

## Circumferential Osteo-Myelitis of the both Forearm Bone, Caused by Wrist Band: A Rare Cause

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### ABSTRACT

**Introduction:** Foreign body injuries with wood, metal, plastic or a piece of glass are common in children. If neglected or poorly managed, some of these injuries results in cellulitis or osteomyelitis of the affected structures. This is the rare report of both bone forearm osteomyelitis following neglected rubber band wrapped around the distal forearm in a child.

**Case Report:** A 6 year old male patient presented with pain and swelling with discharging sinus in left distal forearm. The diagnosis of both bone forearm osteomyelitis is confirmed with plain radio-graphs. During curettage surgery, incidentally rubber band was found in the subcutaneous tissue wrapped around distal forearm. Patient was treated with complete removal of foreign body (Rubber band), surgical debridement and combination of IV and oral antibiotic for period of 6 weeks. At 12 months follow up, patient presents with no recurrence of sign and symptoms of osteomyelitis and lesion healing satisfactorily.

**Conclusion:** The neglected foreign body can result in osteomyelitis of both bones of distal forearm in a child. Early diagnosis with adequate management of established osteomyelitis by complete removal of foreign body, curettage and antibiotics can give good results.

**Keywords:** Osteomyelitis; Both bones forearm; Rubber band; Paediatric

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### INTRODUCTION

In India, there is tradition of binding thread of silk, cotton, animal hairs, clothes, rubber band or any circular ring on the wrist of the child who is being wished for his well-being and good luck. There is also malpractice by local quacks of binding these objects on the wrist of the sick child for the purpose of their treatment.

When these objects are left for a prolonged period, they cause superficial and deep infections. People in rural areas in India are negligent about these injuries and rarely seek any medical attention. Mostly they are self treated with local herbs and medicines leading to chronicity of the infection. Sometimes they migrate even deeper into the osseous region causing osteomyelitis. Late presentation can be possible in developing countries like India due to negligence of patients.

Most of deep seated infections of structures of distal forearm reported in literature are commonly due to prick injuries related to wood, metal, plastic or a piece of glass. However, no case of osteomyelitis of distal forearm bone caused by neglected foreign body

(Rubber band) has been reported in literature. We report a case of foreign body induced chronic osteomyelitis of distal radius and ulna bone with discharging sinus. Surgical debridement revealed rubber band embedded in the deeper tissue in a circular pattern around distal radius and ulna.

### CASE REPORT

A six-year-old boy was referred to the us with a swelling on the left distal forearm with history of on and off type of pain in left distal forearm for one month. The family gave no history of injury to the left distal forearm. Skin shows swelling with no signs of inflammation. He was evaluated at radiology department with a clear X ray examination which revealed no bony lesion.

He was treated with analgesics and observation. Later, after three months patient presented with swelling in the left distal forearm, which is circular in patter with discharging sinus over the dorsal aspect of left distal forearm without any antecedent systemic symptoms. Leukocyte count was 15500/mm<sup>3</sup>, sedimentation rate was 25 mm/h and C-reactive protein was 3.5 mg/I. A new X-ray revealed osteolytic lesion over the ulnar side of the distal ulna and radial side of the distal radius of left forearm.

Under general anesthesia, incision and drainage were performed and a circular rubber band over the distal forearm was removed. The sinus tract was excised completely and curettage of osteolytic lesion over the distal radius and ulna was done. The patient was treated with intravenous empiric

antibiotics for one week after which oral antibiotics are prescribed for six weeks. Patient recovered well

with no recurrence of lesion after the follow up of 12 months.



**Fig. 1: Case first seen in OPD with circumferential marking on wrist without any sinus discharge, only deep tenderness present. Front View**



**Fig. 2: Case first seen in OPD with circumferential marking on wrist without any sinus discharge, only deep tenderness present. Lateral side view**



**Fig. 3: Radiograph taken on first visit showing bony lesion over distal radius and ulna with eaten up lesion and periostium reaction both in radius and ulna**



**Fig. 4: Clinical condition of wrist after 3 weeks showing sinus discharge and ulceration from distal forearm - Front View**



**Fig. 5: Clinical condition of wrist after 3 weeks showing sinus discharge and ulceration- Radial Side view**



**Fig. 5: A Clinical condition of wrist after 3 weeks showing sinus discharge - Ulnar Side view**



**Fig. 6: Lateral view of wrist after 4 weeks of presentation showing bony lesion at distal radius and Ulna**



**Fig. 7:** AP view of wrist after 4 weeks of presentation showing bony lesion at distal radius and Ulna



**Fig. 8:** Another AP view of wrist after 4 weeks of presentation showing bony lesion at distal radius and Ulna



**Fig. 9:** Postoperative follow up view of wrist with K wire fixation and removal of circumferential band



**Fig. 10: Postoperative follow up side view of wrist with K wire fixation and removal of circumferential band**



**Fig. 11: Postoperative follow up view of wrist with K wire fixation and removal of circumferential band with foreign body removed**



**Fig. 12: Post operative follow up radiograph- showing K wire fixation of pathological fracture due to Osteo-myelitis**



**Fig. 13: Final outcome of procedure- Healed sinus with no discharge from wound Front view**



**Fig. 14: Final outcome of procedure- Healed sinus with no discharge from wound side view of wrist**

## DISCUSSION

Binding thread of silk, cotton, animal hairs, clothes, rubber band or any circular ring on the wrist of the child is a common practice in India. Deep seated infections can occur when this foreign body gets lodged in the soft tissues. Rarely, the underlying bone can also be involved in the disease process as happened to our patient. Negligence of such injuries had resulted in osteomyelitis. To the best of our knowledge, presence of rubber band as a causative agent for the osteomyelitis in distal radius and ulna bones as in our patient was never reported before.

An unrecognized foreign body may be focus of acute or chronic infection.<sup>(1)</sup> Foreign bodies can be retained for a significant time before diagnosis, as high as 15 years.<sup>(2)</sup> What causes sudden onset of symptoms in an otherwise inert foreign body, lodged

in the body for years, is debatable. Foreign bodies can cause a lot of problems. If it is close to a tendon, it can be resulted in acute or chronic tendinitis and tenosynovitis. If it is close to a bone, it can cause osteomyelitis.<sup>(3)</sup>

The patient in this case is a 6 year old boy presented with pain and swelling with discharging sinus over left distal forearm. Initially the diagnosis of a retained foreign body was not suspected in our case, and is surfaced only during exploration of sinus tract. The history in such cases may not revealed any event or forgotten by the child and his parents. Clinical signs were minimal compare to early presentation of patients with osteomyelitis. Plain radiographs suggests osteolytic lesion in distal forearm bones but are often insufficient in the diagnosis of wood, glass, plastic material or rubber

band as a foreign material in the soft tissues.<sup>(4)</sup> Ultrasound is more useful tool in localizing foreign bodies.<sup>(5,6)</sup> MRI and CT are not routinely requested for acute foreign body injury.

Surgical debridement and removal of the foreign body was the key to successful treatment.<sup>(7)</sup> We followed the ideal recommendation of empirical antibiotic for 6 weeks and the wounds healed satisfactorily with no recurrence after extensive surgical removal of all infected and foreign materials with curettage of the bony lesion.<sup>(8,9)</sup>

## **CONCLUSION**

The neglected foreign body can result in osteomyelitis of both bones of distal forearm in a child. Early diagnosis with adequate management of established osteomyelitis by complete removal of foreign body, curettage and antibiotics can give good results.

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