



A RARE CASE OF EMPHYSEMATOUS SPINAL OSTEOMYELITIS

General Medicine

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ABSTRACT

Emphysematous Osteomyelitis of the vertebrae is an extremely rare clinical presentation and is associated with significant morbidity and mortality. Here we report a case of a 52 years old man who presented with acute transverse myelopathy and was already started on anti-tubercular therapy for suspected Pott's spine before being referred to us. We found him to have emphysematous osteomyelitis involving the thoracic vertebrae. We treated him with empirical antibiotics and surgical drainage, tissue culture revealed *Escherichia coli*. Early diagnosis and immediate surgical decompression are necessary for better outcomes in cases of Emphysematous Osteomyelitis.

KEYWORDS

Emphysematous Osteomyelitis; *Escherichia coli*; Vertebrae

Introduction: Emphysematous osteomyelitis is an unusual condition characterized by the presence of intraosseous gas. A prompt diagnosis is required to expedite management as it is a potentially fatal condition. Multiple comorbidities such as diabetes mellitus, malignancy, alcohol abuse, Crohn's disease and other conditions causing immunosuppression, predispose to this condition. Generally, anaerobes or members of the Enterobacteriaceae family are the causative organisms; however, the aetiology can be mono or polymicrobial.

Case Report: A 52 years old man, chronic alcohol consumer, was referred to us as a case of Pott's spine and already started on anti-tubercular therapy (ATT) and steroids for two weeks. A thorough history taking revealed that the patient had an acute onset of paraplegia two weeks ago after he returned home from his morning walk. The weakness was associated with bowel and bladder incontinence and a complete sensory loss below D10 dermatome. There was no history suggestive of root pains, backache or fever. On examination, he was icteric, hemodynamically stable, conscious and oriented. There was no gibbus or paraspinal tenderness. Superficial bedsores were present on lower back. Lower limbs were flaccid with areflexia and plantars were extensors bilaterally. On respiratory system examination, findings were suggestive of a right sided Pleural Effusion. On enquiry, he denied any history of cough/fever/weight loss/anorexia.

On investigations, there was normochromic normocytic anaemia, no leucocytosis, ESR was 21mm. His plasma glucose was normal (non-diabetic), HIV non-reactive. Liver function tests revealed mild direct hyperbilirubinemia, transaminitis (ATT induced hepatitis) and hypoalbuminemia. MRI Dorsolumbar spine(outside) was suggestive of early osseous destruction at D 7,8,9 with involvement of intervening disc; also, involvement of L4,5 and soft tissue edema with small collection in epidural space -? Pott's spine, ??metastases. Contrast enhanced CT scan of thorax showed multiple air foci involving the T7, T8 and T9 vertebral bodies extending to involve pre and paravertebral spaces and into anterior epidural space causing cord compression at this level. Also moderate right sided pleural effusion with underlying collapse consolidation. Pleural fluid analysis showed exudative characteristics with high protein content (3.7g/dl) and high LDH (2179U/L). CSF analysis revealed viscous CSF on lumbar puncture showing 12 lymphocytes, hypoglycorrhachia, high proteins (1613mg/dl) (? pseudo-Froin's syndrome) and ADA of 11.4U/L. Ultrasound abdomen showed liver parenchymal disease with ascites.

He was started on broad spectrum antibiotics: injectable Meropenem 1g thrice daily, Clindamycin 600mg thrice daily and Metronidazole 400 mg thrice daily. ATT was continued. Spinal Surgery was planned

after explaining meagre chance of neurological recovery. During surgery, no foul smell was noted to suggest anaerobic infection, minimal epidural fluid found, organised yellowish membrane found in epidural space anterior to spinal cord -fluid, tissue and bone biopsy sent for analysis; spinal decompression with fixation was done. Tissue culture showed growth of *Escherichia coli* sensitive only to carbapenem. Bone biopsy showed necrotic tissue with suppurative inflammation, Ziehl-Neelsen stain for acid fast bacilli was negative. Neurological weakness did not improve after surgery, patient was given 4 weeks course of antibiotics (Meropenem) and discharged.

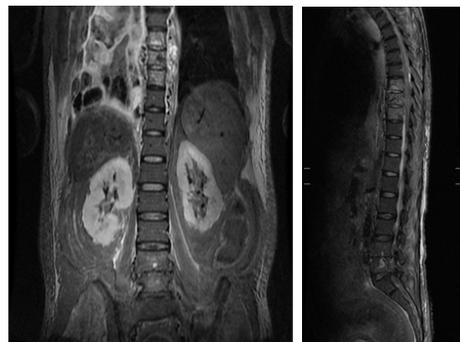


Figure 1: MRI Thoracolumbar spine showing osseous destruction at D7,8,9 and small epidural collection with cord compression.



Figure 2: CECT Thorax showing multiple air foci involving T7,8,9 vertebral bodies extending into epidural space. right sided moderate pleural effusion also seen.



Figure 3: Xray chest PA view after spinal rod and screw fixation.

DISCUSSION:

Intraosseous gas was initially described as a sign of osteomyelitis in 1981¹. When seen in the extra-axial skeleton, intraosseous gas is

virtually pathognomonic for emphysematous osteomyelitis; in rare cases the differential diagnosis includes trauma, post-surgical change, lymphangiomatosis of the bone, degenerative disease, osteonecrosis, and neoplasm.² Conversely, intraosseous gas seen in vertebral bodies is almost always due to a non-infectious cause. Indeed, intravertebral gas was long considered to exclude infection, with almost all cases due to degenerative disease, or less commonly, osteonecrosis or a neoplastic process.^{3,4} Osteomyelitis is likely when extensive intravertebral gas, bone edema, and/or adjacent collections are present⁵. When emphysematous osteomyelitis is seen, empiric treatment should include antibiotic(s) with activity against anaerobes and members of the Enterobacteriaceae family. And surgical treatment should be considered in acute osteomyelitis if there is finding of abscess formation or radiologic evidence of necrosis, or if the patients do not respond to antimicrobial agents⁶. In most cases, the infection occurs by hematogenous spread, however may also be related to contagious spread from an intraabdominal source of infection, or from a skin or soft tissue source of infection; or following intra-abdominal or spinal surgery.⁷

In our patient, who was not immunocompromised, absence of fever, lack of pain or spinal tenderness and an acute onset of symptoms were all misleading and inconclusive. Further, previous labelling of patient as Pott's spine caused some bias. Delay in treatment resulted in permanent neurodeficit.

Conclusion: A high index of suspicion for emphysematous osteomyelitis and early specific investigations and treatment can be lifesaving.

Conflict of interest: No conflict of interest to declare.

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