How to treat and manage patients with spondylodiscitis?

Hakan Erdem
25th ECCMID, 25 - 28 April 2015
Copenhagen
OSTEOMYELITIS

Hematogenous spread

DISCITIS

No direct blood supply

Trauma
Surgery
Adjacent infection
What are the frequent infecting agents?
Spondylodiscitis on the rise?

- The incidence of spinal osteomyelitis 1:250,000-1:450,000
- Tuberculosis, problematic
- Increasing rates of bacteremia
  - Intravascular devices
  - Instrumentation
  - IV drug use
- Aging population

How do the patient present?
Fever, inconsistent and in half

Backpain

- Usually insidious
- Progressively worsens
- Duration of pain
  - Variable (1-3 mos)
- Relieved by bed rest
- Often worse at nights
- May be absent in paraplegia

Reduced back mobility
Spinal percussion, a reliable clinical sign
Psoas Abscess

Flank pain
Limitations and pain on hip movement
Differential Diagnosis?

Fever and infection in another site

Noninfectious spinal conditions

Metastatic lesions

Disk herniation

Compression fracture

Degenerative spinal disease
What are your preferences for radioimaging?
Plain Radiographs

♣ Bone destruction, inapparent for 2-3 weeks
  ♣ Two contiguous vertebrae
  ♣ Collapse of the intervening disc space
♣ Single vertebra, compression fracture?
Computed Tomography

- Earlier than plain radiographs
- Plain CT, false-negativity in epidural abscess
- CT, also useful for detecting
  - Bony sequestra
  - Adjacent soft tissue abscesses
  - Localizing biopsy site
Magnetic Resonance Imaging

♣ The most sensitive technique
  ♣ 91% sensitivity if the symptoms <2 wks
  ♣ 96% sensitivity if the symptoms >2 wks
♣ Superior to CT for epidural abscesses
♣ Cannot be used with metal implants

(B) **T2-weighted** sagittal image demonstrates increased signal in the L2/3 and L3/4 intervertebral disc spaces (arrows).

(C) Post-contrast sagittal fat saturated **T1-weighted** image shows enhancement in the intervertebral disc spaces (arrows) and adjacent L2 to L4 vertebral bodies (arrowheads).
Place of MRI in the Follow-up?

- Persistent ESR, CRP elevation
- Persistent pain
- New neurologic signs/symptoms

How do you confirm microbial etiology?

No uniform advise…
Invasive Sampling

Our Procedure (GATA Haydarpasa Training Hospital)

Aspiration

Inconclusive

Second aspiration

Inconclusive

If unresponsive

Percutaneous endoscopy

Open biopsy

Standardization?
Sample Processing

Aspirate >0.5 ml

MGIT 960

Growth

Centrifugation

Vortexing

1.5 ml

24-48 hr incubation

- Aerobic culture
- Fungal culture

BACTEC Myco-F lytic culture

Growth

- EZN
- PCR
- L-J

0.5 ml

Our Procedure (GATA Haydarpasa Training Hospital)
Erdem H, Comparison of 650 brucellar and tuberculous spondylodiscitis cases. (Unpub data)
Erdem H, Comparison of 650 brucellar and tuberculous spondylodiscitis cases. (Unpub data)
What are the infectious complications of spondylodiscitis?
Checking Endocarditis

- Predisposing heart conditions
- Heart failure
- Positive blood cultures
- Infection due to Gr (+)

What are the therapeutic targets?
Mainstays of Therapy

♣ Eradicating the infection
♣ Relieving pain
♣ Restoring neurologic function
♣ Maintaining spinal stability

Timing of Antibiotics

- Should be individualized
- Antibiotics
  - Decrease recovery
  - Repeat biopsy…
- Withhold in stable cases
- Should cover
  - Staph, Strep, Gr (-) bacilli
What is your choice in the management of staphylococcal spondylodiscitis?
<table>
<thead>
<tr>
<th>Pathogen/Resistance Level</th>
<th><strong>FIRST CHOICE</strong></th>
<th><strong>ALTERNATIVE CHOICE</strong></th>
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</thead>
<tbody>
<tr>
<td><strong>MSSA</strong></td>
<td>Nafcillin sodium OR oxacillin sodium, 1.5-2 g IV q4h for 4-6 wk, OR cefazolin, 1-2 g IV q8h for 4-6 wk</td>
<td>Vancomycin*, 15 mg/kg IV q12h for 4-6 wk; some add rifampin, 600 mg PO qd, to nafcillin/oxacillin</td>
</tr>
<tr>
<td><strong>MRSA</strong></td>
<td>Vancomycin, 15 mg/kg IV q12h for 4-6 wk OR Daptomycin 6 mg/kg IV q24h</td>
<td>Vancomycin, 15 mg/kg IV q12h for 4-6 wk</td>
</tr>
<tr>
<td>Pen-sensitive streptococci</td>
<td>Aqueous crystalline penicillin G, 20 million U/24 hr IV for 4-6 wk OR ceftriaxone, 1-2 g IV OR IM q24h for 4-6 wk OR cefazolin, 1-2 g IV q8h for 4-6 wk</td>
<td>Vancomycin, 15 mg/kg IV q12h for 4-6 wk</td>
</tr>
<tr>
<td>Enterococci or streptococci (MIC≥0.5)</td>
<td>Aqueous crystalline penicillin G, 20 million U/24 hr IV for 4-6 wk, OR ampicillin sodium, 12 g/24 hr IV; the addition of gentamicin sulfate, 1 mg/kg IV OR IM q8h for 1-2 wk, optional</td>
<td>Vancomycin, 15 mg/kg IV q12h for 4-6 wk; the addition of gentamicin sulfate for 1-2 wk, optional</td>
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</table>

*Teicoplanin
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<th>Enterobacteriaceae</th>
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<tr>
<td></td>
<td>Ceftriaxone, 1-2 g IV q24h for 4-6 wk, OR Ertapenem 1 g IV q24h</td>
<td>Ciprofloxacin, 500-750 mg PO q12h for 4-6 wk, OR Levofloxacin 500-750 mg PO q24h</td>
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<td>Pseudomonas aeruginosa</td>
<td><strong>FIRST CHOICE</strong></td>
<td><strong>ALTERNATIVE CHOICE</strong></td>
</tr>
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<td></td>
<td>Cefepime, 2 g IV q12h, Meropenem, 1 g IV q8h OR Imipenem, 500 mg IV q6h for 4-6 wk</td>
<td>Ciprofloxacin, 750 mg PO q12h for 4-6 wk, OR Ceftazidime, 2 g IV q8h</td>
</tr>
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## Brucellar Disease

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<th>Primary regimen</th>
<th>Alternative regimen</th>
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<tr>
<td><strong>Doxycycline</strong> 100 mg PO twice daily</td>
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<tr>
<td><strong>PLUS gentamicin</strong> 5 mg/kg IV/IM daily</td>
<td><strong>PLUS rifampicin</strong> 600-900 mg (15 mg/kg) PO once daily</td>
</tr>
<tr>
<td><strong>OR streptomycin</strong> 1 g IM daily</td>
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Doxycycline **100 mg**
P.O. twice daily  **6-24 weeks**

**PLUS gentamicin** 5 mg/kg IV/IM daily  **2 weeks**

**OR streptomycin** 1 g IM daily  **2 weeks**


Pott Disease

♦ Optimal duration, uncertain
♦ As in pulmonary tbc
  ♦ 6 mos, mostly sufficient
♦ Longer duration (9-12 mos)
  ♦ Regimens without rifampin
  ♦ Extensive/advanced disease

Thanks...

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