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Tuberculous Tenosynovitis of Wrist Presenting as Ganglion Cyst: A Rare Occurrence

Krishna reddy. Ch[1], K. Mahesh Kumar[1], V. Indira[2], Prakash V. Patil[3], V. Harishankar[4]
[1]Assistant Professor, [2]Professor, [3]Professor & HOD, [4]Professor, Malla Reddy Institute of Medical Sciences (MRIMS), Suraram, Hyderabad, Telangana-500055, India

***Corresponding Author:**
Name: Dr. Ch. Krishna Reddy
Email: krishnareddy.chr@gmail.com

Abstract: Tuberculosis is the common infection in the endemic regions. It primarily infects lungs and extrapulmonary involvement is rare. Common sites of extrapulmonary disease include lymphnodes, intestine, genitourinary system, bone marrow, central nervous system and musculoskeletal system. The most common affected sites in musculoskeletal system are the spine, hip and knee. Hand involvement by tuberculosis is rare event. We reported such a rare case of tuberculosis of the wrist in a 55 yr old female, who presented with complaints of swelling in the wrist. Routine investigations were normal except for mild elevation of ESR. Excision was done and specimen sent for histopathological examination. On examination, final diagnosis was given as tuberculous tenosynovitis. Patient was offered further treatment with anti tuberculosis drugs and kept on follow up. Hence, tuberculosis of wrist should be kept as differential diagnosis in lesions around wrist as early diagnosis and treatment prevent further destruction and has good prognosis.
Keywords: Extrapulmonary, Histopathological, Musculoskeletal, Tuberculosis.

INTRODUCTION

Tuberculosis occur primarily in lungs, extrapulmonary presentation is rare. Tuberculous infection of the musculoskeletal system comprises 10% of all extra pulmonary cases [1-3]. The order of involvement in skeletal system is spine, hip and femur, knee and tibia, ribs. Involvement of hand and wrist is extremely rare event [2]. Often, the patient presents with non-specific symptoms including local pain and swelling, limitation of motion, and soft-tissue mass. The preoperative diagnosis of tuberculous involvement of the wrist delayed frequently because of slow progression and occult symptoms [2]. MRI has excellent contrast of bone and soft tissue and may aid in differentiation of this disorder from other conditions [3]. Final diagnosis depends on the histopathological examination. Here we present one of such rare entity.

CASE REPORT

A 55 year old female patient came to the hospital with complaints of swelling in the left wrist and occcasional fever since 6 months. There was no history of pain. On examination swelling was soft, firm, freely mobile. Routine investigations were inconclusive except for the slight elevation of the ESR. Based on these clinical diagnosis was kept as infected ganglion cyst. Patient underwent with the surgical excision of the cyst and specimen was sent for histopathological examination for confirmation.

Gross

We received multiple grey white to grey brown soft tissue bits altogether measuring 5 x 3 x 2 cms (Fig. 1). Larger bit measuring 3 x 2 x 1 cms. Cutsection showed solid grey white areas. Tissue was processed, thin sections were made, stained with hematoxylin and eosin and examined under microscope.

Microscopy

Section studied showed fibrocollagenous tissue with multiple granulomas composed of central caseous necrosis surrounded by epithelioid cells (Fig. 2, 3), lymphocytes and plasma cells. Some of the epithelioid cells fused to form multinucleated giant cells of Langhans type (Fig. 4). Based on these findings diagnosis was given as Tuberculous tenosynovitis.

Patient was offered further treatment with antituberculosis drugs and was kept on follow up.

Fig. 1: Gross showing two greyish brown soft tissue masses

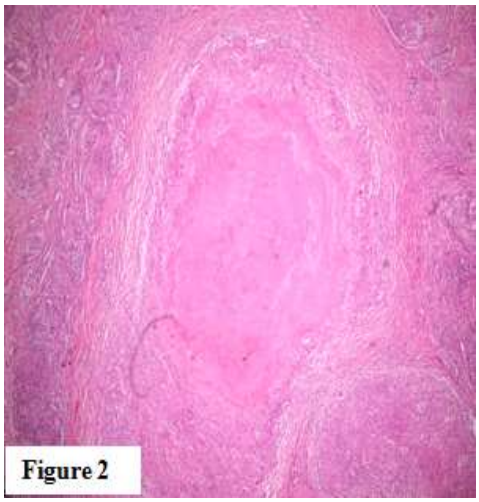

Fig. 2: H&E 4X showing multiple granulomas with central necrosis

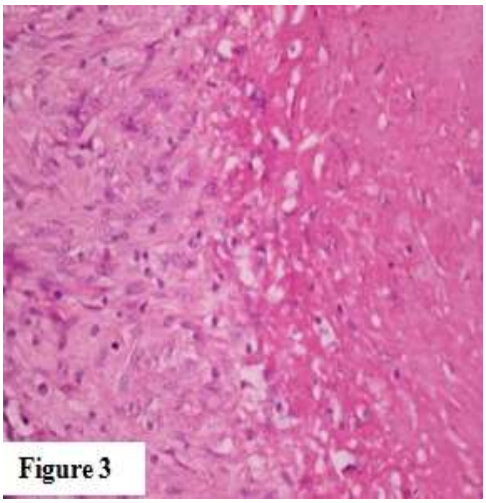

Fig. 3: H&E 40X with necrosis (right) and epithelioid cells surrounding necrosis (left)

