Tuberculosis of the spine: pathology and diagnosis
Tuberculosis of the spine

1. Usually secondary to an extraspinal source of infection

2. A combination of osteomyelitis and arthritis

3. More than one vertebra is involved
Tuberculosis of the spine

4. ant. aspect of the v. b. adjacent to the subchondral plate

5. leads to vertebral collapse and kyphosis

3. a cold abscess - ligaments and soft tissues
Tuberculosis of the spine

History:

the average duration of symptoms at the time of diagnosis is 3-4 months,

the earliest symptom:

spinal or radicular pain (weeks).
Constitutional symptoms include fever and weight loss.

Neurologic abnormalities in 50% of cases (paraplegia, paresis, impaired sensation, nerve root pain, or cauda equina syndrome).
Tuberculosis of the spine

Physical examination:

1. Careful assessment of spinal alignment
2. Inspection of skin (sinuses)
3. Abdominal evaluation (subcutaneous flank mass)
4. Meticulous neurologic examination
Thoracic and lumbar spine comprise 80-90% of spinal tuberculosis sites.

Remarks:
Thoracic and lumbar spine comprise 80-90% of spinal tuberculosis sites.
Tuberculosis of the spine

Remarks:

Spine deformity (kyphosis) of some degree occurs in almost every patient.
Tuberculosis of the spine

Remarks:

Large cold abscesses of paraspinal tissues or psoas muscle can protrude under the inguinal ligament.
Lab Studies:

Tuberculin skin test demonstrates a positive finding in 84-95% of patients (non-HIV-positive).
Tuberculosis of the spine

Lab Studies:

Erythrocyte sedimentation rate (ESR) may be markedly elevated (>100 mm/h)
Tuberculosis of the spine

Lab Studies:

Microbiology studies to confirm diagnosis: to stain for acid-fast bacilli (AFB) and isolate organisms for culture and susceptibility.
Plain radiography demonstrates lytic destruction of anterior portion of vertebral body:

- Increased anterior wedging
- Collapse of vertebral body
- Reactive sclerosis on a progressive lytic process
- Enlarged psoas shadow with or without calcification
Tuberculosis of the spine

Imaging Studies:

CT scanning:
bony detail of irregular lytic lesions, sclerosis, disk collapse, and disruption of bone circumference.

courtesy of prof. J.C.Y.Leong
Tuberculosis of the spine

Imaging Studies:

MRI:
Extension into soft tissues, spread of debris under the anterior and posterior longitudinal ligaments

courtesy of prof. J.C.Y. Leong
Tuberculosis of the spine

progressive kyphosis - risk of cord compression
(abscess, sequestra, reduced cord blood supply)

"Remarks on That Kind of Palsy of the Lower Limbs Which Is Frequently Found to Accompany a Curvature of the Spine and Is Supposed to Be Caused by It, Together with the method of Cure"

Pott's paraplegia
Tuberculosis of the spine
Tuberculosis of the spine
Tuberculosis of the spine
## Comparison table:

<table>
<thead>
<tr>
<th></th>
<th>Pyogenic</th>
<th>Tuberculosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onset</td>
<td>Acute</td>
<td>Chronic</td>
</tr>
<tr>
<td>Pain</td>
<td>+++</td>
<td>Relatively little</td>
</tr>
<tr>
<td>Site</td>
<td>Lumbar</td>
<td>Thoracic</td>
</tr>
<tr>
<td>Location</td>
<td>Single vertebral segment</td>
<td>Multisegmental, often skip lesions</td>
</tr>
<tr>
<td>Spread</td>
<td>Intraosseus</td>
<td>Along fascial planes</td>
</tr>
<tr>
<td>Deformity</td>
<td>Symmetrical collapse</td>
<td>Kyphosis</td>
</tr>
<tr>
<td>Disc</td>
<td>Destroyed</td>
<td>Sequestrated</td>
</tr>
<tr>
<td>Abscess</td>
<td>Epidural</td>
<td>Paravertebral</td>
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</table>
## Comparison Table

<table>
<thead>
<tr>
<th></th>
<th>Osteomyelitis</th>
<th>Discitis</th>
<th>TB</th>
<th>Tumour</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td>adult</td>
<td>any</td>
<td>any</td>
<td>any</td>
</tr>
<tr>
<td><strong>Region</strong></td>
<td>lumbar</td>
<td>lumbar</td>
<td>thoracic</td>
<td>any</td>
</tr>
<tr>
<td><strong>Site</strong></td>
<td>metaphysis</td>
<td>disc, endplate</td>
<td>anterior body</td>
<td>any</td>
</tr>
<tr>
<td><strong>Disc Involv.</strong></td>
<td>yes</td>
<td>yes</td>
<td>Not primarily</td>
<td>no (except lymphoma &amp; myeloma)</td>
</tr>
<tr>
<td><strong>ESR</strong></td>
<td>high</td>
<td>high</td>
<td>high</td>
<td>N</td>
</tr>
<tr>
<td><strong>WBC</strong></td>
<td>high</td>
<td>elevated</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td><strong>Biopsy</strong></td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>
THANK YOU