International Journal of Research in Orthopaedics
Somani A et al. Int J Res Orthop. 2022 May;8(3):387-390
http://www.ijoro.org

DOI: https://dx.doi.org/10.18203/issn.2455-4510.IntJResOrthop20221130

Case Report

A case report on rare case of chronic osteomyelitis of the distal fibula in adult

Ashish Somani*, Yashkumar B. Shihora, Prafulla Herode

Department of Orthopaedics, Rural Medical College, Pravara Institute of Medical Sciences (DU), Loni Bk, Maharashtra, India

Received: 06 December 2021
Accepted: 04 February 2022

***Correspondence:**
Dr. Ashish Somani,
E-mail: yshihora@gmail.com

ABSTRACT

Osteomyelitis of the fibula is uncommon. It can occur secondary to trauma however it can also occur as a result of haematogenous spread from distant sites of infection. There is usually a period of sub clinical infection and this can lead to delay in diagnosis. But it is clinical diagnosis with support of various investigation with proper surgical technique and various differential diagnosis it is treated with good satisfactory result. A 24-year-female was asymptomatic but for last 6 days She started developing pain, swelling and redness of skin from lateral aspect of distal third of leg. We investigated and did incision and pus drainage with abnormal tissue was excised out, but very unusual presentation intraoperative pus and tissue debris was there. However, after biopsy, it was diagnosed pyogenic osteomyelitis 2 weeks of injectable and 6 weeks of oral antibiotics were given. After 4-6 weeks weight bearing was started, the patient returned to his obvious activities with normal range of motion. The osteomyelitis of fibula with various differential diagnosis clinically and intraoperatively with pus discharge but after proper debridement and biopsy report probable diagnosis is made with proper duration of antibiotic treatment chronic osteomyelitis is treated with satisfactory result with good outcome.

Keywords: Chronic Osteomyelitis, Fibula, Debridement

INTRODUCTION

The osteomyelitis of fibula is unusual presentation with few incidences reported. The term osteomyelitis was first used by the French surgeon Chassaignac in 1852.[1] It is defined as an inflammation of bone and bone marrow caused by pyogenic bacteria and fungi.[2] The most frequently cultured pathogen is Staphylococcus aureus, with an incidence of 70-90%. Most common location is metaphysis of femur and tibia. Infection of fibula is rare in adult but Nonpenetrating traumas precede this case, and the resulting local bone injury is the catalyst for infection. The Cierny and Mader anatomic types of adult osteomyelitis. Type 1 is intramedullary osteomyelitis, where the nidus is endosteal. Type 2 indicates superficial osteomyelitis, which is limited to the surface of the bone. Type 3 is termed localized osteomyelitis, in which the full thickness of the cortex of the bone is involved. This type of osteomyelitis often requires complex dead space management and osseous stabilization after debridement. Type 4 is diffuse osteomyelitis involving the entire circumference of the bone. These lesions are mechanically unstable and require complex reconstruction.[3] Treatment of osteomyelitis depends on appropriate antibiotic therapy and often requires surgical removal of infected and necrotic tissue. Choice of antibiotic therapy should be determined by culture and susceptibility results.[4,5]

CASE REPORT

A 24-year-old female presented to the emergency department (ED) with acute pain in the left distal leg for 6 days. The patient gave history of fall from stairs at home 6 days back. Then she was taken to a local hospital where below knee slab applied and analgesics were given. Since Pain was not relieved, patient was taken to a private hospital after 3 days where MRI was done and

patient came to emergency department with MRI report and gave history of persistent fever for 2 days. Physical examination demonstrated tenderness over the left lateral aspect of leg without crepitus, swelling, significantly decreased range of motion to both active and passive movements of left ankle joint, psudoparalysis of left leg and redness of skin overlying swelling. Vital signs revealed a blood pressure of 120/65 mm Hg, temperature of 103°F, heart rate of 124 beats per minute, respiratory rate 28 breaths per minute with 100% oxygen saturation on room air. X-ray at this time was negative (Figure 1).

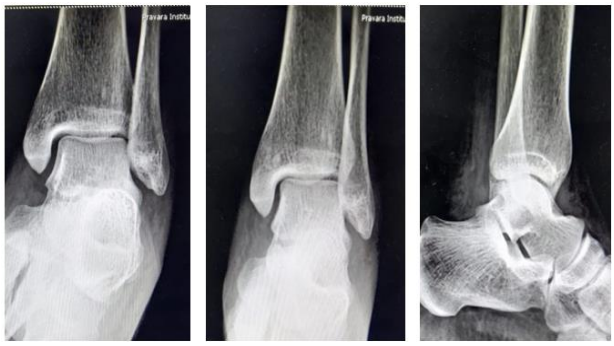

Figure 1: Pre-operative X-rays of distal tibia fibula left side.

