



Two Level Vertebral Osteomyelitis Without Spinal Epidural Abscess Secondary to Spinal and Epidural Anesthesia: Two Case

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Two Level Vertebral Osteomyelitis Without Spinal Epidural Abscess Secondary to Spinal and Epidural Anesthesia: Two Case

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Abstract

Vertebral osteomyelitis is a rare but serious complication of spinal-epidural analgesia and anesthesia. We report two cases of two level vertebral osteomyelitis and psoas abscess without spinal epidural abscess after spinal and epidural anesthesia. The first patient with psoas abscess was successfully treated with CT guided needle drainage and posterior spinal decompression with L1-L2 instrumented fusion and antibiotics. Second patient was successfully treated with antibiotics and posterior decompression with T12-L1 and L4-L5 posterior instrumented fusion

Introduction

The increased use of epidural-spinal analgesia and anesthesia techniques has increased the number and variety of complications due to these techniques. Infectious complications, including epidural abscess, meningitis, discitis and osteomyelitis after epidural-spinal analgesia and anesthesia are very rare (1,2). Although spinal epidural abscess is a well known complication, vertebral osteomyelitis is quite rare (2-6). Only a few cases report of osteomyelitis after epidural anesthesia and catheterization published. However vertebral osteomyelitis after spinal anesthesia, also very rare, has not been reported previously in literature. We report two cases of two level osteomyelitis and psoas abscess without spinal epidural abscess after spinal anesthesia.

Case Reports

Case 1: A 73 year old man with hypertension presented with back pain and paraparesis. Two months ago, he had undergone a knee operation under spinal anesthesia. Epidural or any spinal catheter was not used for spinal anesthesia. Three weeks later after operation, the patient developed progressive severe lower thoracic and upper lumbar back pain. Physical examination revealed tenderness at the upper lumbar spine. Neurologic examination

was normal. His deep tendon reflexes were intact. Also bowel and bladder function were not disturbed. The patient was found to be afebrile. Blood investigations revealed a normal leukocyte, urea, electrolytes, and calcium count but a raised erythrocytes sedimentation rate and C-reactive protein. Lumbar spinal plain radiographs and MRI demonstrated vertebral osteomyelitis at the L1 and L2 level and psoas abscess extending from L4-L5 without spinal epidural abscess formation (Illustration 1,2). Urinalysis was normal and also urine and blood cultures revealed no pathogenesis. CT guided needle aspiration of psoas abscess was performed and a drain placed. The color and consistency of infected tissue was like mud. Methicillin resistance staphylococcus aureus was cultured from the infected tissue. The patient was administered 200 mg of Teicoplanin intravenous twice a day for six weeks. The drain was left for seven days. Twenty days later, blood level of erythrocyte sedimentation rate and C-reactive protein were normal. A posterior spinal decompression and L1-L2 posterior instrumented fusion were performed under general anesthesia. Iliac bone graft was used. The posterior bony elements were normal. The patient's postoperative course was essentially uneventful. The patient was discharged from hospital 2 weeks after surgery.

Case 2: 79 year old women presented with back pain and neurologic claudication for one month. Two months ago she had undergone bilateral knee operation under epidural anesthesia. The epidural catheter was left postoperatively two days for pain control. Neurologic examination was normal. Also bowel and bladder function were not disturbed. The patient was found to be afebrile. Blood investigations revealed a normal leukocyte, urea, electrolytes, and calcium count but a raised erythrocyte sedimentation rate and C-reactive protein. Lumbar spinal plain radiographs and CT demonstrated spondylodiscitis and vertebral osteomyelitis at the L2 and L3 level without spinal epidural abscess formation (Illustration 3). Urinalysis was normal and also urine and blood cultures revealed no pathogens. The patient was administered 200 mg of Teicoplanin intravenous twice a day empirically for six weeks. Five days later after

admission, a posterior L2 and L3 level spinal decompression, T12-L1 and L4-L5 posterior instrumented fusion were performed under general anesthesia. Iliac bone graft was used. The aim of surgery was to make definitive diagnosis, to decompress the neural tissue, and to stabilize the lumbar spine. Methicillin resistance staphylococcus aureus was cultured from the infected tissue obtained at surgery. The patient's postoperative course was essentially uneventful. The patient was discharged from hospital 3 weeks after surgery.

