis, tetanus injection
- **RML** = right middle lobe
- **ENT** = ear, nose, and throat
- **RV** = reserve volume

Abbreviations

- **ERV** = expiratory reserve volume
- **RUL** = right upper lobe
- **ET** = endotracheal
- **SIDS** = sudden infant death syndrome
- **FEF** = forced expiratory flow
- **SOB** = shortness of breath
- **FEV** = forced expiratory volume
- **T&A** = tonsillectomy and adenoidectomy
- **FRC** = functional residual capacity
- **TB** = tuberculosis
- **FVC** = forced vital capacity

Abbreviations

- **TLC** = total lung capacity
- **HBOT** = hyperbaric oxygen therapy
- **TPR** = temperature, pulse, and respiration
- **HMD** = hyaline membrane disease
- **T** = tidal volume
- **IC** = inspiratory capacity
- **URI** = upper respiratory infection
- **IPPB** = intermittent positive pressure breathing
- **VC** = vital capacity
- **IRDS** = infant respiratory distress syndrome

Chapter 8

Digestive System

Dental Care Professions

- **Dentist (DDS or DMD)**
 - Receives doctor of dental surgery (DDS) or doctor of dental medicine (DMD) degree.
- **Orthodontist (DDS or DM0)**
 - Diagnosis, prevention, and treatment of dental and facial irregularities
 - Receives a DDS or DMD degree
 - Completes a minimum of 2 to 3 years of advanced training
- **Registered Dental Hygienist (Roll)**
 - Works under the supervision of a dentist
 - Specializes in cleaning teeth and taking X-rays
 - Graduates from an accredited dental hygiene program

Dental Care Professions

- **Dental Assistant**
 - Assists with patient care or office management
 - Completes on-the-job training, a community college or vocational training program
- **Dental Laboratory Technician**
 - Specialist in fabricating dental prosthetics such as crowns and dentures
 - Completes a 2-year vocational program or receives 3 to 4 years of on-the-job training

Combining Forms

1. Anorectal
2. Anorexia
3. Aphagia
4. Appendectomy
5. Appendicitis
6. Appendix
7. Biliary
8. Bradypepsia
9. Buccal
10. Buccogingival
11. Buccolabial
12. Cheilotomy
13. Cheilitis
14. Cheilorrhaphy
15. Cholangiogram
16. Cholecystectomy
17. Cholecystitis
18. Cholecystogram
19. Choledochotomy
20. Cholelithiasis

Combining Forms

21. Colectomy

22. Colonoscope

23. Colonoscopy

24. Colorectal

25. Colostomy

26. Dental

27. Dentalgia

28. Dudoenostomy

29. Duodenal

30. Dysorexia

31. Dyspepsia

32. Dysphagia

33. Enteralgia

34. Enterectomy

35. Enteritis

36. Enterocolitis

37. Enterorrhaphy

38. Gastrectomy

39. Gastritis

40. Gastrodynia

Combining Forms

41. Gastroenteritis

42. Gastroenterologist

43. Gastroenterology

44. Gastroesophageal

45. Gastromalacia

46. Gastroscope

47. Gastrostomy

48. Gingivectomy

49. Gingivitis

50. Glossectomy

51. Glossorrhaphy

52. Hematemesis

53. Hepatitis

54. Hepatoma

55. Hepatotoxic

56. Hernioplasty

57. Hypoglossal

58. Ileocecal

59. Ileojejunitis

60. Ileostomy

Combining Forms

61. Laparoscope

62. Laparotomy

63. Lithotripsy

64. Nasogastric

65. Oral

66. Orolingual

67. Orthodontic

68. Pancreatitis

69. Perirectal

70. Peritoneocentesis

71. Pharyngeal tonsil

72. Polyphagia

73. Postprandial

74. Proctoplasty

75. Proctoscope

76. Proctosigmoidoscopy

77. Pylorospasm

78. Rectal

79. Sialadenitis

80. Sialolith

81. Sialolithotomy

82. Sigmoidoscope

83. Steatorrhea

84. Stomatitis

85. Transabdominal

Vocabulary

- **anorexia**
 - A general term meaning loss of appetite that may accompany other conditions. Sometimes also used to refer to *anorexia nervosa* which is a personality disorder involving refusal to eat.
- **Ascites**
 - Collection or accumulation of fluid in the peritoneal cavity.
- **Borborygmus**
 - Rumbling and gurgling bowel sounds.
- **Bridge:**
 - Dental appliance that is attached to adjacent teeth for support to replace missing teeth.
- **Bruxism**
 - Clenching and grinding of teeth, often during sleep.
- **Caries**
 - Gradual decay and disintegration of teeth that can result in inflamed tissue and abscessed teeth. Commonly called a tooth cavity.

Vocabulary

- **Constipation**
 - Experiencing difficulty in defecation or infrequent defecation.
- **Crown**
 - An artificial covering for the tooth created to replace the original enamel.
- **Deglutination**
 - Swallowing.
- **Denture**
 - Partial or complete set of artificial teeth that are set in plastic materials. Acts as a substitute for the natural teeth and related structures.
- **diarrhea**
 - passing of frequent, watery bowel movements. Usually accompanies gastrointestinal disorders.

Vocabulary

- **Diverticulum**
 - An out pouching off the gut. May become inflamed if food becomes trapped within the pouch.
- **Ematochezia**
 - Passing bright red blood in the stools.
- **Emesis**
 - Vomiting.
- **eructation**
 - belching.
- ***Escherichia coli***
 - bacteria normally found in the intestines, but may cause damage and disease if it is carried to other areas of the body such as the urinary tract. (*E.coli*)

Vocabulary

- **flatus**
 - Passing gas.
- **Halitosis**
 - Bad or offensive breath, which can often be a sign of disease.
- **Helicobacter pylori**
 - A bacteria that may cause inflammation of the stomach lining and peptic ulcers in some people.
- **Hematemesis**
 - To vomit blood from the gastrointestinal tract, often looks like coffee grounds.
- **Ileus**
 - Severe abdominal pain, inability to pass stools, vomiting, and abdominal distension as a result of an intestinal blockage. May require surgery to reverse the blockage.

Vocabulary

- **implant**
 - Prosthetic device placed in the jaw to which a tooth or denture may be anchored.
- **Jaundice**
 - Yellow cast to the skin, mucous membranes, and the whites of the eyes caused by the deposit of bile pigment from too much bilirubin in the blood. Bilirubin is a waste product produced when worn-out red blood cells are broken down. May be a symptom of a disorder such as gallstones blocking the common bile duct or carcinoma of the liver.
- **Mastication**
 - Chewing
- **Melena**
 - Passage of dark tarry stools. Color is the result of digestive enzymes working on blood in the gut.

Vocabulary

- **nausea**
 - A feeling of needing to vomit.
- **plaque**
 - Gummy mass of microorganisms that grows on the crowns of teeth and spreads along the roots. It is colorless and transparent.
- **postprandial**
 - after a meal.
- **Regurgitation**
 - Return of fluids and solids from the stomach into the mouth.
- **Steatorrhea**
 - Passage of a large amount of fat in the stool. Caused by an inability to digest fats, usually due to a problem with the pancreatic enzymes.

Pathology

- **cleft palate**
 - Congenital anomaly in which the roof of the mouth has a split or fissure. Corrected with surgery.
- **colorectal carcinoma**
 - Cancerous tumor along the length of the colon and rectum.
- **Anal fissure**
 - Crack-like in the rectum or anal canal.
- **anal fistula**
 - Abnormal tube-like passage from the surface around the anal opening directly into the rectum.
- **cirrhosis**
 - Chronic disease of the liver associated with failure of the liver to function properly.

Pathology

- **Cleft lip**
 - congenital anomaly in which the upper lip fails to come together. Often seen along with a cleft palate. Corrected with surgery.
- **Crohn's disease**
 - Form of chronic inflammatory bowel disease affecting the ileum and/or colon. Also called *regional ileitis*. Named for Burrill Crohn, an American gastroenterologist.
- **Diverticulitis**
 - Inflammation of a Diverticulum or sac in the intestinal tract, especially in the colon
- **Dysentery**
 - Disease characterized by diarrhea, often with mucus and blood, severe abdominal pain, fever, and dehydration.

Pathology

- **esophageal stricture**
 - Narrowing of the esophagus that makes the flow of fluids and food into the stomach difficult.
- **esophageal varices**
 - Enlarged and swollen varicose veins in the lower end of the esophagus: they can rupture and result in serious hemorrhage
- **gastric carcinoma**
 - Cancerous *tumor* in the stomach.
- **gastroesophageal reflux disease**
 - Acid from the stomach backs up into the esophagus causing inflammation and pain.
- **hepatitis**
 - Inflammation of the liver, usually due to a viral infection. Different viruses are transmitted by different routes, such as sexual contact or from exposure to blood or fecally contaminated water or food.

Pathology

- **hemorrhoids**
 - Varicose veins in the rectum.
- **hiatal hernia**
 - Protrusion of the stomach through the diaphragm and extending into the thoracic cavity; gastroesophageal reflux disease is a common symptom
- **impacted wisdom tooth**
 - Wisdom tooth that is tightly wedged into the jaw bone so that it is unable to erupt
- **inflammatory bowel disease**
 - Ulceration of the mucous membranes of the colon of unknown origin. Also known as *ulcerative colitis*.
- **inguinal hernia**
 - Hernia or out pouching of intestines into the inguinal (groin) region of the body

Pathology

- **Intussusceptions**
 - Result of the intestine slipping or telescoping into another section of intestine just below it. More common in children.
- **irritable bowel syndrome (IBS)**
 - Disturbance in the functions of the intestine from unknown causes. Symptoms generally include abdominal discomfort and an alteration in bowel activity. Also called *spastic colon* or *functional bowel syndrome*.
- **malabsorption syndrome**
 - Inadequate absorption of nutrients from the intestinal tract. May be caused by a variety of diseases and disorders, such as infections and pancreatic deficiency

Pathology

- **oral leukoplakia**
 - Development of white patches on the mucous membrane inside the mouth. May develop into cancer.
- **peptic ulcer**
 - Ulcer occurring in the lower portion of the esophagus, stomach, and duodenum; thought to be caused by the acid of gastric juices
- **periodontal disease**
 - Disease of the supporting structures of the teeth, including the gums and bones.
- **polyposis**
 - Small tumors that contain a pedicle or stem-like attachment in the mucous membranes of the large intestine (colon).
- **pyloric stenosis**
 - Narrowing of the pyloric sphincter area of the stomach, may be congenital. Results in projectile (forceful) vomiting.

Diagnostic Procedures

- **pyorrhea**
 - Discharge of purulent material from dental tissue.
- **Temporomandibular disease**
 - Inflammation of the jaw joint resulting in pain and poor bite.
- **ulcerative colitis**
 - Ulceration of the mucous membranes of the colon of unknown origin. Also known as *inflammatory bowel disease* (IBD).
- **Volvulus**
 - Condition in which the bowel twists upon itself and causes an obstruction. Painful and requires immediate surgery .
- **abdominal ultrasonography:**
 - Using ultrasound equipment for producing sound waves to create an image of the abdominal organs.
- **alanine transaminase:**
 - An enzyme normally present in the blood. Blood levels are increased in persons with liver disease.

Diagnostic Procedures

- **aspartate transaminase**
 - An enzyme normally present in the blood. Blood levels are increased in persons with liver disease, a heart attack, or a skeletal muscle disease like muscular dystrophy.
- **barium enema:**
 - Radiographic examination of the small intestine, large intestine, or colon in which an enema containing barium is administered to the patient while X-ray pictures are taken. Also called a *lower G/series*.
- **barium swallow:**
 - A barium mixture swallowed while X-ray pictures are taken of the esophagus, stomach, and duodenum; used to visualize the upper gastrointestinal tract (upper GI). Also called an *upper GI series*.
- **bite-wing X-ray**
 - X-ray taken with a part of the film holder held between the teeth and parallel to the teeth.

Diagnostic Procedures

- **cholecystography**
 - The patient swallows a radiopaque dye so X-ray pictures can be taken that allow visualization of the gallbladder and its components.
- **Colonoscopy**
 - A flexible fiberscope passed through the anus, rectum, and colon is used to examine the upper portion of the colon. Polyps and small growths can be removed during this procedure
- **endoscopic retrograde cholangiopancreatography**
 - Using an endoscope to visually examine the hepatic duct, common bile duct, and pancreatic duct
- **endoscopy**
 - A general term for a procedure to visually examine the inside of a body cavity or a hollow organ using an instrument called an endoscope. Specific examples of endoscopy relating to the digestive system include colonoscopy, esophagoscopy, gastrointestinal endoscopy, and gastroscopy.

Diagnostic Procedures

- **esophagogastroduodenoscopy**
 - Use of a flexible fiber-optic scope to visually examine the esophagus, stomach, and beginning of the duodenum.
- **esophagoscopy and biopsy**
 - The esophagus is visualized by passing an instrument down the esophagus. A tissue sample for biopsy may be taken.
- **fecal occult blood test**
 - Laboratory test on the feces to determine if microscopic amounts of blood are present. Also called *hemoccult nor stool guaiac*.
- **gastroscopy**
 - A flexible gastroscope is passed through the mouth and down the esophagus in order to visualize inside the stomach. Used to diagnose peptic ulcers and gastric carcinoma.

Diagnostic Procedures

- **intravenous cholangiography**
 - A dye is administered intravenously to the patient that allows for X-ray to visualization of the bile ducts.
- **intravenous cholecystography**
 - A dye is administered intravenously to the patient that allows for X-ray visualization of the gallbladder.
- **laparoscopy**
 - A laparoscope is passed into the abdominal wall through a small incision. The abdominal cavity is then visually examined for tumors and other conditions with this lighted instrument. Also called *peritoneoscopy*.
- **liver biopsy**
 - Excision of a small piece of liver tissue for microscopic examination. Generally used to determine if cancer is present.
-

Diagnostic Procedures

- **Liver scan**
 - A radioactive substance is administered to the patient by an intravenous route. This substance enters the liver cells, and this organ can then be visualized. This is used to detect tumors, abscesses, and other pathologies that result in hepatomegaly
- **Lower gastrointestinal series (lower GI series)**
 - X-ray image of the colon and rectum is taken after the administration of barium (a radiopaque dye) by enema. Also called a *barium enema*
- **ova and parasites (O&P)**
 - Laboratory examination of feces with a microscope for the presence of parasites or their eggs
- **percutaneous transhepatic cholangiography**
 - Insertion of a needle into the abdominal cavity to withdraw fluid. Test to diagnose disease may be conducted on the fluid.