Laboratory evaluation demonstrated a total white blood cell count 16000/cumm (4000-11000/cumm), neutrophils 74% (40.0% to 60.0%), platelets 103×10^3/µl (150-400×10^3/µl), haemoglobin 9.7 g/dl (11.5-14.5 g/dl), packed cell volume 29.2% (33.0% to 43.0%), erythrocyte sedimentation rate 34 mm/h (0-20 mm/h), C-reactive protein 28.5 mg/l (0.1-2.8 mg/l), metabolic acidosis with a pH of 7.11 (7.38-7.42), pCO_2 50.8 mmHg (32-45 mmHg), pO2 45.5 mmHg (83-108 mmHg), HCO3 13.8 mmol/l (20-24 mmol/l), and lactate 7.6 mmol/l (0.5- 2.2 mmol/l). Blood culture was obtained on admission which was positive for pseudomonas-pseudomonas species. Magnetic resonance imaging (MRI) of the left ankle without contrast suggested diffuse altered signal involving distal fibula and distal tibiofibular joint and it is associated with periosteal reaction and periosseous soft tissue collection with oedema and moderate ankle joint effusion (Figure 2-4).

Fluid resuscitation was begun from emergency department and patient was taken in the operation theatre. Lateral approach was used and after drilling of fibula cortex at multiple level, pus drained out from marrow cavity and surrounding soft tissues were debrided (Figure 5). Thorough wash was given with help of normal saline, betadine solution and hydrogen peroxide. Intraoperative pus discharge was sent for culture sensitivity and surrounding bone and soft tissue were sent for histopathology. Empirical intravenous antibiotics were started and immobilization with slab given post-operatively (Figure 6). Intra-operative pus culture was positive for Staphylococcus aureus which was sensitive to linezolid and gentamicin.

Figure 2: MRI finding on post contrast T1 coronal image.

Figure 3: MRI finding on STIR coronal image.

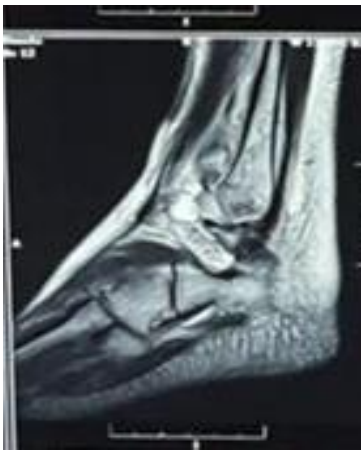

Figure 4: MRI finding on T2 sagittal image.

Histopathology of surrounding bone and soft tissue suggested bony spicules, fibro collagenous tissue infiltrated by chronic inflammatory cells, areas of necrosis and haemorrhage suggestive of chronic osteomyelitis. Patient was given appropriate intravenous antibiotics for 2 weeks and oral antibiotics for 4 weeks. At 2 months follow up the patient was asymptomatic and

her fresh blood investigations were Hb: 12g%, TLC:9000/cumm, DLC (N-62, L-30, E-6, M-2), ESR: 25mm after 1 hour, CRP: 4.2mg/l. After 8 weeks, weight bearing was started, the patient returned to his obvious activities with normal range of motion gradually by 10th week.

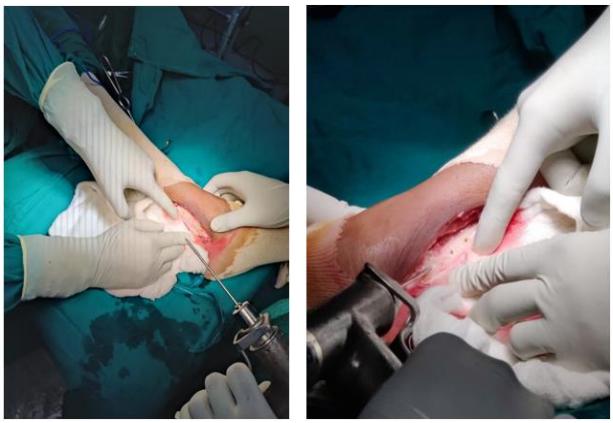

Figure 5: Intra-operative photos of fibular cortex drilling at multiple level.

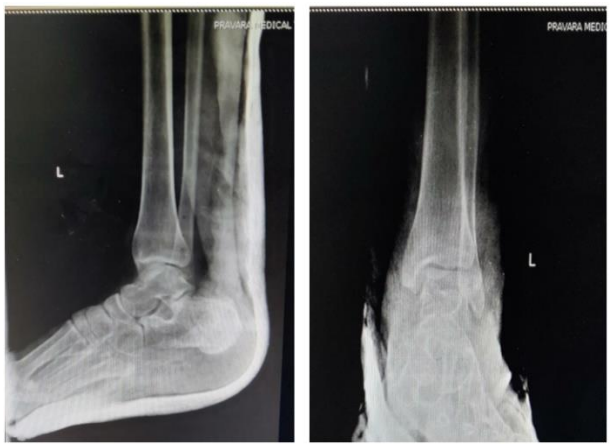

Figure 6: Post-operative X-Rays of distal tibia fibula left side after debridement.

