Acute Rehabilitation of Spinal Epidural Abscess Following Triple Laminectomy: A Case Report

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**Case Diagnosis**

C1-S5 spinal epidural abscess s/p C7-T1, T7-8, L4-5 laminectomies

**Case Description**

- A 36-year-old man presented with a large epidural collection, shown on MRI to extend from C1-S5 and resulting in spinal canal narrowing (Figures 1-3). The patient was admitted for acute inpatient rehabilitation after neurosurgical treatment and stabilization s/p C7-T1, T7-8, L4-5 laminectomies.
- He presented with impaired mobility and activities of daily living, and reported moderate pain in the back and lower extremities, but without specific distribution, during PT/OT therapies.
- Throughout his 7-day length of stay, the patient was closely monitored for methicillin-susceptible S. aureus bacteremia, and he received IV oxacillin and oral rifampin. Active medical problems included bright red blood per rectum with a likely diagnosis of hemorrhoids, DVT prophylaxis, newly diagnosed Type 2 DM, and urinary retention.
- The patient was switched from straight to intermittent catheter, but inability to void was complicated by urinary tract infection (UTI). Voiding improved after UTI treatment with macrobid antibiotic.

**Radiologic Findings**

- **Figure 1.** Sagittal MR examination of thoracic spine. A large epidural collection tracking posteriorly along the thecal sac is shown on T1W (A), T2W (B), and STIR (C) modalities. The latter technique uses short inversion times for fat suppression, and therefore provides best visualization of the abscess.
- **Figure 2.** Focal stenosis of spinal canal. The epidural abscess extended from C1-S5, narrowing the spinal canal diffusely at levels C7-T10 (D), and focally at L3-S1 (E). Anterior displacement of the thecal sac was thus observed from cervical spine through sacrum.
- **Figure 3.** Extension of the epidural abscess into the left sacral paraspinal muscles. Shown on T1W with fat saturation (F, G), the intramuscular mass measured 8 x 11 x 40mm at the level of S2-S4.

**Discussion**

- Infection of the epidural space, known as spinal epidural abscess (SEA), is an extremely rare condition that may be difficult to diagnose. While patients classically present with complaints of fever and back pain, the low incidence of SEA, estimated at 2-25 per 10,000 hospital admissions, indeed makes it an unlikely cause of such common medical symptoms.
- Two-thirds of SEA arise from complications of S. aureus infection, and identification of the lesion is greatly aided by MR imaging. If untreated, SEA compression of the spinal canal leads to severe back pain, sensorimotor changes, bowel and bladder dysfunction, and ultimately paralysis and death.
- Management of SEA is twofold: (1) reduce abscess size, by drainage or surgical intervention, and (2) eliminate causative infection with empiric antibiotic therapy.
- In this patient with an abscess extending the length of his spinal cord, an aggressive triple laminectomy was required, followed by antimicrobial therapy and close monitoring.

**Conclusion**

Spinal epidural abscess (SEA) is a rare infection of the central nervous system that leads to compression of the spinal cord and can cause permanent disability or death. Prompt diagnosis and early treatment, particularly antimicrobial therapy, are absolutely essential for prevention of adverse outcomes.

**Funding Acknowledgement**

This report was funded by the Medical Student Summer Clinical Externship (MSSCE) Program, and conducted in Summer 2015.