Diagnostic Procedures

- **serum bilirubin**
 - Blood test to determine the amount of the waste product bilirubin in the bloodstream. Elevated levels indicate liver disease.
- **Sigmoidoscopy**
 - Using a flexible sigmoidoscope to visually examine the sigmoid colon. Commonly done to diagnose cancer and polyps.
- **stool culture**
 - A laboratory test of feces to determine if any pathogenic bacteria are present
- **Upper gastrointestinal series**
 - Administering a barium contrast material orally and then taking an X-ray to visualize the esophagus, stomach, and duodenum. Also called a *barium swallow*.

Therapeutic Procedures

- **anastomosis**
 - Creating a passageway or opening between two organs or vessels
- **cholecystectomy**
 - Surgical excision at the gallbladder. Removal of the gallbladder through the laparoscope is a newer procedure with fewer complications than the more invasive abdominal surgery. The laparoscope requires a small incision into the abdominal cavity
- **choledocholithotomy**
 - Removal of a gallstone through an incision into the common bile duct.
- **Choledocholithotripsy**
 - Crushing of a gallstone in the common bile duct.
- **Colostomy**
 - Surgical creation of an opening of some portion of the colon through the abdominal wall to the outside surface. The fecal material (stool) drains into a bag worn on the abdomen.

Therapeutic Procedures

- **Diverticulectomy**
 - Surgical removal of a Diverticulum.
- **exploratory laparotomy**
 - Abdominal operation for the purpose of examining the abdominal organs and tissues for signs of disease or other abnormalities.
- **Extraction**
 - Removing or “pulling” of teeth.
- **Fistulectomy**
 - Excision of a fistula.
- **Gavage**
 - Using a Nasogastric tube to place liquid nourishment directly into the stomach.
- **lavage**
 - Using a Nasogastric (NO) tube to wash out the stomach.

Therapeutic Procedures

- **Hemorrhoidectomy**
 - Surgical excision of hemorrhoids from the anorectal area.
- **hepatic lobectomy**
 - Surgical removal of a lobe of the liver.
- **Hernioplasty**
 - Surgical repair of a hernia. Also called *herniorrhaphy*.

Therapeutic Procedures

- **liver transplant**
 - Transplant of a liver from a donor.
- **Nasogastric intubation**
 - A flexible catheter is inserted into the nose and down the esophagus to the stomach. May be used for feeding or to suction out stomach fluids.
- **root canal**
 - Dental treatment involving the pulp cavity of the root of a tooth. Procedure is used to save tooth that is badly infected or abscessed
- **vagotomy**
 - Surgical resection of the vagus nerve in an attempt to decrease the amount of acid secretion into the stomach. Used as a method of treatment for ulcer patients.

pharmacology

- **anorexiant**
 - Treats obesity by suppressing appetite. Used to neutralize stomach acids.
- **Antiacid**
 - Used to neutralize stomach acid
- antibiotic
 - Used to treat peptic ulcers caused by the *H. pylori* bacteria.
- **Antidiarrheal**
 - Controls diarrhea.
- **Antiemetic**
 - Treats nausea, vomiting, and motion sickness.

pharmacology

- **Emetic**
 - induces vomiting.
- **H₂-receptor antagonists**
 - When stimulated, H₂-receptors increase the production of stomach acid. Using an antagonist to block these receptors results in a low acid level in the stomach. Used to treat peptic ulcers and gastroesophageal reflux disease.
- **Laxative**
 - constipation by stimulating a bowel movement.
- **proton pump inhibitors**
 - Blocks the stomach's ability to secrete acid. Used to treat peptic ulcers and gastroesophageal reflux disease.

2) Complete the medical term by writing the missing part or word

1. Hemi _____ ectomy = removal of half of the colon
2. _____ itis = inflammation of the appendix
3. _____ rrhaphy = suture of the lip
4. Cholelitho _____ = incision for removal of gallstones
5. _____plasty = surgical repair of the mouth
6. Chol _____ gram = x-ray of bile ducts (vessels)
7. ___bilirubin___ = excessive level of bilirubin in the blood
8. gastric_____ = partial removal and repair of stomach
9. Diverticulo _____ = the presence of diverticula

3) Circle the combining form that corresponds to the meaning.

1. Abdomen	gastr/o	lapar/o	stomat/o
2. Tongue	gloss/o	proct/o	gingiv/o
3. Small intestine	col/o	appendic/o	enter/o
4. Teeth	dent/i	chol/e	lingu/o
5. stomach	lapar/o	stomat/o	gastr/o
6. cheek	bucc/o	or/o	proct/o
7. bile	col/o	celi/o	chol/e
8. mouth	gastr/o	stomat/o	lapar/o
9. liver	hepat/o	nephr/o	ren/o
10. eat	phas/o	phag/o	gloss/o
11. stone	scler/o	steat/o	lith/o
12. rectum	an/o	proct/o	col/o

4. Match the root with its meaning

1. Esophg/o
2. Hepat/o
3. Ile/o
4. proct/o
5. gloss/o
6. labi/o
7. jejun/o
8. sigmoid/o
9. gingiv/o
10. duoden/o
11. an/o
12. enter/o
13. dent/o

- a) Esophagus
- b) Tongue
- c) Lip
- d) Liver
- e) Small intestine
- f) Teeth
- g) Jejunum
- h) Sigmoid colon
- i) Gum
- j) Duodenum
- k) Ileum
- l) Anus
- m) Rectum

5. Match

- | | |
|---------------------|--|
| 1. Gastritis | A. inflammation of the stomach |
| 2. Gastrorraphy | B. study of the stomach and small intestines |
| 3. Gastroenterology | C. excision of the stomach |
| 4. Gastrotomy | D. visual exam of the stomach |
| 5. Gastrectomy | E. suture of the stomach |
| 6. Gastrosocopy | F. enlargement of the stomach |
| 7. Gastromegaly | G. incision into the stomach |

6. Match

- | | |
|--|-------------------|
| 1. inflammation of the esophagus | A. esophagectomy |
| 2. visual examination of the esophagus | B. Proctostenosis |
| 3. surgical repair of the esophagus | C. Proctoptosis |
| 4. pertaining to the esophagus | D. Esophagitis |
| 5. excision of the esophagus | E. Esophagoscopy |
| 6. narrowing of the rectum | F. Esophagoplasty |
| 7. drooping of the rectum | G. Esophageal |

7. Match

- | | |
|--------------------------------------|-----------------|
| 1. incision into the abdomen | A. Laparotomy |
| 2. visual examination of the abdomen | B. Hepatitis |
| 3. liver tumor | C. Hepatoma |
| 4. enlargement of the liver | D. Laparoscopy |
| 5. inflammation of the liver | E. Hepatomegaly |
| 6. inflammation of the pancreas | F. Colitis |
| 7. create an opening in the colon | G. Pancreatitis |
| 8. inflammation of the colon | H. Colostomy |

8. Match

1. Cholecystolithiasis
 2. Cholecystectomy
 3. coliecystolithotripsy
 4. Cholecystitis
 5. Laparoscope
 6. Proctitis
 7. Proctodynia, proctalgia
- A. inflammation of the rectum
 - B. pain in the rectum
 - C. excision of the gallbladder
 - D. condition of having gallbladder stones
 - E. gallbladder stone surgical crushing
 - F. gallbladder inflammation
 - G. instrument to view inside the abdomen

9. Match

- | | |
|--------------------------|-------------------|
| 1. taken after meals | a) anorexia |
| 2. gallstones | b) dysphagia |
| 3. no appetite | c) cholelithiasis |
| 4. difficulty swallowing | d) bradypepsia |
| 5. Vomiting blood | e) Hematemesis |
| 6. slow digestion | f) postprandial |

10. Match the term with the definition

- | | |
|------------------|---|
| 1. Eructation | a) out pouching forming off the colon |
| 2. halitosis | b) chronic liver disease |
| 3. Diverticulum | c) bad breath |
| 4. Constipation | d) small colon tumors |
| 5. Melena | e) fluid accumulation in abdominal cavity |
| 6. Ascites | f) bowel twists on self |
| 7. Cirrhosis | g) Belching |
| 8. spastic colon | h) difficulty having BM |
| 9. Polyposis | i) irritable bowel syndrome |
| 10. Volvulus | j) black tarry stool |

11. Match the term with the sentences

Colonoscopy

colostomy

Colectomy

barium swallow

liver biopsy

lower GI series

cholangiography

1. Excising a small piece of hepatic tissue for microscopic examination is called a(n) _____
2. When a surgeon performs a total or partial colectomy for cancer, she may have to create an opening on the surface of the skin for fecal matter to leave the body. This opening is called a(n) _____
3. Another name for an upper GI series is a(n) _____
4. Mr. White has had a radiopaque material placed into his large bowel by means of an enema for the purpose of viewing his colon. This procedure is called a(n) _____
5. A(n) _____ is the surgical removal of the colon.

11. Match the term with the sentences

Gastrectomy **anastomosis** **ileostomy** **Colonoscopy**
Lithotripsy **fecal occult blood test** **cholangiography**

6. Jessica has been on a red-meat-free diet in preparation for a test of her feces for the presence of hidden blood. This test is called _____
7. Dr. Mendez uses equipment to crush gallstones. This procedure is called _____
8. Opening or passageway created surgically between two organs is _____
9. Removing all or part of the stomach is _____
10. Visualizing the bile ducts by injecting a dye into the patient's arm is called an IV _____
11. Passing an instrument into the anus and rectum to see the colon is called _____
12. Ms. Fayne suffers from Crohn's disease, which has necessitated the removal of much of her small intestine. She has had a surgical passage created for the external disposal of waste material from the ileum. This is called an _____

12. Match the term with the definition

- | | |
|---------------|---|
| 1. Plaque | A. Decay |
| 2. Pyorrhea | B. prosthetic device used to anchor a tooth |
| 3. root canal | C. Inflammation of the gums |
| 4. crown | D. gummy mass of material |
| 5. Bridge | E. portion of the tooth covered by enamel |
| 6. Implant | F. replacement for missing teeth |
| 7. Gingivitis | G. purulent material |
| 8. caries | H. surgery on the tooth pulp |

Gastroenterology Consultation Report

- **Reason for Consultation:**
 - Evaluation of recurrent epigastric and LUQ pain with anemia.
- **History of Present Illness:**
 - Patient is a 56-year-old male. He reports a long history of mild dyspepsia characterized by burning epigastric pain, especially when his stomach is empty. This pain has been relieved by OTC antacids. Approximately 2 weeks ago, the pain became significantly worse and he is also nauseated and has vomited several times.
- **Past Medical History:**
 - Patient's history is not significant for other digestive system disorders. He had a tonsillectomy at age 8. He sustained a compound fracture of the left ankle in a bicycle accident at age 11 that required surgical fixation. More recently he has been diagnosed with an enlarged prostate gland (BPH) and surgery has been recommended. However, he would like to resolve this epigastric pain before going forward with the TUR (transurethral resection).

Gastroenterology Consultation Report

- **Results of Physical Examination:**
 - CBC indicates anemia and an occult blood test is positive for blood in the feces. A blood test for Helicobacter pylori is positive. An erosion in the gastric lining was visualized on an upper GI. Follow-up gastroscopy found evidence of mild reflux esophagitis and an ulcerated lesion in the lining of the pyloric section of the stomach. This ulcer is 1.5 cm in diameter and deep. There is evidence of active bleeding from the ulcer. Multiple biopsies were taken and they were negative for gastric cancer. IV Tagamet relieved the painful symptoms in 2 days.
- **Assessment:**
 - Peptic ulcer. Gastric cancer has been ruled out in light of the negative biopsies.
- **Recommendations:**
 - A gastrectomy to remove the ulcerated portion of stomach is indicated because ulcer is already bleeding. Patient should continue on Tagamet to reduce stomach acid. Two medications will be added: Keflex to treat the bacterial infection and iron pills to reverse the anemia. Patient was instructed to eat frequent small meals and avoid alcohol and irritating foods.

Chart Note, use a medical term

- **Current Complaint;**
 - a 74-year-old female seen by a physician who specializes in the treatment of the gastrointestinal tract with complaints of severe lower abdominal pain and extreme difficulty with having a bowel movement.
- **Past History:**
 - Patient has a history of the presence of gall stones requiring a surgical removal of the gallbladder 10 years ago and chronic acid backing up from the stomach into the esophagus
- **Signs and Symptoms:**
 - The patient's abdomen is distended with fluid collecting in the abdominal cavity. X-ray of the colon after inserting barium dye with an enema revealed the presence of multiple small tumors growing on a stalk throughout the colon. Visual examination of the colon by a scope inserted through the rectum was performed, and biopsies taken for microscopic examination located a tumor.
- **Diagnosis:**
 - Carcinoma of the colon between the descending colon and the rectum.
- **Treatment:**
 - surgical removal of the colon between descending colon and rectum with the surgical creation of an opening of the colon through the abdominal wall

Abbreviations Relating to the Digestive System

- Ac: before meals
- ALT: alanine transaminase
- AST: aspartate transaminase
- Ba: barium
- BE: barium enema
- BM: bowel movement
- BS: bowel sounds
- CBD: common bile duct
- Chol: cholesterol
- CUC: chronic ulcerative colitis
- E.coli Escherichia coil
- EGD: esophagogastroduodenoscopy
- ERCP: endoscopic retrograde cholangiopancreatography
- FOBT: fecal occult blood test
- GB: gallbladder
- GERD: gastroesophageal reflux disease
- GI: gastrointestinal
- HAV: hepatitis A virus
- HBV: hepatitis B virus
- HCV: hepatitis C virus
- IBD: inflammatory bowel disease
- IBS: irritable bowel syndrome
- IVC: intravenous cholangiography
- NG: nasogastric (tube)

Abbreviations Relating to the Digestive System

- NPO: nothing by mouth
- n&v: nausea and vomiting
- O&P: ova and parasites
- pc: after meals
- PEG: percutaneous endoscopic gastrostomy
- PO: by mouth
- pp: postprandial series
- PTC: percutaneous transhepatic cholangiography
- PUD: peptic ulcer disease
- RDA: recommended daily allowance
- SBFT: small bowel follow-through
- TPN: total parenteral nutrition upper gastrointestinal series
- UGI: Upper gastrointestinal

Identify the following abbreviations

1. BM

2. UGI

3. BE

4. BS

5. RDA

6. O&P

7. PO

8. CBD

9. NP0

10. Pp

11. NC

12. GI

13. HBV

14. FOBT

15. IBD

Chapter 9

Urinary System

Write out the prefixes (P), roots (R), and suffixes (S). Then define the word.

