


+

SpineClass 2010
Formby - Southport



Spinal Infections

Mr JN Alastair Gibson
Consultant Spinal Surgeon
The Royal Infirmary of Edinburgh

+

HISTORY




- Hippocrates of Cos (460-377BC): Tuberculous spondylitis
- Sir Percival Pott of Barts (1714-88): *Remarks on that Kind of Palsy of the Lower Limbs: Description of Tuberculosis of the Spine (Pott's disease)*
- 1800s : Laminectomy
- Menard (1894): Costotransversectomy for infection
- Hibbs and Albee (1911): Posterior fusion to hasten recovery from infections
- Ito (1934) Anterior approach to lumbar spine (BJS)
- Hodgson (1956) Excision and strut grafting: Hong Kong approach (BJS)

+

Pyogenic vertebral osteomyelitis

- 2-7% of all osteomyelitis
- 20% of all haematogenous osteomyelitis involves spine
- 52% > 50yrs
- 66% male (29% UTI)
- 55% *Staph aureus*
- Gram neg. *E.coli*, *Pseud. Proteus*



+

Mechanism

- End arterioles in metaphysis of vertebral body
- Diffusion into the disc of bacterial enzymes
- (In TB (granulomatous) the end plate is destroyed but the disc is usually preserved)
- Retropharyngeal abscess - mediastinum
 - Thoracic paravertebral - lung atelectasis
 - Lumbar paravertebral - psoas abscess


+

Clinical features

- In >50% infection present for >3weeks
- Pain 90%
- Fever 52%
- Torticollis / Positive SIR, Hamstring tightness, Psoas swelling
- 17% neurologic deficit

+

Investigations



- ESR /CRP
- Inc Leucocyte count 42%
- X-ray changes
 - Narrowing of disc space (75%)
 - Osteopenia of end plates
 - Widening of retropharyngeal space
 - Widening of paravertebral shadow
 - Lysis of anterior vertebral body
 - Sclerosis (11%)
- Ga/ Tc scanning
- MRI, CT, SPECT

+ Biopsy

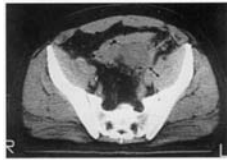
- CT-guided
- Blood cultures

+ No surgery

- Antibiotics - >4 weeks
- Brace -
 - >50% vertebral involvement = unstable
 - Brace required for 3+ months
 - If in doubt surgery

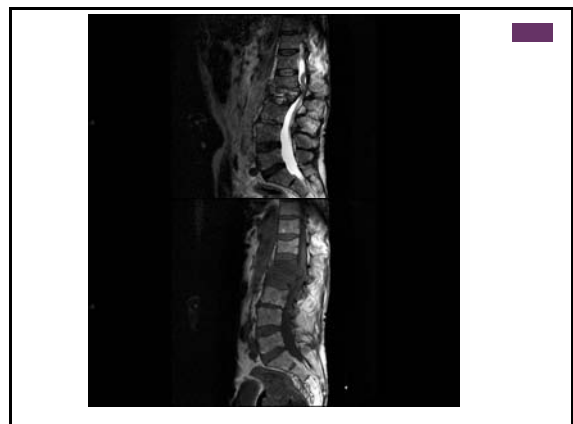
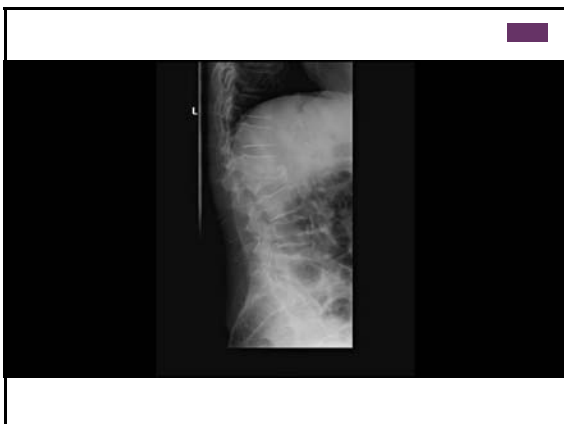
+ Surgery

