

## A Case Report on Vertebral Osteomyelitis of D7 & D8 caused by *Staphylococcus aureus*.

Lincy Thomas and Satyajit Patra

American International Medical University, Gros Islet, St Lucia

### \*Corresponding author

Satyajit Patra, PhD., American International Medical University, Gros Islet, St Lucia; Email: dr.patra@aimu-edu.us

Submitted: 12 Sep 2018; Accepted: 24 Sep 2018; Published: 10 Oct 2018

### Abstract

Vertebral osteomyelitis (also termed spinal osteomyelitis, spondylodiskitis, or disk-space infection) is a bone infection and inflammation, considered as a type of osteomyelitis concentrated in the spinal region. Cases of this condition are so rare, because only 2-4% of all bone infections are attributed to the disease. It is considered uncommon, with an incidence of 1 case per 100,000-250,000 population per year. However, some reviews suggest that the incidence of spinal infections is now increasing.

We present the case of a 49 year old male who presented with symptoms of Pott's spine, but eventually diagnosed with *Staphylococcus aureus* vertebral osteomyelitis of D7 & D8 with secondary pathological fracture and epidural abscesses, decompression with stabilization done.

**Keywords:** Vertebral Osteomyelitis, Pott's Spine, *Staphylococcus Aureus*.

### Introduction

Vertebral osteomyelitis is a bone infection usually caused by bacteria. In the spine, it is often found in the vertebrae, it can occur at any age [1]. There are 2 forms of osteomyelitis: acute and chronic. The microorganism *Staphylococcus aureus* is known to be responsible for acute osteomyelitis, the reported entry of these bacteria is thought to be through bloodstream around the wound or contaminated intravenous (IV) needle.

There are many studies indicate the development of chronic osteomyelitis, and some of the important conditions are tuberculosis, AIDs, and other condition affecting immunity [2]. In case study we are looking into an acute form of osteomyelitis, since it affects the spinal region. Several adverse events are associated with the patients diagnosed with vertebral osteomyelitis and subsequently the osteomyelitis is known to be developing pathologic fractures which is triggered by the softening of the bone, and present with acute spinal cord compression [3].

Most patients with pyogenic vertebral osteomyelitis respond to medical management. However, surgery may be required if medical management is unsuccessful [3].

### Case

A 49 year old male with no significant co-morbidities presented with 15 days of back pain continues. Patient was asymptomatic before 07/07/14 when he developed stomach pain in 1 week, loose stools, investigations showed patient had Montoux +ve ESR,CRP

increased. MRI-D7, D8 suggestive of pott's spine. Patient was started on AKT4 and put on spinal extension brace with absolute bed rest. The patient is conscious and oriented had cough for 1 month on and off, fever on and off for 20 days associated with chills and rigors loss of appetite and abdomen pain. Patient had developed progressive increase in pain by 08/08/14 and the patient was sent for a repeated MRI in which there was an alteration in signal intensity of D7 and D8 vertebrae which is hypo intense in T1 W images and hyperintense in T2 W images with associated epidural abscess at the level of D7 and D8 vertebrae indenting on ventral thecal sac with secondary canal stenosis and associated pre and paravertebral abscess at the level of D7 and D8 vertebrae. There was no effect to be seen by the antibiotics he had been receiving.

Clinical Findings: On day 0: Hemoglobin: 12.8gm%, W.B.C. Total: 7,700 Cells/mm<sup>3</sup>, E.S.R: 117 mm/1hr, Prothrombin Time: 14.2 seconds, Prothrombin Control: 13.6 seconds, I.N.R: 1.07.

Activated Partial Thromboplastin Time: 43.1 seconds, Activated Partial Thromboplastin Control: 31.2 seconds, Neutrophils: 63 %, Lymphocytes: 26 %, Eosinophils: 02 %, Monocytes: 09 %.

Blood Urea: 23 nag/di, S. Creatinine: 0.6 mg/dl, Bilirubin - Total: 1.3 mg/di, Bilirubin - Direct: 0.9 mg/dl, Bilirubin<sup>-</sup> Indirect: 0.4 mg/dL, Total Protein: 6.7 g%, Albumin: 4.0 g%, Globulin: 2.7 g%, ANG Ratio: 1.4, S.G.O.T: 78 U/L, S.G.P.T: 70 U/L; Alkaline Phosphatase: 73 U/L, Sodium: 140 mEq/L, Potassium: 4.23 mEq/L, Chloride: 99 mEq/L, Bicarbonate: 27 mEq/L, GamaGT: 84 U/L.

### Surgical Intervention

Medical professional opinion dealt for a surgical intervention D7 & D8 partial corpectomy D6 & D9 stabilization with indications of D7 & D8 collapse fracture with epidural collection and cord

compression with back pain. Procedure included under GAET patient in right lateral posterior curvilinear incision from the mild axillary to the posterior midline along 6<sup>th</sup> rib sterile panting and draping was done incision was deepened self-retainer were applied. Muscle was cut using monopolar. Sub periosteal dissection was done over 6<sup>th</sup> rib neurovascular bundle along the lower border the rib was separated using rib rasper and 7cm of rib was cur and removed. Thoracotomy self-retainer was applied and pleura along with left lung were retracted anteriorly using Doyers retraction microscope was brought into use.