DISCUSSION

Osteomyelitis staging system was first described by Waldvogel in 1970 described three etiologic routes secondary to haematological infection.[6] Bacteraemia is caused by distant foci of infection may lead to without clinical signs of sepsis. Changes in plain radiographs can include scalloping of the cortex and periosteal reaction soft-tissue swelling, osteopenia, but in this case no specific X-ray changes were observed.[7] CT scan is useful in the identification of sequestrum while MRI is more useful for soft-tissue assessment and revealing early bony oedema.[7] Treatment of chronic osteomyelitis include antibiotic Mader et al recommend regimens based on their staging system.[3,8] Type 1 osteomyelitis is treated with only 4 weeks of parenteral antibiotics. Type 2 is treated with 2 weeks of antibiotics after debridement. Types 3 and 4 both are treated with 4 weeks of parenteral antibiotics from the last debridement. Surgical management of osteomyelitis consists of two basic steps; debridement and obliteration of the subsequent dead space by soft tissue.[6] Adequate surgical debridement clears dead necrotic tissues from surrounding healthy tissues which ultimately reduces the bacterial load. During debridement, periosteal stripping should be avoided because it may cause avascularity and the involucrum surrounding the infection can be left in place.[4] Debridement of the bone is done until the 'paprika sign' (a pin-point bleeding noted on the viable bone) is seen.[9] Osteomyelitis of the fibula is very rare.[10] If the patient's tibia is not involved remove dead bone from his fibula, without waiting for an involucrum to form, because tibia is main bone which support body weight. Expose any part of his fibula by approaching it between peroneal muscles anteriorly and his soleus muscle posteriorly; but be careful not to injure his peroneal artery and veins which are close to the postero-medial angle of the shaft of his fibula. In the presented case, adequate debridement was done by drilling fibular cortex and removal of surrounding affected soft tissues which on histopathology it was diagnosed chronic osteomyelitis of fibula with adequate debridement and with proper antibiotic coverage result was good and patient improved.

CONCLUSION

This case demonstrates that a delay in the diagnosis of osteomyelitis can potentially lead to devastating outcomes. Clinical diagnosis of chronic osteomyelitis of distal fibula was done from physical examination and laboratory investigations and patient was operated for debridement. Biopsy sent to histopathology confirmed diagnosis of chronic osteomyelitis. Then patient was treated with adequate coverage of antibiotics for 6 weeks. On regular follow up, Patient was improving and attained full range of motion of left ankle joint at the end of 3 months.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

REFERENCES

1. Chassaignac E. De l'osteo-myelite. Bull Mem Soc Chir. 1852; 3:431-6.
2. Hunter J. A Treatise on the Blood, Inflammation and Gun-shot Wounds. London: George Nicol; 1964:521-67.
3. Cierny G, Mader JT, Pennick H. A clinical staging system of adult osteomyelitis. Contemp Orthop. 1985;10:17-37.
4. Haidar R, Der Boghossian A, Atiyeh B. Duration of post-surgical antibiotics in chronic osteomyelitis: Empiric or evidence-based?. Int J Infect Dis. 2010; 14(9):e752-8.

5. Gasbarrini AL, Bertoldi E, Mazzetti M, Fini L, Terzi S, Gonella F, et al. Clinical features, diagnostic and therapeutic approaches to haematogenous vertebral osteomyelitis. Eur Rev Med Pharmacol Sci. 2005; 9(1):53-66.
6. Waldvogel FA, Papageorgiou PS. Osteomyelitis: The past decade. N Engl J Med. 1980;303(7):360-70.
7. Lazzarini L, Mader JT, Calhoun JH. Osteomyelitis in long bones. J Bone Joint Surg Am. 2004;86-A(10): 2305-18.
8. Forsberg JA, Potter BK, Cierny G, 3rd, Webb L. Diagnosis and management of chronic infection. J Am Acad Orthop Surg. 2011;19(1):S8-19.
9. Parsons B, Strauss E. Surgical management of chronic osteomyelitis. Am J Surg. 2004;188(1):57-66.
10. Kear S, Smith C, Mirmiran R, et al. Staphylococcus lugdunensis: a rare pathogen for osteomyelitis of the foot. J Foot Ankle Surg. 2016;55:255-9.

Cite this article as: Somani A, Shihora YB, Herode P. A case report on rare case of chronic osteomyelitis of the distal fibula in adult. Int J Res Orthop 2022;8:387-90.