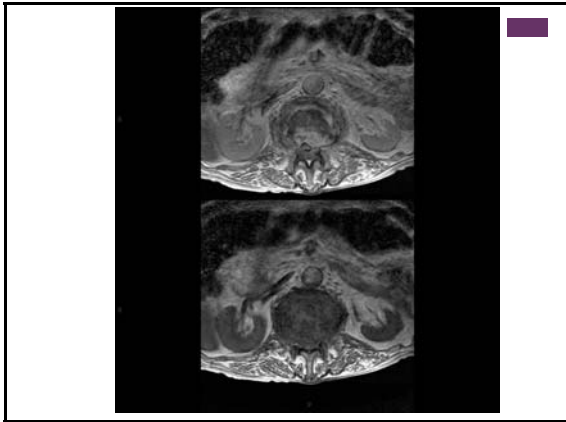
- Abscess formation with neural deficit
- Vertebral instability
- Drainage of large paravertebral abscess



Mr A. (Age 76yr)

- Sepsis and General cachexia
- Blood cultures - MRSA
- Low back pain





Lumbar discitis

- Staph aureus main organism
- Spondylodiscitis → epidural abscess
 - Cervical 90%, Thoracic 33%, Lumbar 24%
- Neural compression – Thoracic 82% deficit
- WCC increased in 43% cases
- ESR increased in all Epidural abscesses

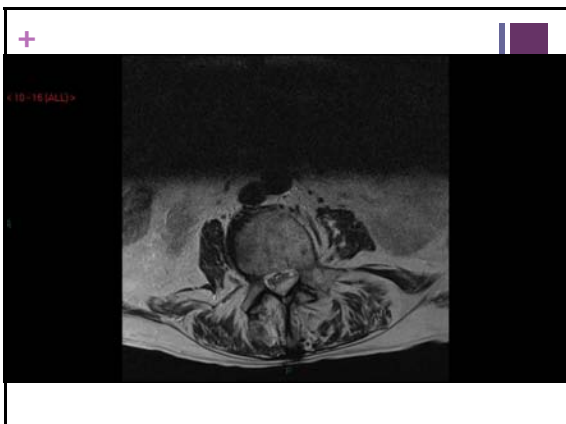
Hadjipavlou, Spine
2000 (n=101)

Discitis - Outcomes

- All paraparesis from Epidural granulation recovered completely
- 18% paraparesis from Epidural abscess recovered with surgery
- Conservative – 64% residual back pain
- Operative – 27% residual backpain

+ Epidural abscess

- Same bacterial distribution
- Deepest (0.5 to 0.75 cm) T4-T8, below L2
- 80% Posterior in the canal
- Pus or Granulation tissue – Is it increasing in size? – serial MRI
- ? Spreads to meningitis
- Laminotomy / Laminectomy + epidural catheter + drain

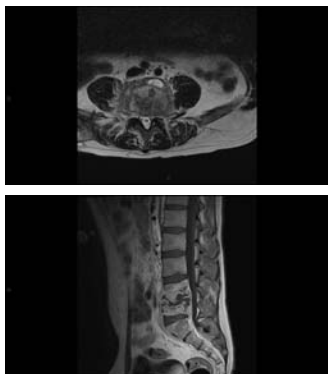
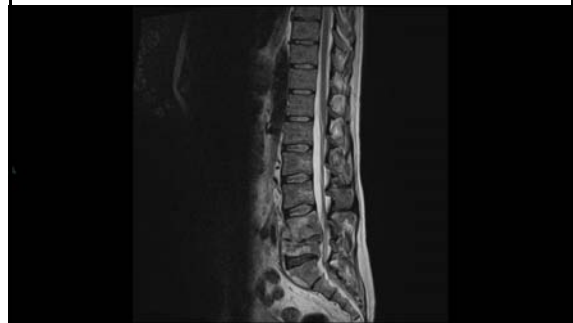
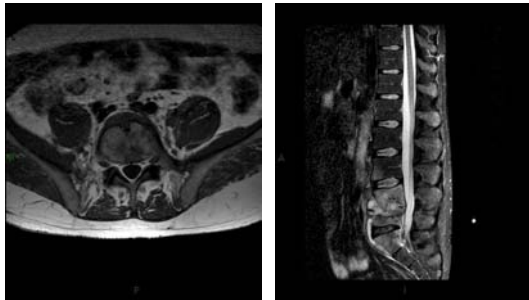
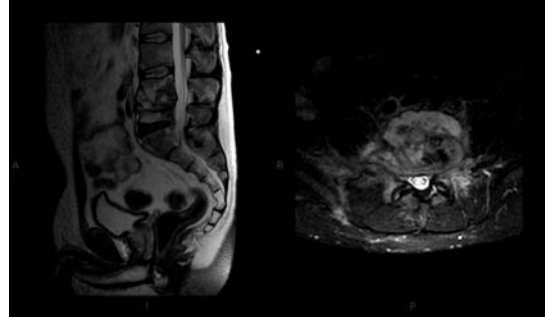