Pluera was torn during process of retraction granulomatous tissue was found along the antereolateral aspect or the vertebral bodies of D7&D8 was identified and scooped pout using ring cavities and punches. Using 'C' arm area of pathology at D7-D8 disc space and normal viable status of D6-D9 was confirmed under guidance C-arm 55\*45mm screw along the vertebral body and a 55\*40mm screw into D6 vertebral body were passed with bicorticate puncture.

Using cutting drill posture corpectomy of D7&D8 was performed. The D7 vertebral body was soft and almost destroyed. there was extra Dural, Pus and granulomatous tissue was found at D7&D8 disc space which debrided and 5ML pus was collected and decompression status of Dural tube confirmed. The collected pus was sent for lab investigations later on it was noted that the pus culture report was positive for *S. aureus* (MSSA). Excision of destroyed bone and soft tissue was done till healthy tissue and bone was noted.

Rib graft was insinuated at corpectomy defect. A 10 cm straight rod was placed in screw of previously fixed poly axial screw head, and tightened into position with C-arm confirmations. An ICD was placed transpleurally at para vertebral gutter and anchored in position. Wound closed in 4 layers after approximately the adjust ribs. During the complete procedure 2 units of blood was transfused.

### Post-Operative

**Clinical Findings:** After one week: Haemoglobin: 11.6gm%, P.C.V: 36.3 %, Bilirubin - Total: 1.3 mg/dl, Bilirubin - Direct: 1.0 mg/dl, Bilirubin - Indirect: .0.3 mg/dl, Total Protein: 5.7 g% Albumin: 3.5 g%, Globulin: 2.2 g%, A/G Ratio: 1.59, S.G. O.T: 36 U/L, S.G.P.T: 33 U/L, Alk. Phosphatase: 56U/L, GamaGT: 111U/L.

Significant postoperative discomfort limits activity for several days in most patients. A morphine patient-controlled analgesia (PCA) pump was employed during the first 36-48 hours. Simultaneously intravenous antibiotics were administrated

### Summary

Most patients with pyogenic vertebral osteomyelitis respond to medical management. However in this case due to misdiagnosis of Pott's spine and deteriorating patient condition led to a surgical treatment for *S. aureus* Vertebral Osteomyelitis [5].

Vertebral osteomyelitis patients have indicated development of several associated condition as they develop pathologic fractures and these fractures are result of softening of the bone, and present with acute spinal cord compression like in the given case since there was an initial misdiagnosis of Pott's spine was rectified by the failing medical treatment with AKT4. The indications for surgical treatment included refractoriness to conservative treatment with prolonged high CRP and ESR, and repeated MRI showing large abscess in

D7 & D8 with fever and unbearable pain therefore decompression with stabilization of D7 & D8 was done as part of treatment since medical management was unsuccessful [6]. The suggestive surgical intervention became the prime access to the diagnosis of the disease.

Significant postoperative discomfort limited activity for several days but the patient recovered within six months from the spinal surgery with complete retain to his regular livelihood activity's and the final follow-up was taken three years after in which the patient seem to be completely resolute from the infection, solid bony fusion and maintenance of correction without loss of correction was seen in X-ray.

### Disclosure of funding

This research received no specific grant from any funding agency in the public, commercial or not for-profit sectors.

### Author disclosure statement

The authors declare that they have no relevant or material financial interests that relate to the research described in this paper.

### References

1. Lener S, Hartmann S, Barbagallo GMV, Certo F, Thomé C, et al. (2018) Management of spinal infection: a review of the literature. *Acta neurochirurgica* 160: 487-96.
2. Hotchen AJ, McNally MA, Sendi P. (2017) The Classification of Long Bone Osteomyelitis: A Systemic Review of the Literature. *Journal of bone and joint infection* 2: 167-74.
3. Bamberger DM. (1993) Osteomyelitis. A commonsense approach to antibiotic and surgical treatment. *Postgraduate medicine* 94: 177-182, 184.
4. Kwon JW, Hyun SJ, Han SH, Ki-Jeong Kim, Tae-Ahn Jahng, et al. (2017) Pyogenic Vertebral Osteomyelitis: Clinical Features, Diagnosis, and Treatment. *Korean Journal of Spine* 14: 27-34.
5. Berbari EF, Kanj SS, Kowalski TJ, Darouiche RO, Widmer AF, et al. (2015) Infectious Diseases Society of America (IDSA) Clinical Practice Guidelines for the Diagnosis and Treatment of Native Vertebral Osteomyelitis in Adults. *Clinical infectious diseases* : an official publication of the Infectious Diseases Society of America 61: 26-46.
6. Varatharajah S, Charles YP, Buy X, Walter A, Steib JP, et al. (2014) Update on the surgical management of Pott's disease. *Orthopaedics & traumatology, surgery & research* : OTSR 100: 229-235.

**Copyright:** ©2018 Satyajit Patra. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.