

Case Report: Tuberculosis of capitellum Humerus

Irfan Muhammad Rajput*, Muhammad Waqas Khan*, Shahzaeb Solangi*, Jaazba qamar khan**,
Aurangzeb Husain Qureshi***, Uzair Yaqoob****

* Department of Orthopedic Surgery, Dr Ruth KM Pfau Civil Hospital

** Department of Medicine, Jinnah Postgraduate Medical Centre

*** Department of Orthopedic Surgery, Niazi Medical and Dental college

**** Department of Surgery, Hamdard University Hospital

Abstract- Pulmonary tuberculosis is a very common disease in underdeveloped countries like India, Pakistan, and Bangladesh. Usually, tuberculosis categorizes into pulmonary and extra-pulmonary tuberculosis. Spinal tuberculosis represents almost 50% of musculoskeletal tuberculosis, while upper and lower limb involvement is rare. In our case, the site of tuberculosis is very rare i.e. capitellum humerus. The patient presented with a painful swelling over the lateral aspect of the left distal humerus. There was a radiolucent area in the capitellum of the humerus on x-rays. The final diagnosis was made on histopathology. After the surgical curettage, bone grafting was done and anti-tuberculous chemotherapy was given for nine months.

Index Terms- Tuberculosis, capitellum of humerus, osteoarthritis, anti-tuberculous chemotherapy.

I. INTRODUCTION

Mycobacterium tuberculosis has existed in human populations since ancient times; however, it was in the seventeenth century that pathological and anatomical descriptions of tuberculosis (TB) disease began to appear. When the World Health Organization (WHO) declared TB a global health emergency in 1992, it was prevalent in almost all countries of the world.

Mycobacterium tuberculosis is by far the most common cause of mycobacterial osteomyelitis and arthritis worldwide. Nontuberculous mycobacterial (NTM) skeletal infections, although very rare, increased in the 1980s and 1990s in relation to the AIDS epidemic [1].

In 2007, there were an estimated 181/100,000 new cases and 223/100,000 prevalent cases in Pakistan. Based on the incident

cases in 2007 globally, WHO ranked Pakistan eighth on the list of the high burden countries [2].

The extrapulmonary manifestation of TB is prevalent in 10-34% of non-HIV cases while it occurs in 50-70% of patients co-infected with HIV. In Pakistan, WHO estimates that 34,000 (15%) of newly reported cases in 2007 were extra-pulmonary [3]. The elbow joint is the most frequently involved joint for tuberculosis of the upper limb. The incidence of elbow TB varies from 2-5% of all skeletal locations [4,5]. There are few published major reports focusing on TB of the elbow joint, but there is no reported study on tuberculosis of the capitellum humerus.

Wilson (1953) [6], managed cases with prolonged immobilization and classified the condition radiologically. Martini et al. [7] classified the cases into four radiological types and the treatment was based on the severity of radiological involvement [8].

We report this case of a patient with a tuberculous lesion of the capitellum of the humerus, admitted and treated at a tertiary care center in Pakistan.

II. CASE PRESENTATION AND TREATMENT

A 30-years-old presented to the outpatient department with painful swelling over lateral aspect of the left elbow for three months.

On examination, there was a swelling with warmth and mild tenderness. Range of motion (ROM) was painful and restricted (30- 120o) while the distal neurovascular bundle was intact. First impression was a tumor, infection of the elbow, or synovitis.

Preoperative work up, blood, and radiological investigation were done. Left elbow arthrotomy, curettage of the lesion + bone grafting and biopsy, was planned (Figures 1A-1C).

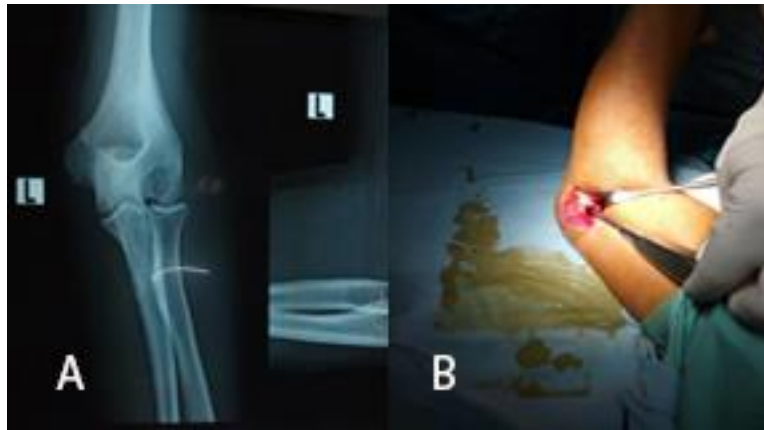


Figure 1: A, Preoperative X-ray, B, Peroperative presentation after curettage of the lesion

Per operative findings were osteolytic lesion with caseous necrosis in the capitulum of left humerus and inflamed synovium. Postoperative neurology was intact, back slab was then applied for two weeks after which stiches were removed, early ROM started, and according to the per operative findings and biopsy report (which showed chronic granulomatous inflammation with necrosis), anti tuberculous drugs were given for nine months..

III. DISCUSSION

TB in the elbow joint usually starts in the lower end of the humerus and olecranon [9], and it is very rare, the primary disease is limited to the synovium. It is very difficult to diagnose because of its similarity to other common conditions like pigmented villonodular synovitis, pyogenic arthritis, rheumatoid arthritis, gout, and tumors [10]. Since the introduction of antituberculous treatment, the incidence of TB has decreased but underdeveloped countries are facing a problem in the form of recurrence of the disease and multidrug resistance. The prevalence of TB is particularly high among patients with AIDS, and the disease is often the first manifestation of HIV infection. The incidence of TB in Pakistan was last measured at 231/100000 in 2010, according to the World Bank [9,10].

