



## **Management Update for Pyogenic Spinal Infections**

### **Background**

Pyogenic spondylodiscitis is a rare but serious condition that can cause significant morbidity and mortality if not identified early and treated appropriately. The failure to diagnose and treat early can lead to significant bony destruction, deformity and neurological injury. This can cause misery to affected patients that is reflected in the cost of managing the disability and litigation which may result. We have produced this summary document to assist all clinicians with the management of this condition.

### **Definition**

The term "spondylodiscitis" refers to an infection of the intervertebral disc and neighbouring vertebral bodies, usually due to haematogenous spread.

### **Clinical diagnosis**

Spondylodiscitis should be suspected in any patient presenting with unremitting back pain, a generalised illness and pyrexia of unknown origin. Typically, patients are between their 5<sup>th</sup> and 7<sup>th</sup> decade with predisposing factors such as diabetes mellitus, obesity, renal failure, cancer, steroid usage and other immunosuppressive conditions. A high index of suspicion should also apply to younger IVDU patients. On many occasions the presentation and/or diagnosis may be delayed for some time, resulting in irreversible destructive changes.

### **Radiological diagnosis**

Although plain radiographs may show evidence of destructive changes, MRI is the imaging modality of choice. Ideally, the whole spine should be imaged as multi-focal infection is common. T1, T2, STIR and contrast studies are recommended.

### **Bacteriological diagnosis**

The key to effective management is specific antibiotic treatment. If the patient is clinically stable, no antibiotics should be started until a pathogen has been identified from blood cultures or a biopsy of the affected area has been obtained. Whenever possible, a CT or fluoroscopically guided tissue biopsy should be performed to confirm the diagnosis and identify the pathogen prior to commencing antibiotic treatment.

All patients should have FBC, ESR & CRP blood tests. Serial blood cultures of between 2 and 3 samples should also be obtained in all suspected cases and if positive these may be used to guide antibiotic treatment in the absence of a positive tissue biopsy.

## **Treatment**

### **Surgical**

Although the majority of cases will not require surgery, emergency surgical management must be considered in all cases where there is MRI evidence of a fluid abscess collection causing neurological deficit due to either spinal cord or cauda equina compression.

Surgical management should also be considered when initial medical management has failed to control the infection, where there is persistent painful instability despite successful medical treatment of the infection, or in cases where late deformity leads to neurological deficit.

### **Conservative**

Conservative management alone may be considered in cases where there is no neurological compromise, or unfavourable factors such as extensive granulation tissue

The mainstay of conservative treatment should include high dose intravenous antibiotics after obtaining blood and tissue specimens. The majority of cases (60%) are due to Staph aureus so initial treatment with both an anti-staphylococcal and broad spectrum antibiotic with good bone penetration is advisable. Antibiotic treatment may then be revised in the light of any positive cultures and advice from a microbiologist and/or the infectious diseases team. Consider performing a cardiac echo assessment in all cases of spondylodiscitis.

Based on current practices, the majority of cases will be treated with six weeks of intravenous antibiotics followed by six weeks of an oral equivalent. However, increasing evidence suggests that shorter courses (e.g. 2 weeks of IV and 4 weeks of oral treatment) may be equally effective in selected cases. Together with improvements in pain and pyrexia if present, inflammatory markers should be monitored on a regular basis (once or twice per week) to assess treatment response.

Repeat an MRI scan if there is development of neurological symptoms/signs. Consider repeating MRI and/or biopsy if no improvement in the patient's general condition or inflammatory markers is observed.

If a significant abscess collection (epidural or psoas) collection was present before treatment consider repeating MRI towards the end of treatment to ensure satisfactory resolution.

All patients with suspected or proven spinal infection should receive spinal surgical advice, either by direct referral channels or via an MDT setting.