

Idiopathic Epidural Abscess – A Case Report

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Abstract

We report case of dorsolumbar spine epidural abscess with atypical manifestations. Patient presented as an ascending paraparesis without signs of upper motor neuron involvement. The initial presentation was only lumbago and paraparesis. However, no back pain or percussion tenderness noted initially. There was also no fever.

Introduction

We report case of dorsolumbar spine epidural abscess with atypical manifestations. Patient presented as an ascending paraparesis without signs of upper motor neuron involvement. The initial presentation was only lumbago and paraparesis. However, no back pain or percussion tenderness noted initially. There was also no fever. The diagnosis was made on the eighth day. He had longstanding diabetes mellitus (DM) and presumably was not well controlled. Diabetic neuropathy and an immunocompromised status resulted in delayed diagnosis.

Case Report

A 42 year old male presented to our hospital casualty with backache and intermittent tingling. The onset of pain was sudden and was associated with bilateral radiculopathy. On examination locally no tenderness was appreciated and the patient was afebrile. Patient was a known diabetic with history of taking oral hypoglycaemics. Neurologically patient had paraparesis. The patient was observed in the wards and started developing gradually progressive weakness. The paraparesis was ascending type and was associated with bladder involvement from the

fourth day. Patient was taken for emergency decompressive surgery and his intraoperative material was sent for culture sensitivity. Post operative protocol was followed and the patient was mobilized using a Taylors brace.

Post operatively patient made a remarkable recovery and by the second week patient had significant motor improvement and his bladder sensations returned.

Patient's haemogram was normal and his urine examination had no Bence Jones proteins. Glycosylated haemoglobin showed poor control. The histopathology report was suggestive of vertebral osteomyelitis with no evidence of tuberculosis or malignancy. Culture report showed no organism.

The patient was given bladder training exercises and back strengthening protocol was followed. IV antibiotics were continued for weeks.

To date patient has no neurodeficit and blood sugar levels show good control.

Background : A spinal epidural abscess threatens the spinal cord by compression and also by vascular compromise. If untreated, an expanding suppurative infection in the spinal epidural space impinges on the spinal cord, producing sensory symptoms and signs, motor dysfunction, and, ultimately, paralysis and death.^{1,12,17} Intervention early in the course of the disease undoubtedly improves the outcome.^{3,10,14} Frequently, the diagnosis is delayed because the initial presentation may be back pain alone or radicular symptoms with a chief complaint of chest pain or abdominal pain.

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Pathophysiology: The spinal epidural space is not a uniform space. Posteriorly, the epidural space contains fat, small arteries, and the venous plexus. Infections in this space can and do spread over several vertebral levels. Anteriorly, the epidural space is a potential space with the dura tightly adherent to the vertebral bodies and ligaments. Abscesses occur more frequently in the larger posterior epidural space. Most spinal epidural abscesses occur in the thoracic area, which is anatomically the longest of the spinal regions.^{3,4}

Haematogenous spread with seeding of the epidural space is the suspected source of



Fig. 1 : MRI showing cord compression with epidural collection.

infection in most children and is thought to occur in many adults as well. Reported sources of infection are numerous and include bacterial endocarditis, infected indwelling catheters, urinary tract infection, peritoneal and retroperitoneal infections, and others.

Direct extension of infection from vertebral osteomyelitis occurs in adults and rarely in children.

The source of infection is not identified in many patients.

The more clinically significant effects of the epidural abscess may be from involvement of the vascular supply to the spinal cord and subsequent infarction rather than direct compression.^{1,3,4,10,13,15} Staphylococcus aureus is the most commonly reported pathogen, though many other bacteria have been implicated, including Staphylococcus and Pseudomonas species, Escherichia coli, and Mycobacterium tuberculosis. Methicillin-resistant Staphylococcus aureus (MRSA) is increasingly reported particularly in patients with spinal surgery or implanted devices.

Causes

- Most cases arise from haematogenous seeding of the epidural space from a distant source of infection.

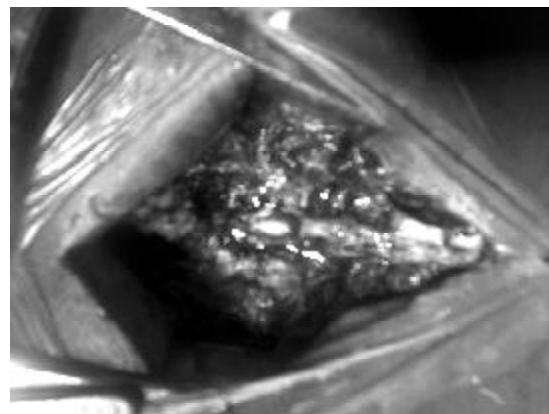


Fig. 2 : Intraoperative picture post decompression.

