



A CASE OF COAGULASE NEGATIVE STAPHYLOCOCCUS INFECTIVE SPONDYLODISCITIS

Orthopaedics

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ABSTRACT

BACKGROUND: A 32 year obese female presented with complain of gradually increasing low back pain since 3 months. She was diagnosed with infective spondylodiscitis and treated surgically thereafter

TREATMENT: L2-3 laminectomy + L2-3 discectomy + Fixation + Cage insertion at L2-3 space. Blood culture positive for CONS, Levoflox sensitive.

OUTCOME: At 6 months follow up patient can do day to day activities without any thoracolumbar support and patient is pain free.

CONCLUSION: Infective spondylodiscitis is a rare entity and within that CONS infection is even rarer. Step by step approach and avoidance of nonchalant use of antibiotics helped us diagnose it and thereby helped us giving a definitive and correct management.

KEYWORDS

BACKGROUND

Spinal infection is a loose terminology in use since ages. The first such description of infection involving the vertebral column was made by Potts in 1779, detailing the description of Tuberculosis of the spine. Around a century afterwards, Lannelongue from France for the first time used the term Pyogenic osteomyelitis.

Infection causes inflammation. Such a condition affecting the intervertebral disc is called spondylodiscitis. When following the natural progression it affects the vertebral endplates or the vertebral body the infection is termed vertebral osteomyelitis or Spondylitis. Either of the terminology is interchangeably used.

It is a rare diagnosis and must be actively looked for with its clinical signs and symptoms. Blood culture has an important role in finding the etiological agent. Radiograph and Magnetic Resonance Imaging aid in confirming Diagnosis.

Incidence of infective spondylodiscitis is 1:1 lac to 1:2.5 lac in developed countries. Extensive studies show a bimodal distribution of the infection with Peaks at 15-20 Years and 50-70 years of age. [2]

Pathogenic organisms reach the spine hematogenously through arteries or veins (via Batson's plexus), or by direct inoculation from a diagnostic or a surgical procedure. In adults, the subchondral spongy bone is supplied by nutrients end arteries where a small septic embolus may lodge in the setting of bacteremia and begin to proliferate leading to bone infarct and subsequent osteomyelitis[1]

After the infection settles into the subchondral space, it usually spreads contiguously into the surrounding disc, causing inflammation of both-osteomyelitis and discitis. The infection can then spread across the disc into the adjacent contiguous end-plates

Case

A 32 year old female presented to the OPD with Pain as the predominant symptom, localized to the spine, exacerbated by movement and radiating to both legs.

Paravertebral muscle tenderness and spasm, and, limitation of spine movement were present which represent the predominant signs in spondylodiscitis.

Positive Neurological finding: Bilateral - EHL, EPL: 4/5

Suspecting a disc lesion X-ray was done which showed mild wedging of the L2 & L3 Vertebrae, with adjacent body erosion. Detailed examination revealed signs of septic spine and relevant blood investigations were done.



Blood Investigations:

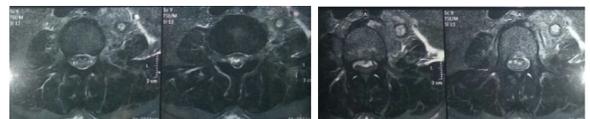
TC 12800, ESR: 72, CRP: Reactive

Following this MRI of Lumbar spine was done:

MRI: Changes of acute spondylodiscitis at L2-3 level associated with prevertebral and left paravertebral(ventral) epidural abscess and left Psoas abscess.

Suspecting infective etiology a blood culture was sent before starting antibiotics and because of severe pain and neurological involvement surgical intervention was planned.

Broad spectrum IV antibiotics were given until blood culture report was obtained and after that when it came levofloxacin positive a shift to specific antibiotic was made. In the meantime surgery was performed.



SURGERY:

L2-3 Laminectomy + Discectomy + Screw & Rod fixation with Poly (45mm) + Cage(10mm) insertion in the L2-3 disc space.

The primary aim of surgical technique was debridement with biopsy for culture and histology, but since, after decompression, drainage and a sequestrectomy the spine becomes unstable, a mechanical stabilisation was planned needed in the same operation.

Open surgery, is nowadays still the standard, particularly in cases of large bone destruction.

