Spinalepidural abscess: the importance of early diagnosis and treatment

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Abstract

Objectives—To remind clinicians of the dangers of delayed diagnosis and the importance of early treatment of spinal epidural abscess.

Methods—A review of the literature on spinal epidural abscess and a comparison of the published literature with local experience.

Results—Imaging with MRI or CT enables early diagnosis of spinal epidural abscess and optimal therapy is surgical evacuation combined with 6–12 weeks (median 8 weeks) of antimicrobial chemotherapy. Clinical features are fever, pain, and focal neurological signs and may be associated with preceding and pre-existing bone or joint disease. The commonest aetiological organism is S aureus.

Conclusion—Early diagnosis and appropriate early antimicrobial chemotherapy with surgery is associated with an excellent prognosis.

Keywords: spinal epidural abscess; diagnosis; treatment; MRI

Epidemiology

Spinal epidural abscess is a rare but potentially devastating condition. When recognised and treated early the outcome is excellent.1 Late diagnosis or inadequate treatment may leave the patient with long term severe or disabling incapacity. The need for early diagnosis and the benefits of appropriate early antimicrobial chemotherapy with surgery are discussed.

Clinical features

The typical features of spinal epidural abscess are recognisable clinically—notably fever, spinal pain and tenderness, and radiating root pain followed by limb weakness. Pain is the most consistent symptom and occurs in virtually all patients at some time during their illness. Spinal pain and fever are usually the only symptoms present before a precipitous neurological deterioration occurs15 and were the only features in two of our patients Most patients have major neurological signs before surgery15 which are thought to result from a compromised spinal cord vasculature rather than direct cord compression.14 When septicemia dominates the clinical picture, as in two of our patients, whose presenting features included jaundice, fever, confusion, and raised fibrinogen degradation products, the neurological symptoms may go unnoticed. This may also be the case in patients confined to bed. In patients with chronic infection,
constitutional symptoms of fever, weight loss, and systemic upset may predominate over the neurological syndrome and lead to late diagnosis and treatment.

**Location**

The described sites of spinal epidural abscess are variable. Only 20% occur anterior to the spinal cord. Our experience suggests that...
Spinal epidural abscesses in the cervical or upper thoracic region are not uncommon—three of our eight patients had cervical or thoracic spinal epidural abscesses. Larger studies, however, describe a preponderance of lower thoracic and lumbar abscesses. The patients with lumbar abscesses may be misdiagnosed as having a herniated lumbar disc.

**Microbiology**

*Staphylococcus aureus* was isolated in six of our eight patients (75%). This is the most commonly recognised causative organism and accounts for 57%-73% of reported abscesses. In a review of five studies between 1930 and 1982, Danner and Hartman found that *S aureus* was isolated in 62%, other gram positive cocci cultured in 10%, gram negative organisms in 18%, and anaerobes in 2%. After *S aureus*, *Mycobacterium tuberculosis* is the most frequent cause and accounted for 25% of infections in the series reported by Kaufman et al. Streptococcus milleri has previously been reported as a cause of spinal epidural abscess and is recognised as an organism with a tendency to abscess formation. *Haemophilus parainfluenzae*, *Brucella* species, and *Actinomyces israelii* are amongst the many other isolates described. Disseminated fungal infections such as cryptococcosis, aspergillosis, and blastomycosis are rare causes and usually arise in immunocompromised patients. Aspergillus species are known to cause spinal epidural abscess in patients with AIDS.

**Imaging**

The extent and location of an abscess is best visualised using MRI. Multiplanar imaging and visualisation of the soft tissues—including the spinal cord, paraspinal musculature, and the visualisation of the soft tissues—including the spinal cord and nerve roots. In the presence of paraparesis, the outcome depends on the time that elapses from its onset to surgery. The longer the lapse the greater is the usual long term legacy.

**Antimicrobial therapy**

Empirical antimicrobial treatment of spinal epidural abscess should be bactericidal, start early, be delivered intravenously in high doses, and be continued well into the postoperative period. Initial treatment should be broad spectrum and include a combination of drugs with bactericidal activity against staphylococci, anaerobes, and gram negative organisms. If a methicillin sensitive anaerobes, and gram negative organisms. If a bactericidal cover is safest and best.

**Surgery**

Surgical treatment entails emergency evacuation of the pus with decompression of the spinal cord and nerve roots. In the presence of

![Image](http://jnnp.bmj.com/ on April 14, 2017 - Published by group.bmj.com)
Conclusion
The appreciable neurological recovery seen in some patients reflects the value of prompt diagnosis and early treatment. The key to successful management is early diagnosis, which requires that involved clinicians consider the diagnosis. Repeated spinal and neurological examinations are essential in any patient with an unknown focus of infection and when there is spinal pain or tenderness full investigation is warranted. The increasing availability of MRI warrants. The increasing availability of MRI

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