1. Cystalgia
2. Cystectomy
3. Cystitis
4. Cystolith
5. Cystoplasty
6. Cystorrhagia
7. Cystoscope
8. Cystoscopy.
9. Cystostomy
10. Cystotomy
11. Glomerulosclerosis.
12. Glycorrhea.
13. Lithotomy
14. Lithotripsy
15. Meatotomy.
16. Nephrectomy
17. Nephritis
18. Nephrogram
19. Nephrolithiasis
20. Nephroma

Write out the prefixes (P), roots (R), and suffixes (S). Then define the word.

21. Nephromalacia

22. Nephromegaly

23. Nephropathy

24. Nephropexy

25. Nephroptosis.

26. Nephrosclerosis

27. Nephrostomy

28. Nephrotomy

29. Pericystitis.

30. Polydipsia.

31. Pyelitis

32. Pyelogram

33. Pyelography.

34. Pyeloplasty

35. Pyonephritis.

36. Suprarenal.

37. Transurethral.

38. Ureterectasis

39. Ureterocele.

40. Ureterostenosis

Write out the prefixes (P), roots (R), and suffixes (S). Then define the word.

41. Ureterovesicostomy.

42. Urethralgia

43. Urethritis

44. Urethrocystitis.

45. Urethrorrhagia

46. Urethroscope

47. Urethrostenosis

48. Urinary

49. Urinometer

50. Urogram.

51. Urologist

52. Urology.

53. Vesicoureteric.

Vocabulary

- **anuria**
 - Complete suppression of urine formed by the kidneys and a complete lack of urine excretion.
- **calculus**
 - A stone formed within an organ by an accumulation of mineral salts. Found in the kidney, renal pelvis, ureters, bladder, or urethra. Plural is *calculi*
- **diuresis**
 - Increased formation and secretion of urine.
- **Enuresis**
 - Involuntary discharge of urine after the age by which bladder control should have been established. This usually occurs by the age of 5. Also called bed wetting at night.

Vocabulary

- **Escherichia coli**

- Normal bacteria found in the intestinal tract; the most common cause of lower urinary tract infections due to improper hygiene after bowel movements.

- **Frequency**

- A greater-than-normal occurrence in the urge to urinate, without an increase in the total daily volume of urine. Frequency is an indication of inflammation of the bladder or urethra.

- **Hesitancy**

- A decrease in the force of the urine stream, often with difficulty initiating the flow. It is often a symptom of a blockage along the urethra, such as an enlarged prostate gland.

- **Micturition**

- another term for urination.

- **Renal colic**

- Pain caused by a kidney stone. Can be an excruciating pain and generally requires medical treatment.

Vocabulary

- **Stricture**
 - Narrowing of a passageway in the urinary system.
- **Uremia**
 - Accumulation of waste products (especially nitrogenous wastes) in the bloodstream. Associated with renal failure.
- **Urgency**
 - Feeling the need to urinate immediately.
- **Urinary incontinence**
 - Involuntary release of urine. In some patients an indwelling catheter is inserted into the bladder for continuous urine drainage
- **Urinary retention**
 - An inability to fully empty the bladder, often indicates a blockage in the urethra.

Pathology vocabulary

- **acute tubular necrosis**
 - Damage to the renal tubules due to presence of toxins in the urine or to ischemia. Results in oliguria.
- **bladder neck obstruction**
 - Blockage of the bladder outlet. Often caused by an enlarged prostate gland in males.
- **cystocele**
 - Hernia or protrusion of the urinary bladder into the wall of the vagina.
- **diabetic nephropathy**
 - Accumulation of damage to the glomerulus capillaries due to the chronic high blood sugars of diabetes mellitus.
- **Glomerulonephritis**
 - Inflammation of the kidney (primarily of the glomerulus). Since the glomerular membrane is inflamed, it becomes more permeable and will allow protein and blood cells to enter the filtrate. Results in protein in the urine (proteinuria) and hematuria.

Pathology vocabulary

- **hydronephrosis**
 - Distention of the renal pelvis due to urine collecting in the kidney; often a result of the obstruction of a ureter.
- **interstitial cystitis**
 - Disease of unknown cause in which there is inflammation and irritation of the bladder. Most commonly seen in middle-aged women.
- **nephrolithiasis**
 - The presence of calculi in the kidney. Usually begins with the solidification of salts present in the urine.
- **polycystic kidneys**
 - Formation of multiple cysts within the kidney tissue. Results in the destruction of normal kidney tissue and uremia
- **Wilm's tumor**
 - Malignant kidney tumor found most often in children

Pathology vocabulary

- **pyelonephritis**
 - Inflammation of the renal pelvis and the kidney. One of the most common types of kidney disease. It may be the result of a lower urinary tract infection that moved up to the kidney by way of the ureters. There may be large quantities of white blood cells and bacteria in the urine. Blood (hematuria) may even be present in the urine in this condition. Can occur with any untreated or persistent case of cystitis.
- **renal failure**
 - Inability of the kidneys to filter wastes from the blood resulting in uremia. May be acute or chronic. Major reason for a patient being placed on dialysis.
- **urinary tract infection (UTI)**
 - Infection, usually from bacteria such as *E. coli*, of any organ of the urinary system. Most often begins with cystitis and may ascend into the ureters and kidneys. Most common in women because of their shorter urethra.

Diagnostic Procedures

- **blood urea nitrogen**
 - Blood test to measure kidney function by the level of nitrogenous waste, urea, that is in the blood.
- **clean catch specimen**
 - Urine sample obtained after cleaning off the urinary opening and catching or collecting a sample in midstream (halfway through the urination process) to minimize contamination from the genitalia.
- **cystography**
 - Process of instilling a contrast material or dye into the bladder by catheter to visualize the urinary bladder on X-ray.
- **Cystoscopy**
 - Visual examination of the urinary bladder using an instrument called a cystoscope.

Diagnostic Procedures

- **excretory urography**
 - Injecting dye into the bloodstream and then taking an X-ray to trace the action of the kidney as it excretes the dye.
- **intravenous pyelogram**
 - Injecting a contrast medium into a vein and then taking an X-ray to visualize the renal pelvis.
- **kidneys, ureters, bladder**
 - X-ray taken of the abdomen demonstrating the kidneys, ureters, and bladder (KUB) without using any contrast dye. Also called a *flat-plate abdomen*.
- **retrograde pyelogram**
 - A diagnostic X-ray in which dye is inserted through the urethra to outline the bladder, ureters, and renal pelvis.

Diagnostic Procedures

- **Urinalysis**
 - Laboratory test that consists of the physical, chemical, and microscopic examination of urine.
- **urine culture and sensitivity**
 - Laboratory test of urine for bacterial infection. Attempt to grow bacteria on a culture medium in order to identify it and determine which antibiotics it is sensitive to.
- **voiding cystourethrography**
 - X-ray taken to visualize the urethra while the patient is voiding after a contrast dye has been placed in the bladder.

Therapeutic Procedures

- **Catheterization**
 - Insertion of a tube through the urethra and into the urinary bladder for the purpose of withdrawing urine or inserting dye.
- **extracorporeal shockwave lithotripsy**
 - Use of ultrasound waves to break up stones. Process does not require invasive surgery
- **Hemodialysis**
 - Use of an artificial kidney machine that filters the blood of a person to remove waste products. Use of this technique in patients who have defective kidneys is lifesaving
- **lithotomy**
 - Surgical incision to remove kidney stones.

Therapeutic Procedures

- **Lithotripsy**
 - Destroying or crushing stones in the bladder or urethra.
- **meatotomy**
 - An incision into the meatus in order to enlarge the opening of the urethra.
- **Peritoneal dialysis**
 - Removal of toxic waste substances from the body by placing warm chemically balanced solutions into the peritoneal cavity. Wastes are filtered out of the blood across the peritoneum. Used in treating renal failure and certain poisonings
- **renal transplant**
 - Surgical placement of a donor kidney

Pharmacology

- **Antibiotic**
 - Used to treat bacterial urinary tract infection
- **Antispasmodic**
 - Medication to prevent or reduce bladder muscle spasms
- **diuretics**
 - medication that increases the volume of urine produced by the kidney. Useful in the treatment of edema, kidney failure, heart failure, and hypertension

2. Using nephr/o, identify the medical term for the Following.

1. Inflammation of the kidney.
2. Incision in the kidney.
3. Suture of a kidney.
4. Removal of the kidney.
5. Dilation and pooling of urine in the kidney caused by obstruction of outflow of urine.

3. Give the meanings of the following medical terms.

1. Urinary meatal stenosis.
2. Cystocele.
3. Pyelolithotomy.
4. Urethrostenosis.
5. Vesicoureteral reflux.
6. Polydipsia.
7. Cystitis
8. Polycystic kidney disease
9. Urethritis

4. Using the suffix -uria, name the following conditions of urine.

- | | |
|----------------|--|
| 1. Hematuria. | A. Presence of white blood cells in urine |
| 2. Dysuria. | B. Presence of ketone bodies in the urine. |
| 3. Oliguria. | C. Presence of glucose in the urine |
| 4. polyuria | D. Painful urination. |
| 5. Anuria. | E. Presence of blood in the urine. |
| 6. Pyuria. | F. complete lack of urine excretion. |
| 7. Glycosuria. | G. Scanty urination. |
| 8. Ketonuria. | H. Excessive amount of urine |

5. Match the following terms with their meanings below.

- | | |
|--|-----------------|
| 1. Swelling, fluid in tissues. | A. Abscess. |
| 2. Narrowed area in a tube. | B. edema. |
| 3. Collection of pus. | C. Renal colic. |
| 4. Tube for withdrawing or giving fluid. | D. Catheter. |
| 5. Severe pain resulting from a stone blocking the Ureter. | E. Stricture. |

6. Match the following procedures with their meanings below.

- | | |
|--|-----------------|
| 1. Excision of a kidney | A. meatotomy. |
| 2. Incision of the urinary meatus for enlargement. | B. Nephrectomy. |
| 3. Crushing of stones. | C. Cystectomy. |
| 4. Removal of the urinary bladder. | D. Lithotripsy |

7. State the medical terms describing the sentence

- | | |
|---|--------------------|
| 1. surgical fixation of the kidney | A. Nephrolithiasis |
| 2. X-ray record of the kidney | B. Cystitis |
| 3. condition of kidney stones | C. Cystoscope |
| 4. removal of a kidney | D. Nephrectomy |
| 5. inflammation of the kidney | E. Cystorrhagia |
| 6. kidney disease | F. Cystoplasty |
| 7. hardening of the kidney | G. Nephritis |
| 8. inflammation of the bladder | H. Nephropexy |
| 9. rapid bleeding from the bladder | I. Nephrogram |
| 10. surgical repair of the bladder | J. Nephropathy |
| 11. instrument to view inside the bladder | K. Nephrosclerosis |

8. Match medical terms describing the sentence

- | | |
|---|------------------|
| 1. bladder pain | A. Cystalgia |
| 2. surgical repair of the renal pelvis | B. Urethroplaty |
| 3. inflammation of the renal pelvis | C. Pyeloplasty |
| 4. X-ray record of the renal pelvis | D. Uretherostomy |
| 5. a ureteral stone | E. Ureterectomy |
| 6. surgical repair of a ureter | F. Pyelitis |
| 7. surgical removal of a ureter | G. Pyelogram |
| 8. surgical repair of the urethra | H. Ureterolith |
| 9. surgical creation of an opening into the urethra | I. Ureteroplasty |

9. Match the following terms

1. micturition
 2. diuretic
 3. renal colic
 4. Catheterization
 5. nephropyelitis
 6. lithotomy
 7. enuresis
 8. meatotomy
 9. diabetic nephropathy
 10. urinalysis
 11. hesitancy
- A. Incision to remove kidney stone
 - B. Enlargement of urethral opening
 - C. Urination
 - D. Increase urine production
 - E. Pain associated with kidney stone
 - F. Damage to glomerulus secondary to diabetes mellitus
 - G. Lab test of chemical composition
 - H. Decrease in force of urine stream
 - I. Inserting a tube through the urethra
 - J. Inflammation of kidney and renal pelvis
 - K. Bedwetting

10. Match

1. Wilm's tumor
 2. polycystic kidneys
 3. nephrolithiasis
 4. urgency
 5. hydronephrosis
 6. incontinence
- A. feeling the need to urinate immediately
 - B. kidney stones
 - C. multiple cysts in the kidneys
 - D. swelling of the kidney due to urine collecting in the renal pelvis
 - E. childhood malignant kidney tumor
 - F. involuntary release of urine

11. Use the following terms in the sentences that follow

renal transplant

renal biopsy

pyelolithectomy

urinary tract infection

nephroptosis

nephropexy

1. Juan donated one of her normal kidneys to her brother
2. Ali has a floating kidney, this called
3. Ali floating kidney needed fixation. The surgical procedure Known as
4. The full name for UTI
5. The surgeons operated on Robert to remove calculus from his renal pelvis The name of this surgery is
6. Charles had to have a small piece of his kidney tissue removed so that the physician could perform a microscopic evaluation This procedure is called

11. Use the following terms in the sentences that follow

cystostomy

Ureterectomy

Cystoscopy

intravenous pyelogram

7. Naomi had to have one of her ureters removed due to a stricture This procedure is called
8. The physician had to create a temporary opening between Eric's bladder and his abdominal wall. This procedure is called
9. Sally's bladder was visually examined using a special instrument. This procedure is called
10. The donors believe that Jacob has a tumor of the right kidney. They are going to do a test called a(n) that requires them to inject a radiopaque contrast medium intravenously so that they can see the kidney on X-ray

Discharge Summary

- **Admitting Diagnosis:**

- Severe right side pain, visible blood in the urine.

- **Final Diagnosis:**

- Pyelonephritis right kidney, complicated by chronic cystitis.

- **History of Present Illness:**

- Patient has long history of frequent bladder infections, but denies any recent lower pelvic pain or dysuria. Earlier today he had rapid onset of severe right side pain, and is unable to stand fully erect. His temperature was 101F and his skin was sweaty and flushed. He was admitted to ER for further evaluation.