March 1882, 1:7

+ Granulomatous infections - TB

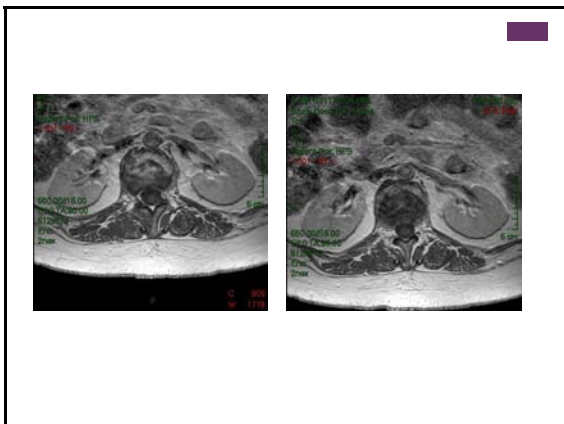


- 10% of patients with TB
- Approx. 30% have neurological involvement
- Peridiscal 33%, central 12%, anterior 2%, widespread 52%
- Spreads under the anterior longitudinal ligament
 - Scalloping of anterior vertebral body
 - Progressive kyphosis
- Tuberculin test / PCR (polymerase chain reaction of mycobacterial DNA)
- 2HREZ/4HR₃ (Months / per w^k)
(Isoniazid, rifampicin, ethambutol, pyrazinamide)



Ms B. (Age 38yr)

- 8/08 - slipped on laminate flooring
 - severe backache
 - Type II diabetic
 - Foot ulceration: Needle drainage of plantar fasciitis



Investigations

- Hb 10g/dl
- ESR 91mm/hr
- Hct 0.29
- MCV 69
- WCC 12.5
- Platelet 461
- Biochem - Normal
- CRP 9
- NO paraproteinband
- RBS >13mmol/l

Investigations

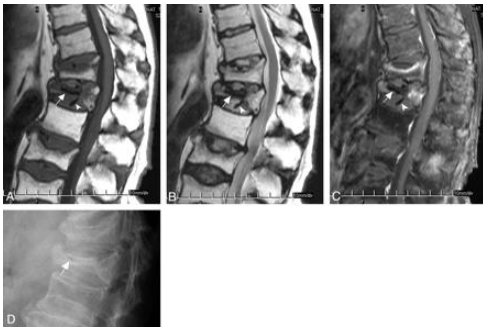
- Mammogram - normal
- ? GI

Differential

- Benign and Malignant Tumours
- Leukaemia
- Lymphoma
- Myeloma
- Infection
- Thickened trabecular bone
- Focal fat deposition
- Avascular necrosis

Vertebral osteonecrosis

- Non-union due to ischaemia after fracture:
 - Intravertebral air: linear or semilunar radiolucentshadow on radiographs: Vacuum cleft sign
 - Fluid sign
- ↓
- Avascular area (non enhanced on enhanced T1) with collections of fluid (hyperintense on T2), air (no signal on either) or Bo th.



Summary

Spinal infection can
manifest itself in different
ways