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Osteoarticular tuberculosis of the wrist: A rare case report

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Abstract
Osteoarticular tuberculosis is an infrequent form of the disease and monoarthritis of the wrist accounts for 1% of all cases of skeletal involvement. We describe a 19-year-old patient presented with progressive right wrist pain and swelling, worsened for the last 1 month. Pain and swelling associated with fever. The past medical history was nonspecific and chest x-ray was normal. Laboratory findings were normal except moderate elevation of ESR and CRP levels. He had a strong PPD reaction with 17 mm induration. The radiographs of the wrist illustrated typical features for TB. He was started on anti-TB chemotherapy (Cat-1) and improved significantly. The differential diagnosis of this rare condition was discussed with the review of the literature.

Keywords: Osteoarticular tuberculosis, Monoarthritis, Therapy

Introduction

Osteoarticular tuberculosis (TB); is an infrequent form of the disease and accounting for 1-5% of all cases (1, 2). Peripheral joints are the most uncommon site of infection and presents as a low-grade chronic, progressive local infection with a paucity of systemic manifestations and most frequently in the hip or knee (3). Unawareness of the existence of this disorder and the absence of distinct sign and symptoms often lead to considerable delay in diagnosis and treatment (1, 4).

We describe a patient with right wrist monarthritis who was diagnosed as TB osteoarthritis and representing a number of features typical for the condition.

Clinical History

A 19-year-old male patient presented with progressive right wrist pain and swelling (Figure 1), following a trauma 15 days earlier, in which he had fallen on his right upper extremity. At that time he had little swelling without erythema and mild pain on range of motion (ROM) of the right wrist. When seen in hospital, the general physical examination was entirely normal. A slight increase in body temperature was present. He had considerable pain and severely restricted range of motion of the right wrist. Radiographs of the wrist was obtained, degenerative changes (Figure 2) but no fracture was observed and he was prescribed non-steroidal anti inflammatory agents. No improvement was obtained and the stiffness and pain were progressively worsened.

Early medical history was non-significant. He had no history of TB or any immunsuppressive disease. There was no family history of TB infection nor of any rheumatic or autoimmune disease. Constitutional symptoms such as intermittent fever, anorexia & weight loss were present. He was not receiving a regular medication.

Routine laboratory investigations including biochemical tests, complete blood cell count were all normal apart from an elevated ESR (85 mm/h; nor-mal: <20 mm/h) and CRP (8.93 mg/L; normal: <5 mg/L). Serological tests for hepatite viruses were negative.An HIV test, antibodies were also negative. His chest x-ray was normal and Abdomen CT showed Koch's abdomen with pott's spine L2-L3. USG abdomen showed lt. Sided Psoas abscess, mild spleenomegaly, mesentry is oedematous with few mesenteric lymph nodes noted. An antero posterior radiograph of the left wrist indicated soft tissue

swelling, joint space loss, gross articular destruction with erosion and cavities through out the carpus, metacarpal bones. The abscess cavity was drained. which was present over the dorsal aspect of right wrist. An U.S.G guided FNAC was obtained which shows caseous & pyogenic necrosis with occasional epitheloid cell nuclei. Cultures for the synovial fluid was negative.

A diagnosis of osteoarticular TB was made depending on the clinical, radiological and pathological findings and he was started on antitubercular treatment with isoniazide, rifampin, pyrazinamide and streptomycin. Over a three-month period; his symptoms and functional disability regressed, ESR returned to normal. He continues to follow-up as an out-patient in the orthopaedics opd.

Fig 1: Suggestive of Swelling over right wrist

Fig 2: X – ray of Right wrist AP and Lateral View

Discussion

Although TB is rarely seen in developed countries, it is still common in developing countries as a ca use of osteoarticular infection (1, 5). TB arthritis most frequently causes a monarthritis with a predilection for weight-bearing joints such as hip, knee, shoulders or elbow (6). The wrist is an unusual site for osteoarticular TB. Isolated involvement of the wrist is rare and accounts for only 1% of all cases of peripheral osteoarticular TB (7). Our case represents a number of typical features for this condition:

1) Only about one third of patients who have osteoarticular TB, have evidence of pulmonary disease and the majority of the cases have normal chest x-rays (4).
2) A history of trauma is commonly followed by inert progressive inflammation, weeks or months later (8).
3) Constitutional symptoms are usually absent and signs of inflammation are mild (10).
4) Although the symptoms may not be dramatic, chronic infection tends to be progressive and eventually results in radiographically evident destruction of cartilage and bone (1, 10).
5) Synovial fluid culture for mycobacteria is positive in only 60-80% of cases and a synovial biopsy is frequently required to establish the diagnosis of the arthritis in the vast majority of cases (6, 10).
6) A positive PPD test result can be helpful in confirming a suspicious TB, but a negative result can not rule it out.
7) The diagnosis is often delayed and surgical intervention may be indicated especially when there is extensive bone and articular destruction (6, 11).

Persistent monarticular inflammation should raise concern about chronic infection or malignancy. The differential diagnosis of this case includes; septic arthritis, lyme arthritis, chronic infection or malignancy. Septic arthritis produces dramatic inflammation followed by irreversible destruction of cartilage and bone. There are no specific radiographic features that are pathognomic of TB infection of bones and joints and no clinical features that distinguish TB synovitis from other rheumatologic condition such as rheumatoid arthritis or osteomyelitis. Common radiological findings that should arouse suspicion of TB arthritis include, soft tissue swelling with little periosteal reaction and periarticular osteopenia; later joint effusion, narrowing of the joint space, and finally subchondral erosion involving both sides of the joint, cortical irregularity and large areas of cystic osteolysis (6,8,12). Our patient had all of these extensive radiological findings. A triad of radiographic findings (Phemisters triad) is characteristic of TB arthritis are Juxtra-articular osteoporosis, peripheral osseous erosion and gradual narrowing of interosseous space (6). Tumors should always be suspected when there is chronic monarticular inflammation with soft tissue mass and cartilage and bone destruction.

Osteoarticular TB is a treatable condition, with the course and progression resting on early recognition and aggressive treatment (14). Extrapulmonary TB should be managed according to the principles used for pulmonary TB. Initial treatment includes combination therapy with four drugs (Isoniazid, Rifampin, Pyrazinamide and Streptomycin or Ethambutol) because of frequency to isoniazid resistance. Antimicrobial therapy should be of minimum 9 months duration (6, 8, 14). Surgical intervention may be indicated for the treatment of intra and extraarticular destruction, large abscess or joint deformity and to restore movement (3, 14, 15), as performed in our patient. Debridement, curettage and arthrolysis, followed by vigorous physiotherapy are essential to achive a better ROM (10, 11). A program of isometric and ROM exercises should be established to preserve muscle development and joint function (10, 13).

Conclusion

In conclusion we report a patient who illustrate typical features and the aggressive nature of oste-oarticular TB. The possibility of TB should be considered among young population with chronic progressive monarticular symptoms that do not respond to conventional treatment, to avoid long delay before the diagnosis and to establish the appropriate therapy.

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