Discharge Summary

- **Summary of Hospital Course:**

- Clean catch urinalysis revealed gross hematuria and pyuria, but no albuminuria. A C&S was ordered to identify the pathogen and a broad-spectrum IV antibiotic was started. An intravenous pyelogram indicated no calculi or obstructions in the ureters. Cystoscopy discovered evidence of chronic cystitis, bladder irritation, and a bladder neck obstruction. The obstruction appears to be congenital and the probable cause of the chronic cystitis. The patient was catheterized to ensure complete voiding of the bladder, and fluids were encouraged. Patient responded well to the antibiotic therapy and fluids, and his symptoms improved.

- **Discharge Plans:**

- Patient was discharged home after 3 days in the hospital. He was switched to an oral antibiotic for the pyelonephritis and chronic cystitis. A repeat urinalysis is scheduled for next week. After all inflammation is corrected, will repeat cystoscopy to reevaluate bladder neck obstruction. Will discuss if urethroplasty is indicated at that time

Chart Note

- **Current Complaint:**

- A 36-year-old male was seen by the specialist in the treatment of diseases of the urinary system because of right flank pain and blood in the urine.

- **Past History:**

- Patient has a history of bladder infection; denies experiencing any symptoms for 2 years.

- **Signs and Symptoms:**

- A technique used to obtain an uncontaminated urine sample obtained for laboratory analysis of the urine revealed blood in the urine, but no pus in the urine. A kidney X-ray made after inserting dye into the bladder was normal on the left, but dye was seen filling the right ureter only halfway to the kidney.

- **Diagnosis:**

- Ureterolith on the right.

- **Treatment:**

- Patient underwent extracorporeal shockwave lithotripsy. Pieces of dissolved calculi were flushed out, after which symptoms resolved.

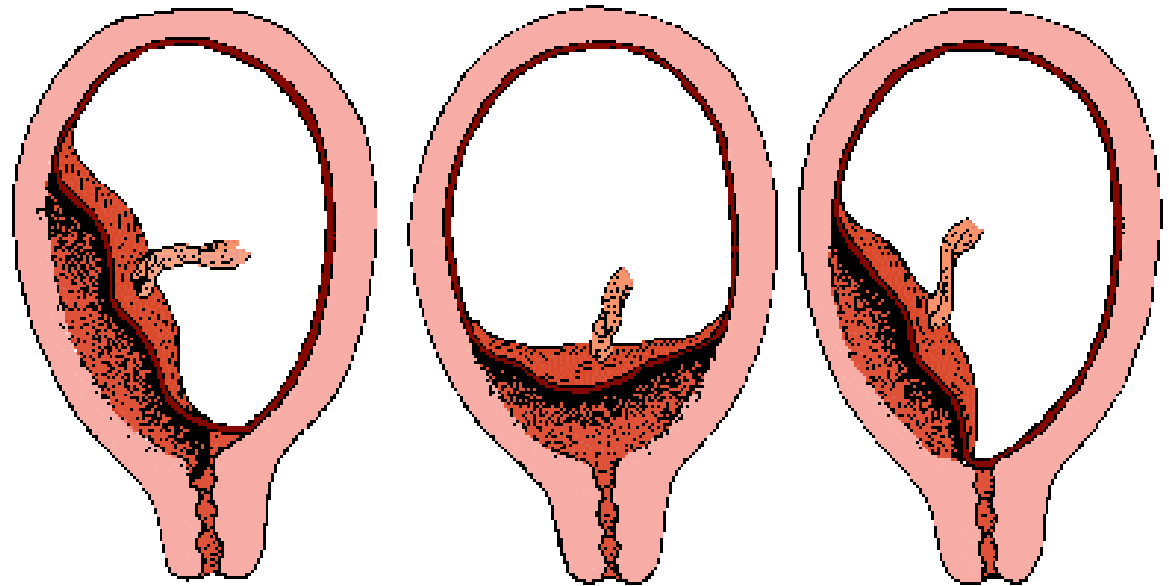
Abbreviations

- AGN = acute glomerulonephritis
- ARF = acute renal failure
- ATN = acute tubular necrosis
- BNO = bladder neck obstruction
- BUN = blood urea nitrogen
- CAPD = continuous ambulatory peritoneal dialysis
- cath = catheterization
- Cl = chloride
- CRF = chronic renal failure
- C&S = culture and sensitivity
- cysto = cystoscopic exam
- E. coli = Escherichia coil
- ESRD = end-stage renal disease
- GU = genitourinary
- H₂O = water
- K = potassium
- ESWL = extracorporeal shockwave lithotripsy
- HCO₃ = bicarbonate
- I&O = intake and output
- IPD = intermittent peritoneal dialysis
- IVP = intravenous pyelogram
- KUB = kidney, ureter, bladder
- mL = milliliter
- Na = sodium
- pH = acidity or alkalinity of urine
- RP = retrograde pyelogram
- SG = specific gravity
- U/A, UA = urinalysis
- UC = urine culture
- UTI = urinary tract infection
- VCUG = voiding cystourethrography

Chapter 10

The Reproductive Systems

Placenta



Marginal

Complete

Low-lying

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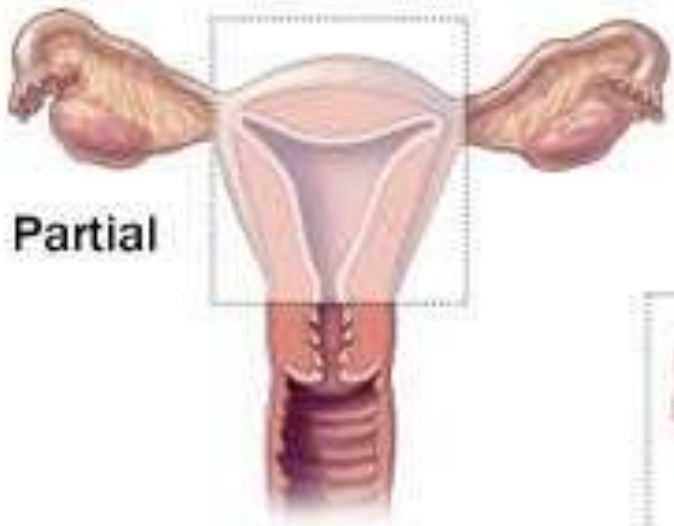
- Give The fetus nourishment
- a spongy structure forms in the uterus next to the fetus.
- commonly referred to as the afterbirth.
- attached to the fetus by the umbilical cord



Uterine Prolapse

- result from **weakening** of supporting ligaments and pelvic musculature

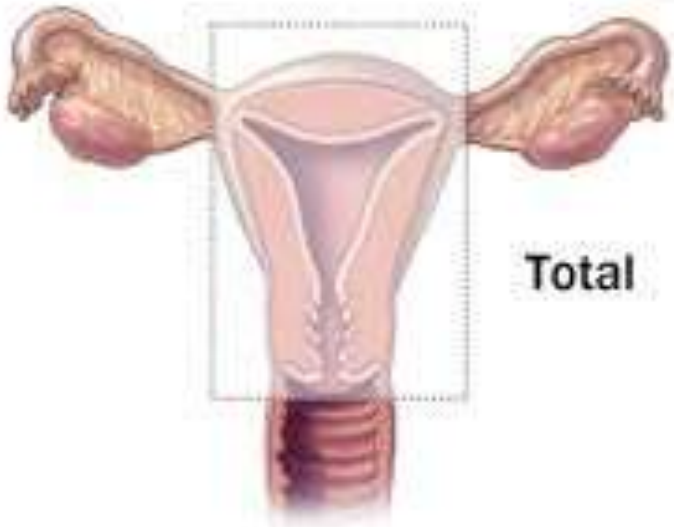
Hysterectomy



Partial



**Total with removal
of ovaries and
fallopian tubes**



Total

Episiotomy



Midline incision



Mediolateral incision

Word building

1. Amenorrhea
2. Amniotomy
3. Androgen
4. Anorchism
5. Antepartum
6. Aspermia.
7. Balanitis.
8. Balanoplasty
9. Balanorrhea
10. Cervicectomy
11. Colporrhaphy.
12. Colposcope
13. Colposcopy
14. Cryptorchidism
15. Cystoprostatectomy.
16. Dysmenorrhea
17. Dystocia.
18. Endocervical.
19. Endocervicitis
20. Endometritis

Word building

21. Epididymectomy

22. Epididymitis

23. Epididymotomy.

24. Episiorrhaphy

25. Episiotomy.

26. Gynecologist.

27. Gynecology

28. Hysterectomy

29. Hysteropexy

30. Hysterorrhexis

31. Hysterospasm.

32. Incision.

33. Lactic

34. Lactorrhea.

35. Mammogram

36. Mammography.

37. Mammoplasty

38. Mastalgia

39. Mastectomy

40. Mastitis

Word building

41. Menarche.

42. Menorrhagia

43. Metrorrhagia

44. Metrorrhea

45. Neonate

46. Neonatology

47. Oligomenorrhea.

48. Oligospermia.

49. Oophorectomy

50. Oophoritis

51. Orchiectomy.

52. Orchidopexy

53. Orchiectomy

54. Orchioplasty

55. Orchiotomy

56. Ovariocentesis.

57. Ovigenesis.

58. Pelvimeter.

59. Perimetritis

60. Polymastia.

Word building

61. Postpartum

62. Prostatectomy

63. Prostatitis

64. Prostatolith

65. Prostatolithotomy

66. Prostatomegaly.

67. Prostatorrhoea

68. Salpingitis

69. Salpingocycosis

70. Salpingostomy

71. Salpingotomy.

72. Spermatocele.

73. Spermatogenesis

74. Spermatolysis

75. Testalgia.

76. Transvaginal.

77. Uterotomy.

78. Vasectomy.

79. Vulvitis.

Vocabulary

- **menarche**
 - The girl's first menstrual period
- **Menopause**
 - the ending of menstrual activity and childbearing years
 - generally occurs between the ages of 40 and 55.
- **Ovulation**
 - the process by which one ovary releases an ovum
- **fertilization**
 - The meeting of the egg and sperm, normally takes place within the upper one-half of the fallopian tubes.
- **Tubal pregnancy**
 - When the fertilized egg adheres or implants to the fallopian tube instead of moving into the uterus
- **Ectopic pregnancy**
 - Implantation of the fertilized egg in any location other than the uterus.

Vocabulary

- **Premature**
 - If a baby is born before completing at least 37 weeks
- **Atresia**
 - Congenital lack of a normal body opening.
- **barrier contraception**
 - Prevention of a pregnancy using a device to prevent sperm from meeting an ovum. Examples include condoms, diaphragms, and cervical caps.
- **breech presentation**
 - Most correctly refers to the presentation of the buttocks in the birth canal. Commonly used to indicate presentation of any part of the fetus in the birth canal other than crown of the head
- **Colostrum**
 - A thin fluid first secreted by the breast after delivery. It does not contain much protein, but is rich in antibodies.

Vocabulary

- **Dyspareunia**
 - Painful sexual intercourse.
- **estimated date of confinement (EDC)**
 - Estimation date when the baby will be born based on a calculation from the last menstrual period of the mother.
- **fraternal twins**
 - Twins that develop from two different ova fertilized by two different sperm. These siblings do not have identical DNA.
- **identical twins.**
 - Twins that develop from the splitting of one fertilized ovum. These siblings have identical DNA.
- **Gestation.**
 - Length of time from conception to birth, generally 9 months. Calculated from the first day of the last menstrual period, with a range of from 259 days to 280 days.

Vocabulary

- **Infertility**
 - Inability to produce children. Generally defined as no pregnancy after properly timed intercourse for 1 year.
- **intrauterine device (IUD)**
 - Device inserted into the uterus by a physician for the purpose of contraception.
- **last menstrual period (LMP)**
 - Date when the last menstrual period started.
- **low birth weight (LBW)**
 - Abnormally low weight in a newborn. It is usually considered to be less than 5.5 pounds.
- **meconium**
 - The first bowel movement of a newborn. It is greenish in color and consists of mucus and bile.

Vocabulary

- **neonate**
 - Term used to describe the newborn infant during the first 4 weeks of life
- **obstetrician**
 - A physician specializing in providing care for pregnant women and delivering infants
- **obstetrics (OB)**
 - Branch of medicine that treats women during pregnancy and childbirth, and immediately after childbirth.
- **parturition**
 - Childbirth.
- **premenstrual syndrome (PMS)**
 - Symptoms that develop just prior to the onset of a menstrual period, which can include irritability, headache, tender breasts, and anxiety.

Vocabulary

- **puberty**
 - Beginning of menstruation and the ability to reproduce.
- **Puerperium**
 - refer to the 3 to 6 week period after childbirth.

Pathology Relating to the Female Reproductive System

- **abruptio placentae**
 - Emergency condition in which the placenta tears away from the uterine wall before the 20th week of pregnancy. Requires immediate delivery of the baby.
- **breast cancer**
 - Malignant tumor of the breast. Usually forms in the milk-producing gland tissue or the lining of the milk ducts
- **Candidiasis**
 - Yeast infection of the skin and mucous membranes that can result in white plaques on the tongue and vagina
- **Cervical cancer**
 - Malignant growth in the cervix. An especially difficult type of cancer to treat that causes 5% of the cancer deaths in women. Pap smear tests have helped to detect early cervical cancer.

Vocabulary

- **choriocarcinoma**
 - Rare type of cancer of the uterus. May occur following a normal pregnancy or abortion.
- **condyloma**
 - Wart-like growth on the external genitalia.
- **Cystocele**
 - Hernia or outpouching of the bladder into the vagina. This may cause urinary frequency and urgency.
- **eclampsia**
 - Convulsive seizures and coma occurring in the woman between the 20th week of pregnancy and the first week of postpartum. Preceded by preeclampsia.

Vocabulary

- **Down syndrome**

- Genetic disorder named after J.H.L. Down, a British physician, that produces moderate-to-severe mental retardation and multiple birth defects. The physical characteristics of a child with this disorder are a sloping forehead, flat nose or absent bridge to the nose, low-set eyes, and a generally dwarfed physical growth. The disorder occurs more commonly when the mother is over age 40

- **endometrial cancer**

- Cancer of the endometrial lining of the uterus.

- **Endometriosis**

- Abnormal condition of endometrium tissue appearing throughout the pelvis or on the abdominal wall. This tissue is normally found within the uterus.

