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**Dr. Dhaval Makadiya**  
(R3), Civil Hospital,  
Ahmedabad, Gujarat, India

**Dr. Jayesh Thummar**  
(R3), Civil Hospital Ahmedabad,  
Gujarat, India

**Dr. Hardik Hadiya**  
(R3), Civil Hospital Ahmedabad,  
Gujarat, India

**Dr. Prakhar Rastogi**  
(R1), Civil Hospital Ahmedabad,  
Gujarat, India

## Case of osteomyelitis in open fracture patient: A Case Report

**Dr. Dhaval Makadiya, Dr. Jayesh Thummar, Dr. Hardik Hadiya and Dr. Prakhar Rastogi**

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### Abstract

Osteomyelitis is defined as infection of the bone by microorganisms. Conventionally, an unqualified term 'osteomyelitis' is used for infection of the bone by pyogenic organisms. Osteomyelitis can be acute or chronic.

**Keywords:** Hip fracture, bone turnover markers, CTX, PINP, Vitamin D

### 1. Introduction

Osteomyelitis or infection of the bone can be broadly classified as

1. Acute
2. Chronic

### Chronic osteomyelitis

Conventionally, the term 'chronic osteomyelitis' is used for chronic pyogenic osteomyelitis. Although, its incidence is on the decline in developed countries, it continues to be an important problem in developing countries.

Why Acute osteomyelitis generally leads to chronic osteomyelitis?

### This happens because of these reasons

- a) Delayed and inadequate treatment
- b) Type and virulence of organism: Sometimes, despite early, adequate treatment of acute osteomyelitis, the body's defense mechanism may not be able to control the damaging influence of a highly virulent organism, and the infection persists.
- c) Reduced host resistance: Malnutrition compromises the body's defense mechanisms, thus letting the infection persist. When infection persists because of the above reasons, the host bone responds by generating more and more sub-periosteal new bone. This results in thickening of the bone. The sub-periosteal bone is deposited in an irregular fashion so that the osteomyelitic bone has an irregular surface. Continuous discharge of pus results in the formation of a sinus. With time, the sinus tract gets fibrosed and the sinus becomes fixed to the bone. Sequestrum is a piece of dead bone, surrounded by infected granulation tissue trying to 'eat' the sequestrum away. It appears pale and has a smooth inner and rough outer surface, because the latter is being constantly eroded by the surrounding granulation tissue.

Involucrum is the dense sclerotic bone overlying a sequestrum. There may be some holes in the involucrum for pus to drain out. These holes are called cloacae. The bony cavities are lined by infected granulation tissue.

### Osteomyelitis in open fracture patients

Osteomyelitis is common in open fracture patients because of the following reasons :-

- 1) Exposure to outside environment:- Bone comes directly in contact with outside environment and thus chance of infection increases.

**Corresponding Author:**  
**Dr. Dhaval Makadiya**  
(R3), Civil Hospital,  
Ahmedabad, Gujarat, India

If there is any cut of vessel or any damage to vessel which is common in open fracture patients chance of hematogenous spread increases. Blood is the most common path for infection of bone.

- 2) Exposure of metaphysis- In open fractures, bone usually breaks in a comminuted manner and thus leads to exposure of vessels in bone directly to external environment and increases the chance of infection.

### Case-Chronic Osteomyelitis In Og3b # Sc Humerus Left Side Without DNVD

**Complaints:** Pain, discharge and bleeding from raw area over left elbow for 8 months

**History:** History of RTA due to bike slip at Shahibaugh 9 months back for which patient was operated with external fixator and STG at CHA, patient was asymptomatic for 1 month following discharge then developed above mentioned symptoms gradually and presented with same on follow up 1 and a half months later.

**Past History:** No History of DM, HTN, TB, Past surgery, Blood transfusion, Jaundice

**Personal History:** Diet, Sleep, Appetite, Bowel, Bladder Normal

**Family History:** NAD

#### On Examination

**General Condition:** Fair

**Temperature:** slightly increased

**Pulse:** 92 bpm

**BP:** 118/78 mmHg

**RS:** BLAE +

**CVS:** S1S2 +

**CNS:** Pt is conscious and oriented to time, place and person

**Abdomen:** Soft, nontender

#### Local Examination

Swelling, Tenderness, Creptitations, Deformity present over left elbow

Abnormal mobility absent

Raw are of size 10x8cm over left elbow with bleeding and serous discharge present and Bone exposed

#### Distal Examination of left Upper Limb –

**Pulse:** Present at Radial and Ulnar arteries

**Movement:** Present at wrist, MCP, DIP, PIP joint

Color, Temperature, Sensation present same as opposite normal limb

**Capillary Refill Time:** Immediate



TIMELINE	TREATMENT	EXPRESSION
1 – 5 DAYS	MANAGED WITH ANALGESICS, REST.	WBC COUNT-18K
6 <sup>TH</sup> DAY	ELBOW RECONSTRUCTION SURGERY DONE	NORMAL ANATOMY MAINTAINED AND AUGMENTATION DONE WITH FIXATOR
7 <sup>TH</sup> – 12 <sup>TH</sup> DAY	INJ LINID INJ LEVOFLOX INJ METRONIDAZOLE	WBC COUNT – 14K

#### Treatment

Treatment Principles of treatment: Treatment of chronic osteomyelitis is primarily surgical.

- Removal of Dead Bone;
  - Elimination of Dead Space And Cavities; And
  - Removal of Infected Granulation Tissue And Sinuses.
- Operative Procedures: Following Are Some Of The operative procedures commonly performed:
- Sequestrectomy: This means removal of the sequestrum. If it lies within the medullary cavity, a window is made in the overlying involucrum and the sequestrum removed. One must wait for adequate involucrum formation before performing sequestrectomy.
  - Saucerisation: A bone cavity is a ‘non-collapsing cavity’, so that there is always some pentup pus inside it. This is responsible for the persistence of an infection. In saucerisation, the cavity is converted into a ‘saucer’ by removing its wall. This allows free drainage of the infected material.
  - Curettage: The wall of the cavity, lined by infected granulation tissue, is curetted until the underlying normal-looking bone is seen.
  - Excision of an infected bone: In a case where the affected bone can be excised en bloc without compromising the functions of the limb, it is a good method e.g., osteomyelitis of a part of the fibula. With the availability of Ilizarov’s technique, an aggressive approach, i.e., excising the infected bone segment and building up the gap by transporting a segment of the bone from adjacent part has shown good results.

#### Conclusion

Patient was discharged on 13<sup>th</sup> day with broad spectrum antibiotic, analgesics and shoulder arm immobilizer and follow up was done in every 15 days. Patient now has full range of motion at elbow joint. Patient is currently on physiotherapy daily at home and has resumed all work. Patient has stable joint and full range of motion at present.

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