A 78-year-old male was presented to his local orthopedic surgeon for low back pain. The patient had no neurologic deficits, and with the presumptive diagnosis of degenerative spondylosis, he has been treated with non-steroidal anti-inflammatory medications and physiotherapy for 3 months.

The past medical history included hypertension, chronic obstructive pulmonary disease, atrial fibrillation and congestive heart failure. He was receiving b-blockers, loop diuretics, and digoxin for his cardiovascular problems and inhaled corticosteroids and ipratropium for his chronic obstructive pulmonary disease.

Three months later, the patient had worsening of his back pain. Plain radiographs, computed tomography and magnetic resonance imaging of the lumbar spine were obtained, which showed osteoarthritis of the lower lumbar facet joints. Facet joints injection was done using methyl-prednisolone acetate and bupivacaine hydrochloride 0.5%. The patient had temporary relief of his symptoms for 2 days followed by deterioration of his low back pain and acute onset of low-grade fever. Laboratory investigation revealed increased white blood cell count (16.0 x 10^9/l), erythrocyte sedimentation rate (83 mm/1st hour), and C-reactive protein (185 mg/l). Spine infection was suspected and ciprofloxacin was administered (500 mg per os, twice a day) for four weeks. However, this treatment led to minimal improvement of the clinical symptoms.

The patient was referred to us for further evaluation and treatment. At the time of his admission, his main signs and symptoms included low back pain and tenderness, and increased body temperature (37.8°C). Magnetic resonance imaging of the lumbar spine showed end plate erosions of L3, L4, L5 vertebral bodies (Figure 1) and signal abnormalities at the L2-L3 and L3-L4 intervertebral discs (Figure 2).

What is the appropriate management?

Diagnosis - Treatment

With the presumptive diagnosis of spondylodiscitis, the quinolone treatment was discontinued. Five days later, a fine needle aspiration of the affected area (L3-L4 intervertebral disc) was done and the specimen was sent for bacteriological analysis. Pseudomonas aeruginosa, resistant to many classes of antibiotics, including quinolones except from ciprofloxacin that had intermediate sensitivity, anti-Pseudomonas penicillins, gentamicin and tobramycin was isolated. The patient was administered intravenous amikacin (500mg, every 12 hours) and imipenem plus cilastatin (500 + 500mg, every 8 hours), for a four-week period.

The patient had an uneventful recovery and was eventually discharged from the hospital with significant improvement of the low back pain and laboratory investigation within normal limits. Antibiotic therapy was continued for a period of 24 more weeks (ciprofloxacin, 500 mg, twice daily), in addition to anti-inflammatory and analgesic medications that were...
gradually discontinued after a month.

At the latest follow-up, 6 months after the completion of the antimicrobial therapy, magnetic resonance imaging of the lumbar spine showed significant narrowing of the L2-L3 and L3-L4 intervertebral spaces with no signs of active infection.

Teaching Points
- Lumbar spine facet joints are a common cause of low back pain. The mechanism of pain is not known; osteoarthritis, stress fractures, capsular tears and inflammatory arthritides of the facet joints have been suggested as causative factors. To confirm that the facet joint is the source of chronic low back pain, injection of hypertonic saline into the facet joint may reproduce the pain, and injection of an anaesthetic may eliminate it.
- Treatment of facet joint related pain can be either conservative or invasive, depending on various factors including intensity and duration of pain and comorbidity of the patient. Invasive procedures include injection with anaesthetic agents and/or corticosteroids, and direct percutaneous nerve ablation (by radiofrequency, chemical agents, or cryoneurolysis). Interestingly, despite the fact that invasive methods are regarded as safe and effective, Slipman et al. in a critical review article in 2002 suggested that the evidence for the use of intraarticular injections and radiofrequency ablation should be rated as level III-IV and III, respectively. This was concluded after analysis of 8 prospective studies; 4 for each of the two methods mentioned.
- Up to date, there have been few reports on infections following facet joint injections. These reports present two cases of paraspinal and one of epidural abscess formation, and one case of septic facet joint arthritis. Septic facet joint arthritis has been reported only once in the literature secondary to paravertebral injection.
- In the current case, the association of the facet injection with the deterioration of the patient's clinical condition, in addition to the absence of any obvious hematogenous mechanism of infection, suggests an iatrogenic cause of spondylodiscitis. Furthermore, the isolated organism and its antimicrobial resistance pattern are in favour of an iatrogenic cause.

Reference List

Acknowledgements
1. This case was prepared for our website by Ioannis A. Bliziotis, M.D.
2. A modified version of this case accompanied by a full literature review was submitted for publication.