Vocabulary

- **erythroblastosis fetalis**
 - Condition developing in the baby when the mother's blood type is Rh-negative and the baby's blood is Rh-positive. The baby's red blood cells can be destroyed as a result of this condition. Treatment is early diagnosis and blood transfusion. Also called hemolytic disease of the newborn.
- **Fibrocystic breast disease**
 - Benign cysts forming in the breast.
- **fibroid tumor**
 - Benign tumor or growth that contains fiber-like tissue. Uterine fibroid tumors are the most common tumors in women
- **menorrhagia**
 - Excessive bleeding during the menstrual period. Can be the total number of days or the amount of blood or both.

Vocabulary

- **ovarian cyst**
 - Cyst that develops within the ovary. These may be multiple cysts and may rupture causing pain and bleeding.
- **pelvic inflammatory disease**
 - Any inflammation of the female reproductive organs, generally bacterial in nature.
- **placenta previa**
 - When the placenta has become placed in the lower portion of the uterus and, in turn, blocks the birth canal
- **Preeclampsia**
 - Metabolic disease of pregnancy. If untreated, it may result in true eclampsia. Symptoms include hypertension, headaches, albumin in the urine, and edema. Also called toxemia.
- **ovarian carcinoma**
 - Cancer of the ovary.

Vocabulary

- **Prolapsed uterus**
 - Fallen uterus can cause the cervix to protrude through the vaginal opening. Generally caused by weakened muscles from vaginal delivery or as the result of pelvic tumors pressing down.
- **Rectocele**
 - protrusion or herniation of the rectum into the vagina.
- **Stillbirth**
 - Birth in which a viable-aged fetus dies before or at the time of delivery.
- **toxic shock syndrome (TSS)**
 - Rare and sometimes fatal staphylococcus infection that generally occurs in menstruating women.
- **Prolapsed umbilical cord**
 - When the umbilical cord of the baby is expelled first during delivery and is squeezed between the baby's head and the vaginal wall. This presents an emergency situation since the baby's circulation is compromised.

Diagnostic Procedures

- **Amniocentesis**
 - Puncturing of the amniotic sac using a needle and syringe for the purpose of withdrawing amniotic fluid for testing. Can assist in determining fetal maturity, development, and genetic disorders.
- **Apgar**
 - Evaluation of a neonate's adjustment to the outside world. Observes color, heart rate, muscle tone, respiratory rate, and response to stimulus.
- **cervical biopsy**
 - Taking a sample of tissue from the cervix to test for the presence of cancer cells
- **chorionic villus**
 - Removal of a small piece of the chorion for genetic analysis. May be done at an earlier stage of pregnancy than amniocentesis.
- **endometrial biopsy**
 - Taking a sample of tissue from the lining of the uterus to test for abnormalities.

Diagnostic Procedures

- **Fetal monitoring**
 - Using electronic equipment placed on the mother's abdomen to check the fetal heart rate (FHR) and fetal heart tone (FHT) during labor. The normal heart rate of the fetus is rapid, ranging from 120 to 160 beats per minute. A drop in the fetal heart rate indicates the fetus is in distress.
- **hysterosalpingography (HSG)**
 - Taking an X-ray after injecting radiopaque material into the uterus and fallopian tubes.
- **Mammography**
 - Using X-ray to diagnose breast disease, especially breast cancer.
- **laparoscopy**
 - Examination of the peritoneal cavity using an instrument called a laparoscope. The instrument is passed through a small incision made by the surgeon into the abdominopelvic cavity

Diagnostic Procedures

- **PAP smear**
 - Test for the early detection of cancer of the cervix. Named after George Papanicolaou, a Greek physician. A scraping of cells is removed from the cervix for examination under a microscope.
- **pelvic examination**
 - Physical examination of the vagina and adjacent organs performed by a physician placing the fingers of one hand into the vagina. A visual examination is performed using a speculum
- **pelvic ultrasonography**
 - Use of ultrasound to produce an image of pelvic organs or fetus.
- **pelvimetry**
 - Measurement of the pelvic area that helps in determining if the fetus can be delivered vaginally.
- **pregnancy test**
 - Chemical test determine a pregnancy during the first few weeks. Can be performed in a physician's office or with a home-testing kit.

Therapeutic Procedures Relating to the Female Reproductive System

- **Cauterization**
 - Destruction of tissue using an electric current, a caustic product, a hot iron, or by freezing.
- **Cesarean section(CS, C-section)**
 - Surgical delivery of a baby through an incision into the abdominal and uterine walls. Legend has it that the Roman emperor, Julius Caesar, was the first person born by this method.
- **conization**
 - Surgical removal of a core of cervical tissue. Also refers to partial removal of the cervix.
- **Cryosurgery**
 - Exposing tissues to extreme cold to destroy tissues. Used in treating malignant tumors, and to control pain and bleeding.

Therapeutic Procedures Relating to the Female Reproductive System

- **culdoscopy**
 - Examination of the female pelvic cavity by introducing an endoscope through the wall of the vagina.
- **dilation and curettage**
 - Surgical procedure in which the opening of the cervix is dilated and the uterus is scraped or suctioned of its lining or tissue. Often performed after a spontaneous abortion and to stop excessive bleeding from other causes.
- **episiotomy**
 - Surgical incision of the perineum to facilitate the delivery process. Can prevent an irregular tearing of tissue during birth.
- **genetic counseling**
 - Evaluation of parents' potential for producing a child with a genetic disease. Especially important for families with a history of genetic diseases

Therapeutic Procedures Relating to the Female Reproductive System

- **hymenectomy**
 - Surgical removal of the hymen. Performed when the hymen tissue is particularly tough
- **Kegel exercises**
 - Exercises named after A. H. Kegel, an American gynecologist, who developed them to strengthen female pubic muscles. The exercises are useful in treating incontinence and as an aid in the childbirth process.
- **Laparotomy**
 - Surgical opening of the abdomen; an abdominal operation.
- **Lumpectomy**
 - Excision of only a breast tumor and the tissue immediately surrounding it.
- **radical mastectomy**
 - Surgical removal of the breast tissue plus chest muscles and axillary lymph nodes.

Therapeutic Procedures Relating to the Female Reproductive System

- **simple mastectomy**
 - Surgical removal of the breast tissue.
- **total abdominal hysterectomy – bilateral salpingo-oophorectomy**
 - Removal of the entire uterus, cervix, both ovaries, and both fallopian tubes.
- **tubal ligation**
 - Surgical tying off of the fallopian tubes to prevent conception from taking place. Results in sterilization of the female.
- **vaginal hysterectomy**
 - Removal of the uterus through the vagina rather than through an abdominal incision.

Pharmacology Relating to the Female Reproductive System

- **hormone replacement therapy (HRT)**
 - Menopause or the surgical loss of the ovaries results in the lack of estrogen production. Replacing this estrogen with an oral medication prevents some of the consequences of menopause, especially in younger woman who have surgically lost their ovaries.
- **oral contraceptive pills (OCPs)**
 - Birth control medication that uses low doses of female hormones to prevent conception by blocking ovulation.
- **oxytocin**
 - Oxytocin is a natural hormone that improves uterine contractions during labor and delivery.

Abbreviations Relating to the Female Reproductive System

- AB = Abortion
- AI= artificial insemination
- BSE = breast self-examination
- CPD = cephalopelvic disproportion
- CS, C-section = cesarean section
- CVS = chorionic villus sampling
- Cx = cervix
- D&C = dilation and curettage
- DOB = date of birth
- DUB = dysfunctional uterine bleeding
- ECC = endocervical curettage
- EDC = estimated date of confinement
- EMB = endometrial biopsy
- ERT = estrogen replacement therapy
- FEKG = fetal electrocardiogram
- FHR = fetal heart rate
- FHT = fetal heart tone

Abbreviations Relating to the Female Reproductive System

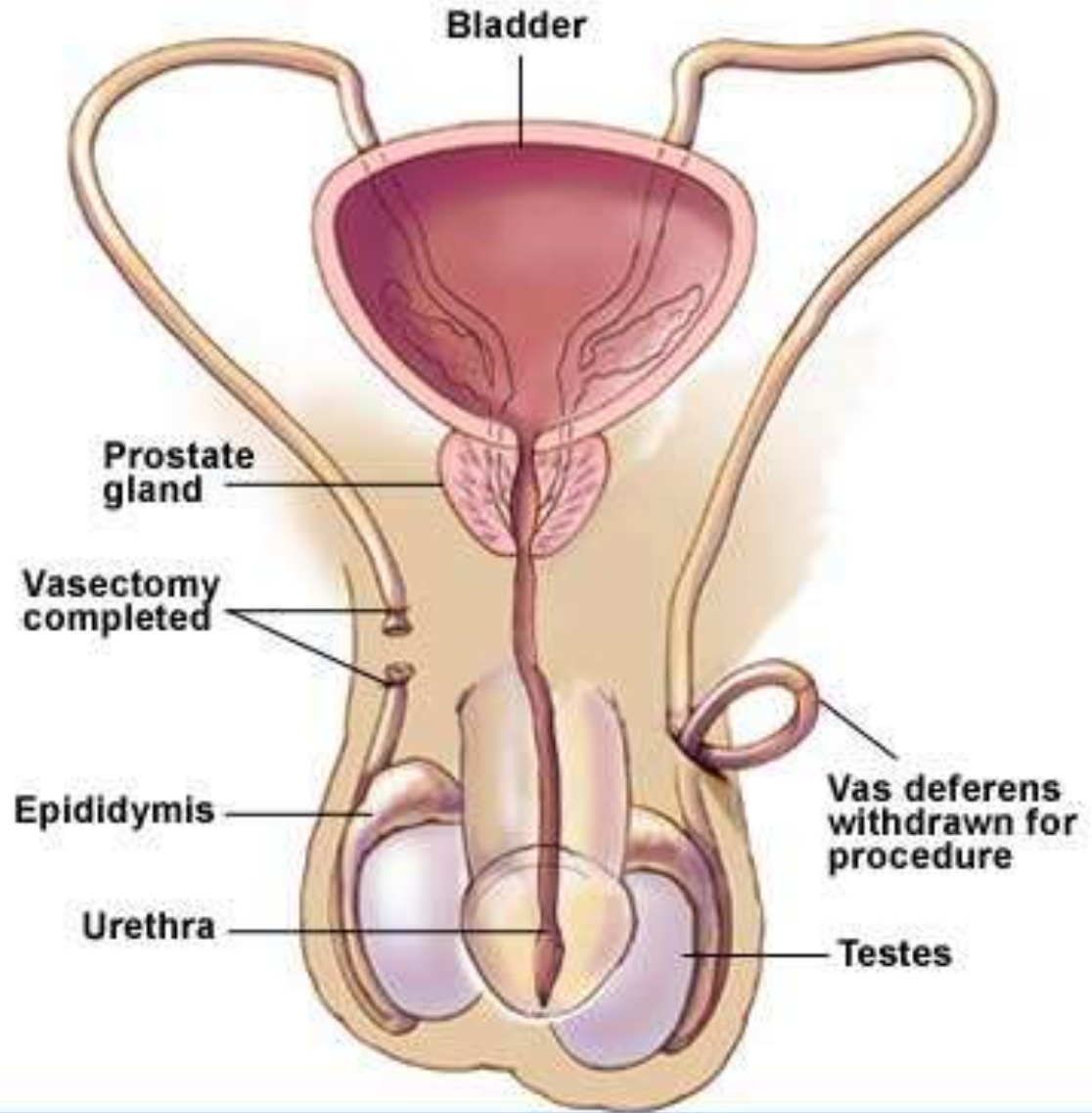
- FSH = follicle-stimulating hormone
- FTND = full-term normal delivery
- GI, grav I = first pregnancy
- GYN, gyn = gynecology
- HCG, hCG = human chorionic gonadotropin
- HRT = hormone replacement therapy
- HSG = hysterosalpingography
- IUD = intrauterine device
- IVF = in vitro fertilization
- LAVH = laparoscopic assisted vaginal hysterectomy
- LBW = low birth weight
- LH = luteinizing hormone
- LMP = last menstrual period
- MH = marital history
- NB = newborn

Abbreviations Relating to the Female Reproductive System

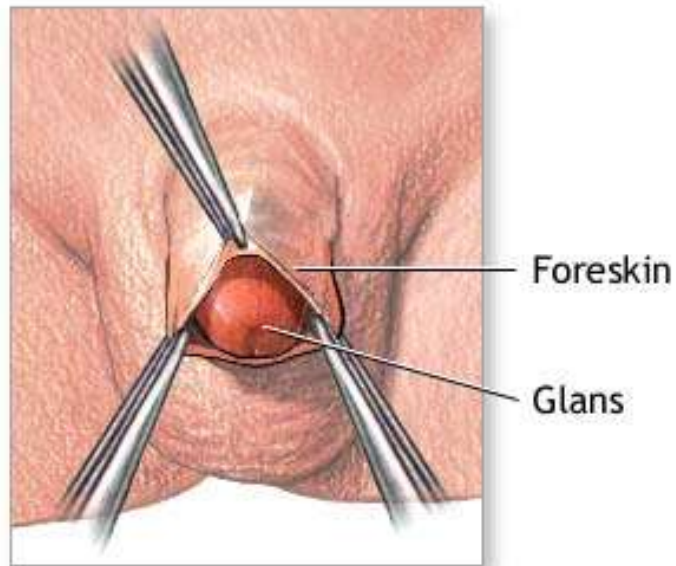
- NGU = nongonococcal urethritis
- OB = obstetrics
- OCPs = oral contraceptive pills
- PAP = Papanicolaou test
- Pl, para I = first delivery
- PID = pelvic inflammatory disease
- PKU = phenylketonuria
- PMP = previous menstrual period
- PMS = premenstrual syndrome
- TAH-BSO = total abdominal hysterectomy—bilateral salpingo-oophorectomy
- TSS = toxic shock syndrome
- UC = uterine contractions

Vasectomy

- severing the vas deferens.
- This results in sterilization since the sperms are no longer able to travel into the urethra and out of the penis during sexual intercourse.