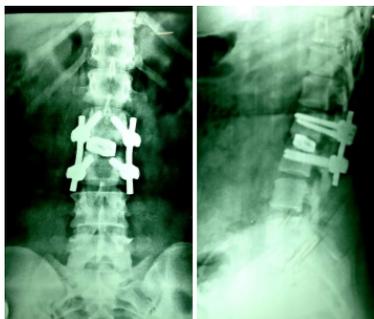
Here, open surgery via posterior approach was done.

The posterior approach was used. This was due to presence of an epidural abscess in the lumbar spine.

Drainage followed by pedicular instrumentation which is the standard when a posterior approach was carried out.

Titanium mesh cages which have been introduced for single-stage surgical debridement and reconstruction were used. It was filled with autogenous bone graft.

Pedicle screw instrumentation was combined in order to secure fixation.

**Post Operative:**

Histopathological examination of the biopsy material showed inflammatory cells and granulation tissue corresponding with infective etiology. AFB were not seen.

Blood Culture Report came positive for CONS sensitive to levofloxacin which was then given IV for 6 weeks and then orally until ESR came within the normal range.

Following completion of IV dosage patient was discharged but weekly follow up with ESR values and a watchout for return of symptoms was done. Patient was symptom free at 6 months and TLSO brace was removed and patient mobilized gradually.

DISCUSSION:

The incidence of spondylodiscitis is very low and estimated to be in the range of 4-24/million/year as per literature. Spondylodiscitis usually occurs in association with other infections, malignancies and immunocompromised conditions. It can occur as a complication of long term glucocorticoid use and thecal sac puncture.[5,6]

Relative frequency of pathogens causing infective spondylodiscitis**Gram Positive**

Staph. Aureus 57%
Strep pyogenes 4.7%
CONS 3.4%

Gram Negative

E. Coli 10.5
Proteus spp. 6.7%
Pseudomonas aeru. 5.7%

Anaerobic

Propionibacterium species 2%

Predisposing Factors:

Diabetes
Chronic Alcoholism, Rheumatoid Arthritis, Cancer
Smoker
High BMI (>30)

The radiographic changes in vertebral osteomyelitis are seen 2-8 weeks after the onset of symptoms. MRI is most sensitive (96%), specific (93%) and accurate (94%) for early recognition and localization of infection and is considered as the imaging modality of choice (gold standard) for the radiological diagnosis of Spondylodiscitis. MRI is also useful in demonstrating the presence of epidural or paraspinal extension of the infection.[3]

Cages provide strong mechanical support, and are supportive to osteoprogenitor cells proliferation. The idea behind using cages is to avoid the morbidity and complications associated with tricortical harvesting, and also its resorption phase which results in loss of strength for vertical support.

Interbody cages provide a wonderful early support to compression forces exerted by the vertebrae above and below. However, secondary mobilisation rates in long term, stress shielding, and ensuing failure are some of its common complications.[8]

According to recent reports, cages appear to have solved neither mechanically nor biologically interbody spinal osteosynthesis either in spinal fracture treatment, in degenerative spine stabilisation, or after correction of deformity.[8,9]

Following Histopathological examination report and Blood Culture report specific antibiotic agent according to the microbial growth is the key to treatment of infective spondylodiscitis. Erythrocyte sedimentation rate is used as a guide to end of treatment. Although the erythrocyte sedimentation rate does correlate well with response to treatment as a general rule, care must be taken in interpretation of a persistently elevated or even rising erythrocyte sedimentation rate as an isolated clinical finding.[7]

CONCLUSION

Spinal infections remain a rare pathology, although an increased incidence has been reported due to a progressively more susceptible population (particularly history of previous spine surgery and HIV positive populations) and improved diagnostic acuity.

Due to the insidious onset, a high clinical suspicion remains the centerpiece of a prompt diagnosis, which is pivotal to improve long-term outcomes and prevent permanent neurologic deficits. Spondylodiscitis is a rare diagnosis and must be kept as a differential with active lookout for its signs and symptoms for weeding out amongst the patients with low back pain.

MRI is the examination of choice for analysing the extent of the infection in the soft tissue and epidural Space.

IV antibiotics followed by oral according to sensitivity with concomitant monitoring of ESR is the treatment of choice for infection.

For collapse, instability at spine or neurological involvement fixation is done as and when required. Biopsy is mandatory whenever opening up the spine. Thorough investigation using a combination of CBC, ESR, CRP, Blood culture and its correlation with clinical findings and Histopathological examination is a must for prompt diagnosis in this rare disease.



Patient at 6 months follow up with Painless range of motion

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