Spinal Complications in Established Ankylosing Spondylitis
• most common seronegative spondyloarthropathy.

• chronic inflammatory enthesitis

• imaging features include sacroilitis, Romanus lesions vertebral body squaring, syndesmophytes, discal calcification and facet joint ankylosis.

• end stage disease may lead to:
  i. spinal fractures
  ii. Andersson lesion
  iii. pseudoarthrosis
  iv. dural complications
Spinal Fractures

• predisposing factors:
  i. impaired bone quality (osteoporosis),
  ii. bony ankylosis,
  iii. discal calcification and
  iv. compromised sagittal balance

• 2 forms:
  i. osteoporotic fractures
  ii. shear-type fractures
Osteoporotic Type Fractures

• compressive type fractures leading to reduction in vertebral body heights

• does not involve the posterior elements
Osteoporotic-Type Fracture
Shear-Type Fracture

• usually acute fractures

• involve the anterior and posterior elements

• unstable fracture

• transvertebral, transdiscal or mixed
Shear Fracture – Transdiscal Type
Transvertebral Fracture  
Transdiscal Fracture  
Mixed Fracture
• common fracture sites are
  i. cervical -> C5-C7 vertebra
  ii. thoracic -> T6-T12 vertebra
  iii. lumbar -> L4-L5 vertebra

• double fracture (multiple levels) are rare.
Cervical Spine Fracture
Odontoid Peg Fracture
• fracture complications
  i. Epidural hematoma
    - rigidity of the spine increasing the distraction force at time of trauma
    - adherence of the dura to the spine

ii. Tracheal rupture, visceral injury and aortic laceration
    - due to the paraspinal inflammation leading to the adherence of the paravertebral soft tissue
Osteoporotic Cervical Spine Fracture with Epidural Hematoma
Andersson Lesion

• ubiquitous term referring to destructive disco-vertebral lesion occurring in patients with ankylosing spondylitis.

• inflammatory or non-inflammatory (traumatic)

• the non-inflammatory type = insufficiency fracture

• thoracolumbar region
Andersson Lesion

Mild

Moderate

Severe
Andersson Lesion
Andersson Lesion
Pseudoarthrosis

- chronic moderate to severe Andersson lesion are synonymous with pseudoarthrosis.

- persistent movement of the spine at the site of Andersson lesion prevents proper healing with granulation tissue, fibrous proliferation, chronic inflammatory infiltrate and callous formation
Andersson Lesion Mimic
Post-Spinal Instrumentation
Atlanto-Axial Subluxation

- uncommon complication of long-standing AS.

- due to laxity or rupture of the transverse ligament of the atlas

- usually anterior subluxation +/- cranial settling (superior migration of dens)
Radiograph
CT
Dural Complications

Cauda equina syndrome and Dural ectasia

• uncommon complication in long standing AS

• thoracolumbar region

• due the dural inflammation, nerve root adhesion and increased CSF pressure
Dural Ectasia
Multiple Myeloma

- recognized association between AS and multiple myeloma

- IgA (produced mainly in gastrointestinal mucosa) is most common immunoglobulin associated with MM.
Multiple Myeloma
2-month post treatment radiograph
THANK YOU