Circumcision



Before



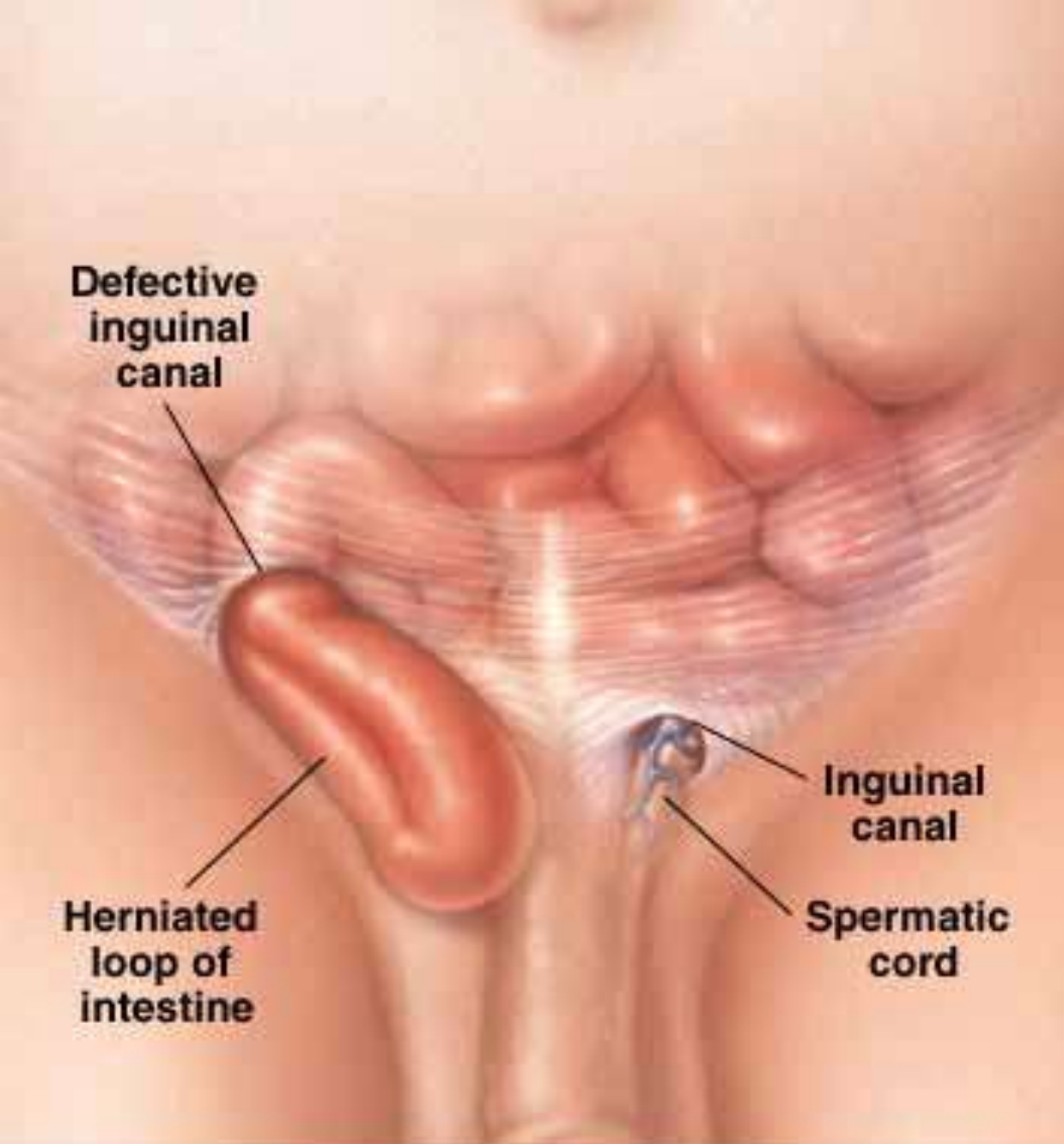
Normal healing



After



Inguinal Hernias



Vocabulary Relating to the Male Reproductive System

- **ejaculation**
 - The release of semen through the urethra.
- **erectile dysfunction (ED)**
 - Inability to engage in sexual intercourse due to inability to maintain an erection. Also called impotence.
- **impotence**
 - Inability to engage in sexual intercourse due to inability to maintain an erection. Also called erectile dysfunction.
- **spermatolytic**
 - Destruction of sperm. One form of birth control is the use of spermatolytic creams.
- **Sterility**
 - Inability to father children due to a problem with spermatogenesis.

Vocabulary Relating to the Male Reproductive System Pathology

- **benign prostatic hypertrophy**
 - Noncancerous enlargement of the prostate gland commonly seen in males over age 50.
- **Chancroid**
 - Highly infectious nonsyphilitic venereal ulcer
- **Chlamydia**
 - Parasitic microorganism causing genital infections in males and females. Can lead to pelvic inflammatory disease in females and eventual infertility.
- **Cryptorchidism**
 - Failure of the testes to descend into the scrotal sac before birth. Generally, the testes will descend before a boy is 1 year old. A surgical procedure called orchidopexy may be required to bring the testes down into the scrotum permanently. Failure of the testes to descend could result in sterility in the male.
- **Testicular cancer**
 - Cancer of one or both testicles.

Vocabulary Relating to the Male Reproductive System

- **epispadias**
 - Congenital opening of the urethra on the dorsal surface of the penis.
- **genital herpes**
 - Creeping skin disease that can appear like a blister or vesicle, caused by a sexually transmitted virus.
- **genital warts**
 - Growth of warts on the genitalia of both males and females that can lead to cancer of the cervix in females. Caused by the sexual transmission of the human papilloma virus (HPV).
- **gonorrhea**
 - Sexually transmitted inflammation of the mucous membranes of either sex. Can be passed on to an infant during the birth process.
- **hydrocele**
 - Accumulation of fluid within the testes. Common in infants.

Vocabulary Relating to the Male Reproductive System

- **hypospadias**
 - Congenital opening of the male urethra on the underside of the penis.
- **phimosis**
 - Narrowing of the foreskin over the glans penis that results in difficulty with hygiene. This condition can lead to infection or difficulty with urination. The condition is treated with circumcision, the surgical removal of the foreskin.
- **Prostate cancer**
 - Slow-growing cancer that affects a large number of males after age 50. The PSA (prostate-specific antigen) test is used to assist in early detection of this disease.
- **Sexually transmitted disease**
 - Disease usually acquired as the result of sexual intercourse. Formerly more commonly referred to as venereal disease (VD).

Vocabulary Relating to the Male Reproductive System

- **syphilis**
 - Infectious, chronic, venereal disease that can involve any organ. May exist for years without symptoms, but is fatal if untreated. Treated with the antibiotic penicillin.
- **Testicular torsion**
 - A twisting of the spermatic cord.
- **trichomoniasis**
 - Genitourinary infection that is usually without symptoms (asymptomatic) in both males and females. In women the disease can produce itching and/or burning, a foul-smelling discharge, and result in vaginitis.
- **Varicocele**
 - Enlargement of the veins of the spermatic cord that commonly occurs on the left side of adolescent males.
- **venereal disease**
 - Disease usually acquired as the result of sexual intercourse. More referred to as sexually transmitted disease (STD).

Diagnostic Procedures

- **Digital exam**
 - Manual examination for an enlarged prostate gland performed by palpating (feeling) the prostate gland through the wall of the rectum.
- **Prostate-specific antigen**
 - A blood test to screen for prostate cancer. Elevated blood levels of PSA are associated with prostate cancer.
- **Semen analysis**
 - This procedure is used when performing a fertility workup to determine if the male is able to produce sperm. Semen is collected by the patient after abstaining from sexual intercourse for a period of 3 to 5 days. The sperm in the semen are analyzed for number, swimming strength, and shape. Also used to determine if a vasectomy has been successful. After a period of 6 weeks, no further sperm should be present in a sample from the patient.

Therapeutic Procedures Relating to the Male Reproductive System

- **castration**
 - Excision of the testicles in the male or the ovaries in the female.
- **circumcision**
 - Surgical removal of the end of the prepuce or foreskin of the penis. Generally performed on the newborn male at the request of the parents. The primary reason is for ease of hygiene. Circumcision is also a ritual practice in some religions.
- **orchidopexy**
 - Surgical fixation to move undescended testes into the scrotum, and to attach them to prevent retraction. Used to treat cryptorchidism.
- **Sterilization**
 - Process of rendering a male or female sterile or unable to conceive children.

Therapeutic Procedures Relating to the Male Reproductive System

- **Transurethral resection of the prostate**
 - Surgical removal of the prostate gland by inserting a device through the urethra and removing prostate tissue.
- **vasectomy**
 - Removal of a segment or all of the vas deferens to prevent sperm from leaving the male body. Used for contraception purposes

Pharmacology Relating to the Male Reproductive System

- **Androgen**
 - Replacement male hormones to treat patients who produce insufficient hormone naturally.
- **Antiprostatic**
 - Medication to treat early cases of benign prostatic hypertrophy. May prevent surgery for mild cases.
- **erectile dysfunction agents**
 - Medication that temporarily produces an erection in patients with erectile dysfunction agents dysfunction.

Abbreviations Relating to the Male Reproductive System

- BPH = benign prostatic hypertrophy
- DRE = digital rectal exam
- ED = erectile dysfunction
- GC = gonorrhea
- GU = genitourinary
- HPV = human papilloma virus
- HSV = herpes simplex virus
- NGU = nongonococcal urethritis
- PSA = prostate-specific antigen
- RPR = rapid plasma reagin (test for syphilis)
- SPP = suprapubic prostatectomy
- STD = sexually transmitted disease
- TUR = transurethral resection
- TURP = transurethral resection of the prostate
- VD = venereal disease

2. Match the following

Metrorrhagia.

Dysmenorrhea.

Amenorrhea.

Menorrhagia.

Gynecomastia.

1. Painful menstruation.
2. Absence of menstruation.
3. Excessive bleeding at time of menstruation.
4. Bleeding from the uterus at any time other than the normal period.
5. Development of mammary glands in male.

3. Circle the combining form that corresponds to the meaning given.

- | | | | |
|--------------------|----------|----------|----------|
| 1. Birth or labor. | tox/o | toc/o | troph/o |
| 2. Vagina. | uter/o | metr/o | colp/o |
| 3. Uterine tube. | vagin/o | oophor/o | salpin/o |
| 4. Menstruation. | men/o | mamm/o | mast/o |
| 5. Egg. | oophor/o | ov/i | ovario/o |
| 6. Vulva. | episi/o | vagin/o | metr/o |
| 7. Uterus. | vagin/o | metr/o | oophor/o |
| 8. Breast. | men/o | metr/o | mast/o |

4. Match the following.

- | | |
|------------------|--|
| 1. Retroflexion. | A. forward bends of uterus. |
| 2. Condylomata. | B. toxemia of pregnancy. |
| 3. Para 2. | C. backward bend of uterus. |
| 4. Prolapse. | D. A pregnant woman. |
| 5. Cystocele. | E. genital warts. |
| 6. Gravida. | F. First delivery. |
| 7. Rectocele. | G. woman who has given birth twice |
| 8. Eclampsia. | H. descent of uterus from its normal position. |
| 9. Primipara. | I. protrusion of rectum into vagina. |
| 10. Antelexion. | J. pouching of bladder into vagina. |

5. Circle the combining form that corresponds to the meaning given

1. testis	prostate/o	epididym/o	archi/o
2. Perineum	peritone/o	perine/o	prostate/o
3. sperm	test/o	orchid/o	spermat/o
4. vessel	aden/o	angina/o	vas/o
5. glans penis	prostate/o	orchid/o	balan/o
6. Epididymis	epididym/o	sperm/o	vas/o

6. Match the terms below with their descriptions.

- **Human chorionic gonadotropin.** **Menarche.**
 - **Luteinizing hormone.** **Follicle-stimulating hormone.**
1. A hormone produced by the pituitary gland to stimulate the maturation of the ovarian follicle.
 2. Beginning of the first menstrual period during puberty.
 3. Hormone produced by the placenta to sustain pregnancy.
 4. Hormone produced by the pituitary gland to promote ovulation.

7. Match the following terms with their meanings below.

Lactogenesis.

Neonatology.

Vulvovaginitis.

Oxytocin.

Culdocentesis

Total hysterectomy.

Bilateral salpingo-oophorectomy.

1. Study of the newborn.
2. Hormone that stimulates the pregnant uterus to contract.
3. Production of milk.
4. Removal of the entire uterus.
5. Removal of both fallopian tubes and both ovaries.
6. Inflammation of the external female genitalia and vagina.
7. Needle puncture to remove fluid from the cul-de-sac.

8. Give the meanings of the following symptoms.

1. Leukorrhoea.
2. Galactorrhoea.
3. Pyosalpinx.
4. Dyspareunia.
5. Menometrorrhagia.
6. Oligomenorrhoea.
7. Dysmenorrhoea
8. Miscarry

9. Match the obstetrical and neonatal terms with the description given below

Abortion . Apgar score. Pelvimetry. Fontanel.
Hydrocephalus. Meconium aspiration syndrome.
Newborn respiratory distress syndrome

1. Measurement of the dimensions of the maternal pelvic bone.
2. The soft spot between the newborn's cranial bones.
3. The evaluation of the newborns physical condition.
4. Premature termination of pregnancy is known as.
5. Acute lung disease in the premature newborn: surfactant deficiency.
6. Accumulation of fluid in the spaces of a neonate's brain.
7. Condition resulting from inhalation of a thick, sticky black substance by the newborn.

10. Match the term on the left with the meaning on the right.

1. Castration.
2. Cryosurgery.
3. Ejaculation.
4. Vasectomy.
5. Circumcision.
6. Purulent.

- A. Ejection of sperm and fluid from the urethra.
- B. Removal of a piece of the vas deferens.
- C. Orchiectomy.
- D. Removal of the prepuce.
- E. Destruction of tissue by freezing.
- F. Pus-filled.

