RED FLAGS, INDICATIONS FOR AND INTERPRETATION OF LABORATORY TESTS IN LBP

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Objectives:

Review the anatomy of the lumbosacral spine

List the components of a LBP history

Describe red flags, in connection with the presenting illness

Describe investigations to do when there are red flags

Give examples of diseases underlying red flags
Better anatomy knowledge  
=  
Better diagnoses and treatments
Vertebra
- Body, anteriorly
  - Functions to support weight
- Vertebral arch, posteriorly
  - Formed by two **pedicles** and two **laminae**
  - Functions to protect neural structures
Ligaments

- Anterior longitudinal ligament
- Posterior longitudinal ligament
- Ligamentum flavum
- Interspinous ligament
- Supraspinous ligament
Intervertebral Disc

Posterior longitudinal ligament
Nucleus pulposus
Annulus fibrosus
Cartilage end plate
Collagen lamellae of annulus fibrosus
Anterior longitudinal ligament

Intervertebral disc composed of central nuclear zone of collagen and hydrated proteoglycans surrounded by concentric lamellae of collagen fibers.
PATIENT HISTORY
“OPQRSTU”

- Onset
- Palliative/Provocative factors
- Quality
- Radiation
- Severity/Setting in which it occurs
- Timing of pain during day
- Understanding - how it affects the patient
“Red Flags” in back pain

- Age < 15 or > 50
- Fever, chills, UTI
- Significant trauma
- Unrelenting night pain; pain at rest
- Progressive sensory deficit
- Neurologic deficits
  - Saddle-area anesthesia
  - Urinary and/or fecal incontinence
  - Major motor weakness
- Unexplained weight loss
- Hx or suspicion of Cancer
- Hx of Osteoporosis
- Hx of IV drug use, steroid use, immunosuppression
- Failure to improve after 6 weeks conservative tx
Diagnoses & Red Flags

- **Cancer**
  - Age > 50
  - History of Cancer
  - Weight loss
  - Unrelenting night pain
  - Failure to improve

- **Fracture**
  - Age > 50
  - Trauma
  - Steroid use
  - Osteoporosis

- **Infection**
  - IVDU
  - Steroid use
  - Fever
  - Unrelenting night pain
  - Failure to improve

- **Cauda Equina Syndrome**
  - Saddle anesthesia
  - Bowel/bladder dysfunction
  - Loss of sphincter control
  - Major motor weakness
Red Flags continued

cauda equina or cord compression – disc prolapse, cancer, fracture

Immunosuppression (HIV/AIDS, steroids, IV drug use) – infection (e.g. TB)

Trauma, osteoporosis - fracture

History of cancer (lung, prostate, multiple myeloma)

Nocturnal pain, pain at rest – infection (TB, osteomyelitis), cancer

Systemic upset (weight loss, fevers, night sweats) – cancer, infection

Thoracic pain – aortic aneurysm, cancer

Abdominal pain - PUD, acute pancreatitis

Abnormal gait – compression of spine or nerve root
Diagnostic Studies

- Radiographs
  - Early if **RED FLAGS**
  - Symptoms present > 6 weeks despite tx
Figures 2 and 3: AP and lateral thoracic spine demonstrating paraspinal abscess and focal kyphosis due to vertebral body destruction.
Diagnostic Studies

- MRI indications
  - Possible cancer, infection, cauda equina synd
  - >6-12 weeks of pain
  - Pre-surgery or invasive therapy

- Disadvantages
  - False-positives; may not be causing pain
  - More costly, increased time to scan, problem with claustrophobic patients
PET Scan: multiple areas of bone mets in pelvic bones from breast cancer
Bone infection “diagnostic” tests:

ESR – elevated, nonspecific, monitor disease

CRP – nonspecific, elevated, monitor disease

Blood cultures – often negative, unless haematogenous spread

**Bone biopsy + histopathology – gold standard**

Culture and sensitivity biopsy materials

Radiology – plain Xrays, MRIs, CT scans, PET scans
THANK YOU