Discussion

Epidural abscess is a rare but well known complication after epidural analgesia and anesthesia. Vertebral osteomyelitis is also very rare and more common in men older than 50 years old. Previously reported vertebral osteomyelitis cases had occurred after the epidural anesthesia with catheter use or epidural injection. This is the first case of vertebral osteomyelitis after spinal anesthesia without catheter use.

The most common mechanism of vertebral osteomyelitis is haematogenous spread from an infected focus elsewhere within the body (7,8). The proposed mechanism of vertebral osteomyelitis after epidural analgesia and anesthesia include haematogenous spread from a distant site (9), contiguous spread from surrounding sepsis and direct invasion by skin bacteria through the needle track (10), contaminated syringes (11) or contaminated local anesthetics (12). The mechanism of our patient's vertebral osteomyelitis were the direct invasion by skin bacteria through the needle track because the result of culture from the psoas abscess and infected material obtained from surgery cultures were methicillin resistance staphylococcus aureus. While Staphylococcus aureus is the most common colonizing organism of spinal epidural abscess, Pseudomonas aeruginosa is the most common colonizing organism of previously reported cases (2-4,6,13,14). This may be the result of immune compromise or diabetes mellitus.

Risk factors for infectious complications of spinal-epidural analgesia and anesthesia are AIDS, malignancy, alcohol abuse, diabetes mellitus and steroid use. In the previously reported cases some degree of immune compromise (2,3,5,6), malignancy (4) and diabetes mellitus (13-15) were present. Our cases were not immune compromised or had diabetes

mellitus.

Back pain after spinal-epidural anesthesia is common and frequency varies from 2% to 31% (14). Also the most common presenting features of vertebral osteomyelitis are localized spine tenderness and pain that is aggravated by movement (2). The most common causes of back pain after spinal-epidural anesthesia are hemathoma formation, ligamentous trauma, reflex paraspinal muscle spasm, and ligamentous strain during patient positioning (2). Fever and leukocytosis are not consistently seen. Up to 50% of patients with confirmed vertebral osteomyelitis being afebrile (15). Our patients were afebrile and suffered from back pain.

Diagnosis of vertebral osteomyelitis is made by computed tomography, MRI, and radionuclide bone scan. MRI is the choice of imaging investigation. The diagnosis of vertebral osteomyelitis in our patients were made by MRI because of its superior sensitivity and morphological imaging of soft tissue.

The management of vertebral osteomyelitis without surgery is antimicrobial therapy with or without immobilisation. Percutaneous CT-guided drainage is indicated for iliopsoas abscess. Indications for biopsy include negative blood cultures, failure to respond to antimicrobials and to rule out differential diagnosis such as tumour (14).

Conclusion

However clinical manifestation of vertebral osteomyelitis after spinal-epidural anesthesia and analgesia may not be specific, back pain is the major clinical sign. When severe back pain occurs associated with systemic signs of infection with or without fever, the diagnosis of vertebral osteomyelitis should be suspected.

