

***Staphylococcus aureus* spondylodiscitis**

Spondylodiscitis due to *Staphylococcus aureus* is the most common cause of pyogenic spondylodiscitis usually resulting from hematogenous spread.

Case presentation: A case of a 65-year healthy male without any medical comorbidities presented with severe back pain. He was unable to turn sideways while sleeping, sit, stand or walk. The symptoms were insidious in onset gradually progressive over a period of 3 weeks. He had no radiating leg pain, tingling or numbness. He had no bowel/bladder symptoms. His pain was so severe as to limit his household ambulatory with difficulty in managing even his daily household activities.

He was admitted for dengue fever along with viral myocarditis with secondary *Staphylococcus aureus* sepsis (as diagnosed with blood culture) around 1 month ago. No heart valve vegetations were noted on 2D ECHO. He was given piperacillin-tazobactam for the same at that time.

On examination: he was afebrile, averagely built with dorsolumbar junctional tenderness with a knuckle deformity. His neurological examination in both lower limbs was normal. His X-rays showed D10-11 spondylodiscitis with end plate destruction causing significant collapse. MRI confirmed the presence of pus in and around D10-11 space without any cord changes.

Treatment: We decided to operate him because of development of kyphosis in short duration with severe pain and instability. The other reason being debulking the infected tissue to attain a sample for histopathology and culture.

The surgery done was D11 D12 transpedicular decompression and D9 to L2 fixation fusion. In this procedure, we decompressed the cord circumferentially, curetting the D10-D11 endplates through transpedicular approach, shortening for anterior column support and posterior long fixation. The fixation was satisfactory so we mobilised him as early as possible with sitting and standing as per surgical site pain tolerance over next 3-4 days. Culture report came out to be positive for *Staphylococcus aureus* sensitive to clindamycin. So, in consultation with infectious disease specialist we started him on IV Linezolid for two weeks followed by oral antibiotics for four weeks. At follow-up, the patient has mobilised very well and has no back pain, fever or any other constitutional symptoms. X-rays show satisfactory healing.

Discussion:

Spondylodiscitis, encompasses vertebral osteomyelitis, spondylitis and discitis. In patients aged over 50 years, it is the main manifestation of haematogenous osteomyelitis. A wide range of organisms have been associated with spondylodiscitis. But primarily, a monomicrobial bacterial infection, *S. aureus* is the predominant pathogen, accounting for half of non-tuberculous cases (range 20–84%). Diagnosis is often delayed due to rarity of the disease. It is based on clinical, laboratory and radiological features. The clinical symptoms are non-specific but back or neck pain is very common.

Medical management aims to eradicate the infection, restore and preserve the structure and function of the spine, and alleviate pain. It essentially consists of antimicrobial therapy and non-pharmacological treatments such as physiotherapy and immobilization.

Linezolid, an oxazolidinone, has a broad spectrum of activity against Gram-positive organisms. It acts by inhibiting the bacterial protein synthesis by blocking the formation of the 70S initiation complex. It has rapid penetration properties in infected and non-infected bony tissue. It has excellent oral bioavailability. A retrospective analysis of clinical effectiveness of at least 6 weeks of oral linezolid therapy for osteomyelitis was done. The clinical cure rate was 55% for the 20 patients who received at least 6 weeks of therapy. Another study that evaluated the results of linezolid treatment of osteomyelitis in patients in a compassionate use program; of 22 patients evaluable, there was an 82% clinical cure rate.

Linezolid with high oral bioavailability, has good activity against multiresistant pathogens. Due to good clinical outcomes and excellent pharmacokinetic profile, the drug makes a cost effective option in treatment of bone and joint infection.

References:

Gouliouris T, Aliyu SH, Brown NM. Spondylodiscitis: update on diagnosis and management. *J. Antimicrob. Chemother.* 2010; 65 (suppl 3)

Ager S, Gould K. Clinical update on linezolid in the treatment of Gram-positive bacterial infections. *Infection and Drug Resistance.* 2012;5:87-102.

Anagnostakos K, Mosser P. Linezolid in the treatment of orthopaedic bone and joint infections-a systematic literature review. *OA Musculoskeletal Medicine* 2013;1(1):5.