An aneurysm is any focal dilatation >50% of an artery’s normal diameter
Abdominal Aortic Aneurysm (AAA) is an enlargement >3cm
It is more common in males than females on a 4:1 ratio
Frequency varies by ethnicity, with almost 5% of Caucasian men over 65 years old affected
Usually asymptomatic, but may have a pulsatile mass

**Anatomy**
- The aorta is made of 3 layers:
  - Tunica intima (endothelium)
  - Tunica media (smooth muscle surrounded by elastin & collagen)
  - Tunica externa or Tunica adventitia (connective tissue, mainly collagen)
- Diameter decreases from thoracic to abdominal aorta
- Major branches within the abdomen include (in descending order):
  - Inferior phrenic, Coeliac trunk, SMA, Renal, Gonadal, Lumbar & IMA
- Terminates at bifurcation into Common Iliac Arteries about L4

**Pathophysiology**
- Exact cause is unknown but there is a genetic predisposition
- AAAs occur due to failure of elastin & collagen in the tunica media
- Vasa vasorum (blood vessels supplying the aortic wall) reduce in amount from thoracic to abdominal aorta
- Elastin & collagen also reduces
- Smoking, alcohol & HTN are known risk factors
- Genetic risk factors include Marfan & Ehlers- Danlos syndromes
- Histopathology shows cholesterol crystals & lipid accumulation, calcification, thrombosis & ulceration
Classification
Classified by site, size & shape
- 85% are infrarenal
- Diameter >5.5cm are considered large & are usually repaired if possible
- True aneurysms are either saccular (single outpouching) or fusiform (circumferential) & includes all three layers
- A false aneurysm occurs when a tear in the vessel allows blood to track between the two outer layers (media & adventitia)
- A dissecting aneurysm occurs when the tear allows blood to track between the two inner layers (intima & media)

Rupture
Beware the >50s with renal colic!!!
- 20% rupture intraperitoneally, death usually occurs prior to arrival at hospital
- 80% rupture retroperitoneally, this gives the classic symptom triad is back pain, hypotension & a pulsatile abdominal mass
- These may or may not tamponade
- Other signs include Grey Turner’s flank bruising
- Unusual presenting complaints include
  - Transient lower limb paresis or paralysis
  - RUQ pain
  - Groin or testicular pain
  - Testicular bruising (Bryant’s sign)
  - Inguinoscrotal mass mimicking a hernia
- These patients should have a bedside ultrasound!