- A few cases are the result of direct extension of infection from the spine or paraspinal tissues.
- **Sources of haematogenous infection**
 - Skin and soft tissue^{3,7}
 - Infected catheter⁹
 - Bacterial endocarditis^{13,14}
 - Respiratory tract infection¹⁴
 - Urinary tract infection^{4,9}
 - Dental abscess
 - Others

Sources of contiguous spread

- Vertebral osteomyelitis
- Retropharyngeal abscess
- Dermal sinus tract¹⁶
- Psoas abscess²
- Penetrating injury
- Epidural injections or catheters⁶

Medical/Legal Pitfalls

- Failure to diagnose spinal epidural abscess promptly is the greatest pitfall.¹⁶
- Given the multitudes of patients presenting to emergency departments for treatment of back pain, recognizing this relatively rare, emergent, and potentially treatable condition is a challenge.^{5,8}
- Neurologic findings or complaints such as weakness in the extremities, root pain, a sensory level, or increased reflexes (often with clonus, spasms, and spasticity) may prompt further evaluation.⁹
- Localized spinal tenderness or tenderness to percussion suggests local inflammation.¹⁷
- Fever, if present, may signal the presence of this deep-seated focal infection.
- High-risk behaviour, and especially IV drug abuse, should heighten suspicion.¹¹

Conclusion

A high index of suspicion is most important in making a rapid, correct diagnosis of local spinal pain and has risk factors like DM. The classic symptom triad of SEA is not sensitive enough for early detection, so erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP) can be used to improve the accurate diagnosis.¹⁵ Spinal MRI should be performed as soon as possible.^{1,9,13} When patients present with neurologic deficits, surgical intervention is essential, if there is no contraindication and should be done at the earliest.

References

1. Bluman EM, Palumbo MA, Lucas PR. Spinal epidural abscess in adults. *J Am Acad Orthop Surg* 2004; 12 (3) : 155-63.
2. Bremer AA, Darouiche RO. Spinal epidural abscess presenting as intra-abdominal pathology: a case report and literature review. *J Emerg Med* 2004; 26 (1) : 51-6.
3. Butler KH. Spinal epidural abscess: Current diagnostic and management protocols. *Emerg Med Rep* 2000; 21 : 95-104.
4. Darouiche RO. Spinal epidural abscess. *N Engl J Med* 2006; 355 (19) : 2012-18.
5. Davis DP, Wold RM, Patel RJ, *et al.* The clinical presentation and impact of diagnostic delays on emergency department patients with spinal epidural abscess. *J Emerg Med* 2004; 26 (3) : 285-91.
6. Hooten WM, Kinney MO, Huntoon MA. Epidural abscess and meningitis after epidural corticosteroid injection. *Mayo Clin Proc* 2004; 79 (5) : 682-6.
7. Joshi SM, Hatfield RH, Martin J, Taylor W. Spinal epidural abscess: a diagnostic challenge. *Br J Neurosurg* 2003; 17 (2) : 160-3.
8. Khanna RK, Malik GM, Rock JP, Rosenblum ML. Spinal epidural abscess: evaluation of factors influencing outcome. *Neurosurgery* 1996; 39 (5) : 958-64.
9. Mackenzie AR, Laing RB, Smith CC, *et al.* Spinal epidural abscess: the importance of early diagnosis and treatment. *J Neurol Neurosurg Psychiatry*

- 1998; 65 (2) : 209-12.
10. Pereira CE, Lynch JC. Spinal epidural abscess: an analysis of 24 cases. *Surg Neurol* 2005; 63 Suppl 1 : S26-9.
 11. Prendergast H, Jerrard D, O'Connell J. Atypical presentations of epidural abscess in intravenous drug abusers. *Am J Emerg Med* 1997; 15 (2) : 158-60.
 12. Rigamonti D, Liem L, Sampath P, *et al.* Spinal epidural abscess: contemporary trends in etiology, evaluation, and management. *Surg Neurol* 1999; 52 (2) : 189-96; discussion 197.
 13. Sampath P, Rigamonti D. Spinal epidural abscess: a review of epidemiology, diagnosis, and treatment. *J Spinal Disord* 1999; 12 (2) : 89-93.
 14. Siddiq F, Chowfin A, Tight R, *et al.* Medical vs surgical management of spinal epidural abscess. *Arch Intern Med* 2004; 164 (22) : 2409-12.
 15. Soehle M, Wallenfang T. Spinal epidural abscesses: clinical manifestations, prognostic factors, and outcomes. *Neurosurgery* 2002; 51 (1) : 79-85; discussion 86-7.
 16. Tessman PA, Preston DC, Shapiro BE. Spinal epidural abscess in an afebrile patient. *Arch Neurol* 2004; 61 (4) : 590-1.
 17. Yin KS, Wang C, Lucero Y. Myelopathy secondary to spinal epidural abscess: case reports and a review. *J Spinal Cord Med* 1998; 21(4) : 348-54.
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