Mycobacterium TB is the most common microorganism that causes TB followed by Mycobacterium Bovis [11]. TB of the joint may result from a hematogenous route, through the subsynovial vessels, or indirectly from epiphyseal (more common in adults) or metaphyseal (more common in children) lesions that erode into the joint space [12].

TB is the major cause of morbidity and mortality in underdeveloped and industrialized countries. Early diagnosis is the mainstay of successful treatment in active TB [13]. With the worldwide increase in the incidence rates of TB, there are few reports of an increased incidence of bone and joint TB in all countries of the world [14]. Osteoarticular TB is found in about 3-5% of patients with TB, where 50% of the cases involve the spine; hip, and sacroiliac joint, 12-15%; of knees, 10%; of ribs, 10%; the shoulder, 7%; of the ankle, 7%; elbow, 2%; and wrist, 2% [15]. Bone and joint TB is the most common extrapulmonary

form of TB. Worldwide, 20 000 cases of extrapulmonary TB have been found, 19% of which were TB of the bone and joint [16].

IV. CONCLUSION

Osteoarticular TB has an insidious onset, nonspecific clinical presentation, and similarity to other diseases (like rheumatoid arthritis, tumors, and pyogenic infection), which may delay the diagnosis and treatment. So early diagnosis and treatment are important to prevent bone destruction, joint stiffness, and deformity. .

ACKNOWLEDGMENT

None

REFERENCES

- [1] Pigrau-Serrallach C, Rodríguez-Pardo D. Bone and joint tuberculosis. *European Spine Journal*. 2013 Jun 1;22(4):556-66.
- [2] Chandir S, Hussain H, Amir M, Lotia I, Khan JA. Extrapulmonary Tuberculosis: A retrospective review of 194 cases at a tertiary care hospital in Karachi, Pakistan. *J Pak Med Assoc*. 2010;60: 105- 9.
- [3] Dhillon MS, Tuli SM. Osteoarticular Tuberculosis of the Foot and ankle. *Foot Ankle Int*.2001;22:679-86.
- [4] Tuli SM. In *Tuberculosis of the skeletal system*. 2nd ed. N Delhi: Jaypee Brothers; 1997. Tuberculosis of elbow joint; pp. 132-40.
- [5] Skoll PJ, Hudson DA. Tuberculosis of the upper extremity. *Ann Plast Surg*.1999;43:374-8.
- [6] Wilson JN. Tuberculosis of the elbow. A study of thirty one cases. *J Bone Joint Surg Br*.1953;35:551-60.
- [7] Martini M, Gottesman H. Tuberculosis of the elbow. In: Martini M, editor. *Tuberculosis of the bones and joints*. Berlin: Springer Verlag; 1988. pp. 87-96.
- [8] Martini M, Benkeddache Y, Medjani Y, Gottesman H. Tuberculosis of the upper limb joints. *Int Orthop*. 1986;10:17-23.
- [9] Martini M, Gottesman H. Results of conservative treatment in Tuberculosis of the elbow.*Int Orthop*. 1980;4:83-6.
- [10] Silva KF. A review of patients with skeletal tuberculosis treated at the university Hospital, Kuala Lumpur. *Int orthop*. 1980;4:79-81.
- [11] Vohra R, Kang HS. Tuberculosis of the elbow. A report of 10 cases. *Acta Orhtop Scand*. 1995;66:57-8.
- [12] Domingo A, Nomdedeu M, Tomas X, Garcia S. Elbow tuberculosis; And unusual location and a diagnostic problem. *Arch Orthop Trauma Surg*. 2005;125:56-8.
- [13] Teo HE, Peh WC. Skeletal tuberculosis in children. *Pediatr Radiol*. 2004;34:853-60.

- [14] Bukhary ZA, Alrajhi AA. Tuberculosis treatment outcome in a tertiary care setting. Ann Saudi Med. 2007;27:171-4.
- [15] Jutte PC, Van Loenhout-Rooyackers JH, Borgdorf MW, van Horn JR. Increase of bone and joint tuberculosis in the Netherlands. J Bone Joint Surg Br. 2004;86:901-4.
- [16] El Titi A, El Zain M, Attar D. Tuberculosis of bones and joints at the Riyadh Armed Forces Hospital. Saudi Med J. 1987;8:147-54.

AUTHORS

First Author – Irfan Muhammad Rajput, FCPS, Assistant Professor, Dr Ruth KM Pfau Civil Hospital Karachi, Karachi, Pakistan, Email: drirfan.rao@gmail.com

Second Author – Muhammad Waqas Khan, MBBS, Postgraduate Trainee, Dr Ruth KM Pfau Civil Hospital Karachi, Karachi, Pakistan, Email: muhammadwaqad343@gmail.com

Third Author – Shahzaeb Solangi, MBBS, Postgraduate Trainee, Dr Ruth KM Pfau Civil Hospital Karachi, Karachi, Pakistan, Email: shahzebsolangi6@gmail.com

Fourth Author – Jaazba qamar khan, MBBS, Medical Officer, Jinnah Postgraduate Medical Centre, Karachi, Pakistan, Email: jqamarkhan@gmail.com

Fifth Author – Aurangzeb Husain Qureshi, FCPS, Assistant Professor, Niazi Medical and Dental college, Sargodha, Email: aurangzebq@gmail.com

Sixth Author – Uzair Yaqoob, MBBS, Postgraduate Trainee, Hamdard University Hospital, Karachi, Pakistan, Email: ozair_91393@hotmail.com

Correspondence Author – Uzair Yaqoob, MBBS, Postgraduate Trainee, Hamdard University Hospital, Karachi, Pakistan, Email: ozair_91393@hotmail.com