11. State the terms described

1. Visual examination of the vagina
 2. instrument used to examine the vagina
 3. suture of the vagina
 4. inflammation of the cervix
 5. pertaining to the cervix
 6. Uterine disease
 7. surgical fixation of the uterus
 8. removal of the uterus
 9. rupture of the uterus
- A. Cervical
 - B. Colposcope
 - C. Colporrhaphy
 - D. Hysteropathy
 - E. Hysteropexy
 - F. Hysterectomy
 - G. Hysterorehexis
 - H. Colposcopy
 - I. Cervicitis

12. State the terms described

1. suture of the uterus
 2. inflammation of an ovary
 3. excision of an ovary
 4. multiple pregnancies
 5. no pregnancies
 6. first pregnancy
 7. never bearing offspring
 8. to bear multiple offspring
 9. to bear first offspring
- A. Primigravida
 - B. oophorectomy
 - C. Nullipara
 - D. Multipara
 - E. Primipara
 - F. Oophoritis
 - G. Multigravida
 - H. Nulligravida
 - I. Hysterorrhaphy

13. Define the following combining terms.

1. metr/o
2. gynec/o
3. episi/o
4. oophor/o
5. salping/o
6. men/o
7. vagin/o
8. mamm/o

- A. Ovary
- B. Fallopian tube
- C. Uterus
- D. Menstruation
- E. Vagina
- F. breast
- G. Female
- H. Vulva

14. Match

premenstrual syndrome

stillbirth

Laparoscopy

Conization

1. Alicia had a core of tissue from her cervix removed for testing. This is called
2. Joan delivered a baby that had died while still in the uterus. She had a(n)
3. Kimberly is experiencing tender breasts, headaches, and some irritability just prior to her monthly menstrual cycle. This may be
4. Ana has been scheduled for an examination in which her physician will use an instrument to observe her abdominal cavity to rule out the diagnosis of severe endometriosis. The physician will insert the instrument through a small incision. This procedure is called a(n)

14. Match

D&C

fibroid tumor

C-section

Endometriosis

eclampsia

5. Lenora is scheduled to have a hysterectomy as a result of a long history of large benign growths in her uterus that have caused pain and bleeding. Lenora has a(n) _____.
6. Tiffany's physician has recommended that she have a uterine scraping to stop excessive bleeding after a miscarriage. She will be scheduled for a _____.
7. Stacy is having frequent prenatal checkups to prevent the serious condition of pregnancy called _____.
8. Marion has experienced painful menstrual periods as a result of the lining of her uterus being displaced into her pelvic cavity. This is called _____.
9. The results of Sara's pelvimetry indicate that she will probably require a(n) _____ for her baby's delivery.

15. Give the Medical term

- | | |
|--|-------------------|
| 1. removal of prostate | A. Orchiectomy |
| 2. inflammation of the prostate | B. Vesiculopathy |
| 3. flow from the prostate | C. Orchioplasty |
| 4. excision of the testes | D. Vesiculitis |
| 5. surgical repair of the testes | E. Prostatectomy |
| 6. incision into the testes | F. Orchiotomy |
| 7. disease of the testes | G. Orchiorrhaphy |
| 8. disease of the seminal vesicle | H. Prostatitis |
| 9. inflammation of the seminal vesicle | I. Prostatorrhoea |

Case study

- **Reason for Consultation:**
 - High-risk pregnancy with late-term bleeding
- **History of Present Illness:**
 - Patient is 23 years old. She is currently estimated to be at 240 days of gestation. She has had a 23-lb weight gain with this pregnancy. Amniocentesis at 20 weeks indicated male fetus with no evidence of genetic or developmental disorders. She noticed a moderate degree of vaginal bleeding this morning but denies any cramping or pelvic pain. She immediately saw her obstetrician who referred her for high-risk evaluation.
- **Past Medical History:**
 - This patient is multigravida but nullipara with three early miscarriages without obvious cause. She was diagnosed with cancer of the left ovary 4 years ago. It was treated with a left oophorectomy and chemotherapy. She continues to undergo full-body CT scan every 6 months, and there has been no evidence of metastases since that time. Menarche was at age 13 and her menstrual history is significant for menorrhagia resulting in chronic anemia.

Case study

- **Results of Physical Examination:**

- Patient appears well nourished and abdominal girth appears consistent with length of gestation. She is understandably quite anxious regarding the sudden spotting. Pelvic ultrasound indicates placenta previa with placenta almost completely overlying cervix. However, there is no evidence of abruptio placentae at this time. Fetal size estimate is consistent with 25 weeks of gestation. The fetus is turned head down and the umbilical cord is not around the neck. The fetal heart tones are strong with a rate of 90 bpm. There is no evidence of cervical effacement or dilation at this time.

- **Recommendations:**

- Fetus is developing well and in no distress at this time. The placenta is well attached on ultrasound, but the bleeding is cause for concern. With the extremely low position of the placenta, this patient is at very high risk for abruptio placentae when cervix begins effacement and dilation. She require early delivery by C-section at that time. She will definitely require C-section at onset of labor. At this time, recommend bed rest with bathroom privileges. She is to return every other day for 2 weeks and every day after that for evaluation of cervix and fetal condition. She is to call immediately if she notes any further bleeding or change in activity level of the fetus.

Use a medical term

- **Current Complaint:**
 - Patient is a 77-year-old male seen by the urologist with complaints of nocturia and difficulty with ejaculation.
- **Past History:**
 - the patient had cryptorchidism at birth, which was repaired by orchidopexy. He had also undergone vasectomy at the age of 41.
- **Signs and Symptoms:**
 - Patient noted these symptoms about 5 years ago. They have become increasingly severe and now he is not able to sleep without waking up to urinate up to 20 times a night and has difficulty completing the process of sexual relations. Palpation of the prostate gland through the rectum revealed multiple round firm nodules in prostate gland. A needle biopsy was negative for prostate cancer and PSA test was normal.
- **Diagnosis:** benign prostatic hypertrophy.
- **Treatment:** transurethral resection of prostate.

Special Topics

Chapter 14

Pharmacists

- Pharmacology study the origin, characteristics, and effects of drugs.
- **Pharmacists** Fill prescriptions as written by physicians, dentists, and other doctors
- Graduates from 5-6 year program
- Completes an internship
- Passes an examination
- gathers information that would affect the patient
 - allergies, Drug interactions, patient history.
- provides health care workers with information regarding drugs
- educate the public concerning their drugs.
- They work in acute and long-term care facilities, clinics, community based pharmacies, health departments, and pharmaceutical companies.

Pharmacy Technician

- Works under the supervision of a pharmacist
- Performs computer order entry, generates prescription labels, and keeps electronic patient profiles
- Completes a 1- to 2-year associate degree
- Some states offer certification

Drugs

- Drugs = medication
- Comes from food such as vitamins
- From animal such as hormones
- From molds such as Penicillin
- Plants
- Synthetic

Drug Names

- **chemical name:**
 - describes chemical formula or structure of a drug.
 - chemical names are usually very long
- **generic name:**
 - recognized and accepted as the official name for a drug.
 - Each drug has one generic name.
 - not a trademark; any pharmaceutical manufacturer may use it.
 - priced lower than brand name drugs.
 - A physician indicate on prescription if the pharmacist may substitute a generic drug for a brand name.
 - The physician may prefer a particular brand name drug

Drug Names

- **Brand name**

- pharmaceutical company that developed the drug has exclusive rights to produce it for 17 years. After that, any manufacturer may produce and sell the drug.
- The manufacturing company choose a brand, or proprietary name for its product.

Drug Names

chemical Name	Generic Name	Brand Name
2-p-isobutylphenyl propionic acid	Ibuprofen	Advil
		Motrin
		Nuprin
Acetylsalicylic acid	Aspirin	Anacin
		Bufferin
		Excedrin
s-2-[1-(methylamino) ethyl] benzenemethanol hydrochloride	Pseudoephedrine hydrochloride	Sudafed Actifed
		Nucofed

Legal Classification of Drugs

- prescription drugs
 - only ordered by a licensed physician, dentist, or veterinarian.
 - is written explanation to the pharmacist regarding the name of medication, dosage, and times of administration.
 - drugs must include the words “Caution: Federal law prohibits dispensing without prescription” on their labels.
 - A licensed physician can give prescription order orally to the pharmacist.
- Over the counter (OTC) drugs
 - do not require a prescription
 - may interact and harm the patient,
 - Aspirin and coumadin, can cause internal bleeding
 - antacids interfere absorption tetracycline
 - take physician or pharmacist advise

controlled substances

- May cause addiction.
- classified as Schedule I through V.
- Drug Enforcement Agency (DEA) enforces the control of these drugs.
- Some of the commonly prescribed controlled substances are:
 - anabolic steroids
 - Marijuana
 - Morphine
 - Opium
 - Phenobarbital
 - Secobarbital
 - butabarbital
 - chloral hydrate
 - cocaine
 - Codeine
 - Diazepam
 - heroin

Schedule for Controlled Substances

- **Schedule I**
 - Drugs with **highest potential for addiction** and abuse. They are **not accepted for medical use**. Examples are heroin and LSD.
- **Schedule II**
 - Drugs with a **high potential for addiction** and abuse **accepted for medical use** in the United States. Example: codeine, cocaine, morphine, opium, secobarbital.
- **Schedule III**
 - Drugs with a **moderate to low potential for addiction** and abuse.
 - Example: butabarbital, anabolic steroids, acetaminophen with codeine.
- **Schedule IV**
 - Drugs with a **lower potential for addiction** and abuse than Schedule III drugs. Example: chloral hydrate, phenobarbital, diazepam.
- **Schedule V**
 - Drugs with a **low potential for addiction and abuse**.
 - Example: low-strength codeine combined with other drugs to suppress coughing.

prescription

- **Melvin A. Brown, M.D.**
- Chicago, IL 60000

- **DEA#** 123456789 **Phone#** 123-0000
- **NAME** (patient name here) **AGE**
- **ADDRESS** **DATE**
- **Rx** Estrace 1 mg.
- dtd C
- Sig: 1 q am
- LABEL
- REFILL 3 TIMES
- MAY SUBSTITUTE
- MAY NOT SUBSTITUTE
- (physician signature here) M.D.
- A blank prescription cannot be handed to a patient.
- special instructions regarding the medication (i.e., take with meals) will also be supplied by the pharmacist.

Routes of Drug Administration

1. Oral
2. Sublingual
3. Inhalation
4. Parenteral
5. Transdermal
6. Rectal
7. Topical
8. Vaginal
9. Eye drop
10. Ear drop
11. Buccal

Routes of Drug Administration

- **Oral:**
 - **drugs given by mouth.**
 - Advantages:
 - ease of administration
 - slow rate of absorption via stomach and intestinal wall.
 - Disadvantages
 - Slow absorption
 - destruction by gastric juices
 - some medications, such as aspirin, can have a corrosive action on the stomach lining.
- **Sublingual:**
 - drugs held under the tongue; not swallowed.
 - medication absorbed by blood vessels on the underside of the tongue as the saliva dissolves it.
 - rate of absorption is quicker than the oral route.
 - Nitroglycerin is administered by this route

Routes of Drug Administration

- **Inhalation**
 - drugs inhaled directly into the nose and mouth.
 - Aerosol sprays are administered by this route
- **Parenteral**
 - an invasive method requires the skin to be punctured by a needle.
 - needle with syringe attached is introduced either under the skin or into a muscle, vein, or body cavities
- **Transdermal**
 - Patch applied to the skin
 - medication absorbed across the skin
 - birth control patches and nicotine patches.

Routes of Drug Administration

- **Rectal**
 - introduced directly into the rectal cavity in the form of suppositories or solution
 - Drugs administered by this route if the patient is unable to take them by mouth due to nausea, vomiting, or surgery.
- **Topical**
 - medication applied directly to the skin or mucous membranes.
 - They are distributed in ointment, cream, or lotion form
 - used to treat skin infections and eruptions.
- **Vaginal**
 - Tablets and suppositories inserted vaginally to treat vaginal yeast infections and other irritations

Routes of Drug Administration

- **Eye drops**
 - Drops placed directly into the eye
 - used during eye examinations to dilate the pupil
 - Used to control eye pressure in glaucoma
 - Used to treat infections.
- **Eardrops**
 - Drops placed directly into the ear canal
 - To relieving pain or treating infection.
- **Buccal**
 - Drugs placed under the lip or between the cheek and gum.

Methods of Parenteral Drugs Administration

- **Intracavitary**
 - Injection into a body cavity such as the peritoneal and chest cavity.
- **Intramuscular**
 - Injection directly into the muscle of the buttocks, thigh, or upper arm. They are used when there is a large amount of medication or it is irritating
- **Intrathecal**
 - Injection into the meningeal space surrounding the brain and spinal cord.
- **Intravenous**
 - Injection into the veins. This route can be setup so that there is a continuous administration of medication
- **Subcutaneous**
 - Injection into the subcutaneous layer of the skin, usually the upper, outer arm

Vocabulary Relating to Pharmacology

- **Addiction:**
 - acquired dependence on a drug
- **Additive**
 - The sum of the action of two (or more) drugs given. In this case, the total strength of the medications is equal to the sum of the strength of each individual drug.
- **Antidote**
 - Substance that will neutralize poisons or their side effects.
- **broad spectrum**
 - Ability of a drug to be effective against a wide range of microorganisms.
- **Contraindication**
 - Condition in which a particular drug should not be used.
- **cumulative action**
 - Action that occurs in the body when a drug is allowed to accumulate or stay in the body.

Vocabulary Relating to Pharmacology

- **Dilute**
 - To weaken the strength of a substance by adding something else.
- **drug interaction**
 - Occurs when the effect of one drug is altered because it was taken at the same time as another drug.
- **drug tolerance**
 - Decrease in susceptibility to a drug after continued use of the drug.
- **Habituation**
 - Development of an emotional dependence on a drug due to repeated use.
- **iatrogenic**
 - Usually an unfavorable response that results from taking a medication.
- **Idiosyncrasy**
 - Unusual or abnormal response to a drug or food.

Vocabulary Relating to Pharmacology

- **placebo**
 - Inactive, harmless substance used to satisfy a patient's desire for medication. This is also used in research when given to a control group of patients in a study in which another group receives a drug. The effect of the placebo versus the drug is then observed.
- **Potentiation**
 - Giving a patient a second drug to boost (potentiate) the effect of another drug. The total strength of the drugs is greater than the sum of the strength of the individual drugs.
- **prophylaxis**
 - Prevention of disease. For example, an antibiotic can be used to prevent the occurrence of a disease.
- **side effect**
 - Response to a drug other than the effect desired. Also called an adverse reaction.

Vocabulary Relating to Pharmacology

- **tolerance**
 - Development of a capacity for withstanding a large amount of a substance, such as foods, drugs, or poison, without any adverse effect. A decreased sensitivity to further doses will develop.
- **Toxicity**
 - Extent or degree to which a substance is poisonous.
- **unit dose**
 - Drug dosage system that provides prepackaged, prelabeled, individual medications that are ready for immediate use by the patient.