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Illustrations

Illustration 1

L1-2 vertebral osteomyelitis and left psoas abscess extending from L4 to L5

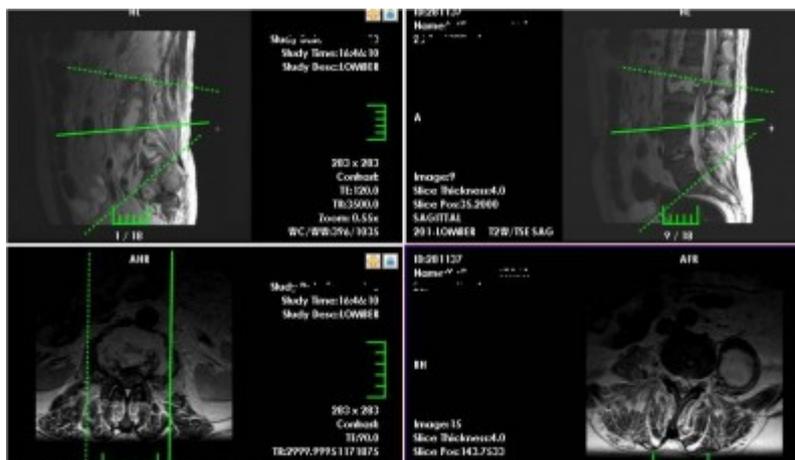


Figure 1: L1-L2 vertebral osteomyelitis and left psoas abscess extending from L4 level to L5 level

Illustration 2

T1 and T2 weighted MRI after contrast

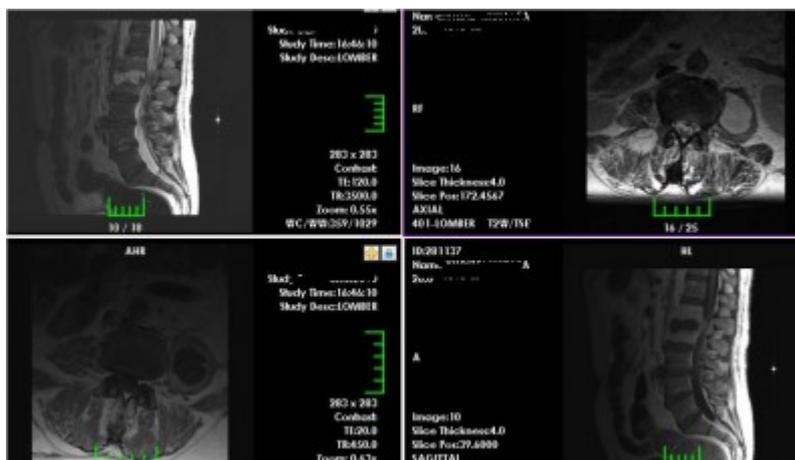


Figure 2: T1 and T2 weighted MRI after contrast

Illustration 3

CT of the lumbar spine showing osteomyelitis of L2-L3 level

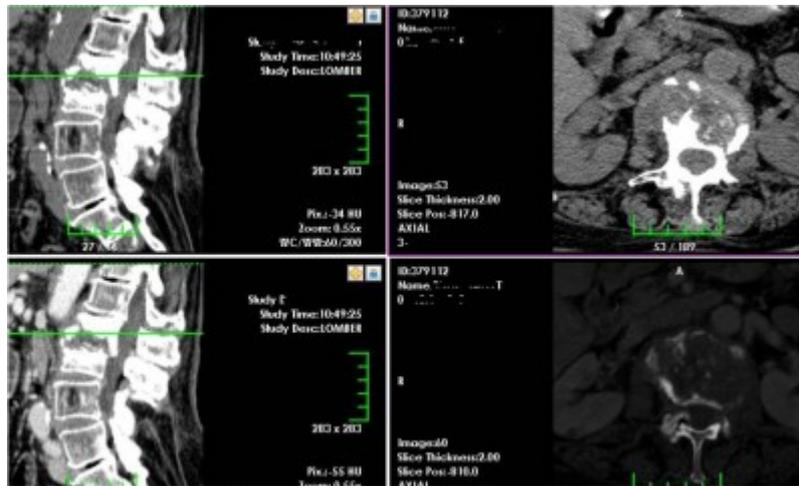


Figure 3. CT of the lumbar spine showing osteomyelitis of L2-L3 level

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