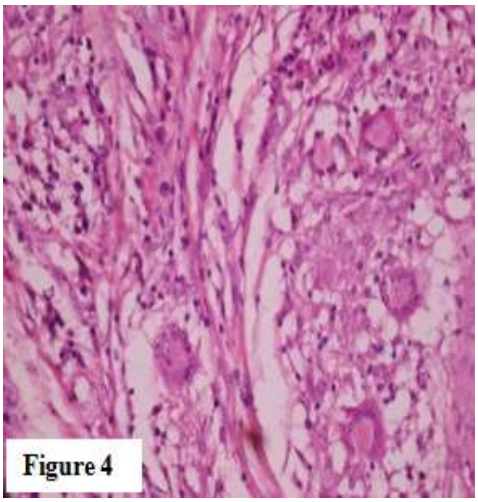

Fig. 4: H&E 40X showing multinucleate giant cells of Langhans type and lymphocytes.

DISCUSSION

Tuberculosis is common disease in endemic regions. Tuberculous tenosynovitis was first described by Acrel in 1777 [3]. The main causative organism of tuberculosis is mycobacterium tuberculosis, which is a thin, nonmotile, strictly aerobic rod. It primarily involves lungs but, because of the increased number of immunocompromised individuals and drug-resistant bacterial strains, the incidence of extrapulmonary mycobacterial infection has gradually increased over recent years. The commonly affected extra-pulmonary sites are lymph nodes, intestine, genitourinary tract, bone marrow, CNS and musculoskeletal system [4]. Wrist involvement is rare. In wrist the flexor tendon sheath and radio-ulnar bursae are the most common sites of tenosynovitis [1]. Men are affected more than women [1, 4] but in our case, the patient was female. The route of infection is either direct inoculation or hematogenous dissemination from a primary focus; lungs, lymph nodes, kidney, spine and precipitated by immunosuppression, steroids, alcoholism, malnutrition and trauma [1, 4].

The pathologic manifestations of tuberculosis are the result of the hypersensitivity that develops in concert with the protective host immune response. There are three histopathological stages of disease depending upon duration of disease, resistance of patient and virulence of infecting agent. In early stage there is only vascular granulation tissue formation followed by obliteration of tendon sheath by fibrous tissue fluid accumulation and formation of rice bodies or melon seeds which are composed of tubercles made by caseation. In last stage there is rupture of tendon sheath, extensive caseation and granulation [1,4]. Histologically, sites of active involvement are marked by a characteristic granulomatous inflammatory reaction that forms both caseating and noncaseating tubercles. Individual tubercles are microscopic; it is

only when multiple granulomas coalesce that they become macroscopically visible. The granulomas are composed of central necrosis surrounded by epithelioid cells and lymphocytes, some of epithelioid cells fuse to form multinucleate giant cells.

Common symptoms of tuberculosis include low-grade fever, anorexia, weight loss, and night sweats. Specific symptoms and signs in the hand vary and include pain, stiffness, swelling, joint effusion, digital enlargement, and carpal tunnel syndrome. There is usually delay in the diagnosis of hand tuberculosis due to occult symptoms and slow progression, which frequently leads to more morbidity and a worse outcome [5]. There are no specific tests for preoperative diagnosis of the disease, which lead to delayed diagnosis. Laboratory findings are generally negative, except for the erythrocyte sedimentation rate, which is usually increased. Our case showed only mild elevation of the ESR.

Plain radiographs of tuberculosis of the bones of the hand show various findings such as cysts, lytic lesions, joint destruction, and periosteal reaction. Magnetic resonance imaging is also nonspecific but evaluates the extent of the lesion better than plain radiography [5, 6]. MRI may show thickening of the synovial membrane with increased vascularization, fluid within the tendon sheath, reactive inflammation around the tendon, or swelling of the tendon. The thickened tenosynovium and synovium usually present as low signal intensity on T1-weighted images and characteristic hypointense on T2-weighted images that is suggestive of granuloma. On administration of contrast, the lesion shows enhancement [7].

The differential diagnosis of tuberculous tenosynovitis includes rheumatoid arthritis, gouty arthritis, pyogenic infection, infected ganglion, sarcoidosis, foreign body tenosynovitis, and fungal infection, pigmented villonodular synovitis of tendon sheath, amyloidosis and synovial chondromatosis [4, 7]. Confirmatory test for the correct diagnosis is the pathological examination of the tissue and the culture of the organism [8].

Early treatment prevent joint destruction and arthrodesis. Treatment of choice include combined surgical and medical methods. Surgical treatment include complete excision of affected tissues followed by the medical treatment with anti tubercular drugs for six or nine months depending on the condition of the patient [8, 9]. With appropriate treatment, recovery is usually satisfactory. Tuberculous tenosynovitis has a tendency for local recurrence; with more than 50% of cases, recurring within a year of treatment [1, 3]. So, follow up in every case is mandatory. Early post operative mobilization prevent adhesion and stifness and help to regain the full function of hand [9]. In our case, complete surgical excision was done followed by treatment with anti tubercular drugs. As the recurrence is common patient was kept on follow up.

CONCLUSION

Extrapulmonary tuberculosis is rare condition and tuberculosis tenosynovitis of wrist is even rarer. Diagnosis is often difficult due to slow progression and nonspecific symptoms. Definitive diagnosis depends on histopathological examination and culture. Treatment includes both surgical excision and ATT. Early treatment prevent destruction of joint. Recurrence after treatment is common hence, follow up in every case is mandatory.

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