Psychology

- **Psychology**
 - is the study of human behavior and thought process.
 - primarily concerned with understanding how humans interact with their physical environment and with each other.
- **Clinical Psychologist (PhD)**
 - is a specialist in evaluating and treating persons with mental and emotional disorders.
 - Diagnoses and treats mental disorders
 - Specializes in using individual and group counseling to treat patients
 - Completes a PhD degree in clinical or counseling psychology
 - Completes a 2-year supervised clinical internship

Psychiatry

- a branch of medicine that deals with the diagnosis, treatment, and prevention of mental disorders.
- **Psychiatrists (MD or DO)**
 - A physician with specialized training in diagnosing and treating mental disorders
 - Prescribes medication and conducts counseling
- **nurses and psychiatric social workers.**
 - caring for clients with mental illness.
- **Psychiatric Mental Health Technician**
 - Works under the supervision of physicians, psychologists, and nurses
 - Also known as psychiatric aides
 - May assist with nursing and personal care tasks
 - Receives on-the-job training

Combining Forms Relating to Mental Health

- **anxi/o** = anxiety
- **Ment/o** = mind
- **phren/o** = mind
- **psych/o** = mind
- **schiz./o** = divided
- **somat/o** = body
- **somn/o** = sleep

Suffixes Relating to Mental Health

- -iatrist = physician
 - psychiatrist
- -mania = excessive preoccupation
 - pyromania
- -philia = affinity for, craving for
 - Pedophilia
- -phobia = irrational fear
 - photophobia

Diagnostic imaging

- **Registered Radiologic Technologist (RRT)**
 - Performs imaging procedures ordered by a physician
 - including X-rays, computed tomography (CT), MRI, and fluoroscopy
 - Operates at least two different types of imaging equipment
 - Graduates from an accredited 1-year certificate, 2-year associate's degree, or 4-year bachelor's degree radiologic program
 - Passes registration examination
- **Diagnostic Medical Sonographer**
 - Performs ultrasound procedures ordered by a physician
 - Completes an accredited 1-year certificate program, a 2-year associate's degree, or a 4-year bachelor's degree
- **Nuclear Medicine Technologist**
 - Performs nuclear medicine scans ordered by a physician
 - Completes an accredited 1-year certificate program, a 2-year associate's degree, or a 4-year bachelor's degree
 - Some states require licensure

- Combining Forms Relating to Diagnostic Imaging

- fluor/o
 - fluorescence, luminous
- radi/o
 - X-ray
- roentgen/o
 - X-ray
- son/o
 - sound
- Tom/o
 - to cut

- Suffixes Relating to Diagnostic Imaging

- -gram = record
 - myelogram
- -graphy = recording
 - mammography
- -lucent = to shine through
 - radiolucent
- -opaque = nontransparent
 - radiopaque

Vocabulary Relating to Diagnostic Imaging

- **barium (Ba)**
 - soft metallic element used as a radiopaque X-ray dye.
- **Film**
 - Thin sheet of cellulose material coated with a light-sensitive substance that is used in taking photographs. There is a special photographic film that is sensitive to X-rays.
- **film badge**
 - Badge containing film that is sensitive to X-rays. This is worn by all personnel in radiology to measure the amount of X-rays to which they are exposed.
- **Geiger counter**
 - Instrument used for detecting radiation

Vocabulary Relating to Diagnostic Imaging

- **lateral view**
 - Positioning the patient so that the side of the body faces the X-ray machine.
- **oblique view**
 - Positioning the patient so that the X-rays pass through the body on an angle.
- **posteroanterior view (PA view)**
 - Positioning the patient so that the X-rays pass through the body from the posterior side to the anterior side.
- **anteroposterior view (AP view)**
 - Positioning the patient so that the X-rays pass through the body from the anterior side to the posterior side.

Vocabulary Relating to Diagnostic Imaging

- **Radioactive**
 - Substance capable of emitting or sending out radiant energy.
- **Radiography**
 - Making of X-ray pictures.
- **Radioisotope**
 - Radioactive form of an element,
- **radiopaque**
 - Structures that are impenetrable to X-rays, appearing as a light area on the radiograph (X-ray).
- **Radiolucent**
 - Structures that allow X-rays to pass through; exposes the photographic plate and appears as a black area on the x-ray
- **roentgen**
 - Unit for describing an exposure dose of radiation.

Vocabulary Relating to Diagnostic Imaging

- **Scan**
 - Recording on a photographic plate the emission of radioactive waves after a substance has been injected into the body
- **shield**
 - Protective device used to protect against radiation.
- **Tagging**
 - Attaching a radioactive material to a chemical, and tracing it as it moves through the body.
- **Uptake**
 - Absorption of radioactive material and medicines into an organ or tissue.
- **X-ray**
 - High-energy wave that can penetrate most solid matter and present the image on photographic film

Diagnostic Imaging Procedures

- **computed tomography scan (CT-scan)**
 - An imaging technique that is able to produce a cross-sectional view of the body. X-ray pictures are taken at multiple angles through the body. A computer (CT scan) then uses all these images to construct a composite cross-section.
- **contrast studies**
 - A radiopaque substance is injected or swallowed. X-rays are then taken that will outline the body structure containing the radiopaque substance. For example, angiogram
- **Doppler ultrasound**
 - Use of ultrasound to record the velocity of blood flowing through blood vessels. Used to detect blood clots and blood vessel obstructions.

Diagnostic Imaging Procedures

- **Fluoroscopy**
 - X-rays strike a fluorescing screen rather than a photographic plate, causing it to glow. The glowing screen changes from minute to minute, therefore movement, such as the heart beating or the digestive tract moving, can be seen.
- **magnetic resonance**
 - Use of electromagnetic energy to produce an image of soft tissues in any plane of the body. Atoms behave differently when placed in a strong magnetic field. When the body is exposed to this magnetic field the nuclei of the body's atoms emit radio-frequency signals that can be used to create an image
- **nuclear medicine**
 - Use of radioactive substances to diagnose diseases. A radioactive substance known to accumulate in certain body tissues is injected or inhaled. After waiting for the substance to travel to the body area of interest, the radioactivity level is recorded. Commonly referred to as a *scan*.

Diagnostic Imaging Procedures

- **positron emission tomography (PET)**
 - Image is produced following the injection of radioactive glucose. The glucose will accumulate in areas of high metabolic activity. Therefore this process will highlight areas that are consuming a large quantity of glucose. This may show an active area of the brain or a tumor
- **Radiology**
 - The use of high-energy radiation, X-rays, to expose a photographic plate. The image is a black-and-white picture with radiopaque structures such as bone appearing white and radiolucent tissue such as muscles appearing dark.
- **ultrasound (US)**
 - the use of high-frequency sound waves to produce an image. Sound waves directed into the body from a transducer will bounce off internal structures and echo back to the transducer. The speed of the echo is dependent on the density of the tissue. A computer is able to correlate speed of echo with density and produce an image. Used to visualize internal organs, heart valves, and fetuses

Physical Therapy

- **Physical Therapy**

- Deals with movement dysfunction and physical disabilities resulting from muscle, bone, joint, and nerve injuries or disease.
- treating disorders using physical means and methods.
- treatment includes gait training, therapeutic exercise, massage, joint and soft tissue mobilization, thermal and cryotherapy, electrical stimulation, ultrasound, and hydrotherapy.

- **Physical Therapist (PT or DPT)**

- Graduates from an accredited 4-year bachelor's or 5-year graduate program in physical therapy
- Completes a 4-month clinical internship
- Passes a national licensing examination

- **Physical Therapy assistant**

- Work under the supervision of physical Therapist
- Graduate from 2 year physical therapy assistant program
- Passes a national licensing examination

Occupational Therapy

- **Occupational Therapy**
 - work with people who, because of illness, injury, or developmental or psychological impairments, require specialized training in skills that will enable them to lead independent, productive, and satisfying lives.
 - instruct patients in the use of adaptive equipment and techniques, body mechanics, and energy conservation.
 - employ modalities such as heat, cold, and therapeutic exercise.
- **Occupational Therapist (OTh)**
 - Attend 4-year occupational therapy program
 - Completes 6 months of clinical experience
 - Passes a national licensing examination
- **Certified Occupational Therapy Assistant (COTA)**
 - Works under the supervision of an occupational therapist
 - Attend 2-year occupational therapy assistant program
 - Completes supervised clinical fieldwork
 - Passes a national certification examination

Combining Forms Relating to Rehabilitation Services

- cry/o = cold
- electr/o = electric current
- erg/o = work
- hydr/o = water
- my/o = muscle
- orth/o = straight, correct
- phon/o = Sound
- prosth/o = addition
- therm/o = heat

Suffixes Relating to Rehabilitation Services

- -phoresis = carrying (phonophoresis)
- -therapy = treatment (hydrotherapy)

Anesthesia

- Anesthesia results in the loss of feeling or sensation.
- **General anesthesia (GA)**
 - produces a loss of consciousness including an absence of pain sensation. It is administered to a patient by either an intravenous or inhalation. The patient's vital signs are carefully monitored
- **Regional anesthesia** (*nerve block*)
 - anesthetic injected near the nerve to be blocked
 - interrupts pain sensation in a particular region of the body
 - The patient usually remains conscious.
- **Local anesthesia**
 - anesthetic administered topically or via a subcutaneous
 - produces a loss of sensation in localized part of the body
 - The patient remains conscious.
- **Topical anesthesia**
 - The anesthetic liquid or gel placed directly into a specific area; skin, cornea, and mucous membranes in dental work.
 - The patient remains conscious.

Anesthesia

- **Anesthesiologist**

- a physician who specializes in administering anesthetics

- **A nurse anesthetist**

- a registered nurse who has received additional training and education in the administration of anesthetic medications.

Anesthesia

- **Certified Surgical Technologist (CST)**
 - Assists physicians and other health care workers before, during, and after surgery
 - Completes an accredited 9-month certification program or a 2-year associate degree
 - Voluntary certification is available
- **Surgical technologists duties**
 - preparing the operating room and instruments
 - preparing the patient for surgery
 - assisting the surgical team during the procedure
 - carrying out postsurgical duties.
 - The surgical first assistant has advanced training in order to assist the surgeon directly with exposing the incision and controlling bleeding.

Diagnostic Procedures Relating to Oncology

- **Biopsy**
 - Excision of a small piece of tissue for microscopic examination to assist in determining a diagnosis.
- **Bone marrow biopsy**
 - Removal of a small amount of bone marrow for microscopic examination to determine the presence of malignant tumor cells.
- **Cytologic testing**
 - Examination of cells to determine their structure and origin. PAP smears are considered a form of cytologic testing
- **Exploratory surgery**
 - Surgery performed for the purpose of determining if cancer is present or if a known cancer has spread. Biopsies are generally performed.

Diagnostic Procedures Relating to Oncology

- **Lumbar puncture**
 - Puncture made by placing a needle into the fourth intervertebral space of the lumbar area to remove spinal fluid for analysis.
- **Needle biopsy**
 - Core of tissue is removed using a needle. The tissue cells are then tested for the abnormal cellular growth of cancer.
- **Staging laparotomy**
 - Surgical procedure in which the abdomen is entered to determine the extent and staging of a tumor.

Case Study

- **Current complaint**
 - 72-year-old female complaining of increasing level of dyspnea with activity during the past 6 month. She now has a frequent harsh cough producing thick sputum and occasional hemoptysis.
- **Hx:**
 - Patient has had hysterectomy for endometriosis at age 45, cholecystectomy for cholelithiasis at age 62, and recent compression fracture of lumbar spine secondary to osteoporosis.
- **Physical Examination:**
 - Patient has mild kyphosis. She is alert and answers all questions appropriately. She is not SOB sitting in examination room. Auscultation of chest reveals marked rales, but no rhonchi. Sputum was collected for culture and sensitivity and a sputum cytologic testing

Case Study

- **Diagnostic Test Results:**
 - Chest radiograph revealed a suspicious cloudy area in right lung. Follow-up with CT scan of the bronchial tree confirmed the presence of a mass in the right lung. Sputum specimen was negative for the presence of bacteria. Sputum cytologic testing revealed malignant cells, indicating presence of cancerous tumor in the lungs.
- **Diagnosis:**
 - Bronchogenic carcinoma.
- **Treatment:**
 - Patient will be referred to thoracic surgeon for consultation regarding thoracotomy and lobectomy. Following recovery from this surgery she is to return to oncology clinic for chemotherapy and to determine if the tumor has metastasized.

Chart Note

- **Current Complaint:**

- A 56-year-old male was referred to a oncologist for treatment of a suspicious right kidney mass discovered by his internist on a CT scan.

- **Past History:**

- Patient had been aware of right side pain, dysuria, and weight loss during the past 6 months.

- **Signs and Symptoms:**

- Exploratory surgery was performed and small biopsies were taken from the suspicious right kidney mass. After it was determined to be malignant a right nephrectomy was performed. Reports indicate that the neoplasm was grad II and encapsulated with no signs of metastases

Chart Note

- **Diagnosis:**
 - *Nephrocarcinoma* of the right kidney
- **Treatment:**
 - *Post surgery* the patient began a *protocol* of *chemotherapy* with a specific toxic effect.

Name the route of drug administration for the following

1. under the tongue
2. into the anus or rectum
3. applied to the skin
4. injected under the first layer of skin
5. injected into a muscle
6. injected into a vein
7. by mouth

Match

1. Ultrasound
 2. MRI
 3. Doppler us
 4. nuclear medicine scan
 5. CT scan
 6. contrast study
 7. fluoroscopy
 8. radiography
 9. PET scan
- a) radiopaque substances used to outline hollow structures
 - b) records velocity of blood flowing through vessels
 - c) image created by electromagnetic energy
 - d) glowing screen shows movement
 - e) making an X-ray
 - f) multiple-angle X-rays compiled into a cross-section
 - g) uses radioactive substances
 - h) image of internal organs using sound waves
 - i) indicates metabolic activity

Match the following terms to their definitions

1. Oncogenic
 2. Benign
 3. encapsulated
 4. PAP
 5. primary site
 6. protocol
 7. staging laparotomy
 8. cytologic testing
 9. radioactive implant
 10. bx
- a. examine cells to determine their structure and origin
 - b. the plan for care for any individual patient
 - c. biopsy
 - d. growth that is not recurrent or progressive
 - e. placing a radioactive substance directly into the tissue
 - f. where the malignant tumor first appeared
 - g. growth is enclosed in a tissue sheath
 - h. cancer causing
 - i. abdominal surgery to determine extent of tumor
 - j. Papanicolaou test