Case report

Isolated tubercular osteomyelitis of acromion: A case report and review of literature

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ARTICLE INFO

Article history:

Received 1 June 2016

Accepted 21 August 2016

Available online 31 August 2016

Keywords:

Scapular tuberculosis

Shoulder pain

Antitubercular therapy

Infection

Mycobacterium tuberculosis

Osteomyelitis

Skeletal tuberculosis

ABSTRACT

Tuberculosis is an infectious disease of public health interest, infecting one-third of the world population. Up to 3% of all Tubercular cases have musculoskeletal involvement with less than 1% involving the scapular. To the best of our knowledge, we present the third case of acromion involvement in reported literature. An adolescent female with complains of shoulder pain with no restriction of movements, no local symptoms, no fever, no history of tuberculosis was being treated on analgesics for three months at a primary health centre. With a provisional diagnosis of Chondroblastoma, surgical exploration was done, but pus was drained. It was realized in retrospect that tuberculosis needs to be considered as a differential diagnosis for any undefined bony pain, however uncommon the site of involvement may be, especially in Indian subcontinent.

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1. Introduction

Tuberculosis is a deadly infectious disease affecting the under-developed countries mostly but also is a public health concern in the developed countries. Tuberculosis infects one-third of the world population causing 1.3 million deaths per year.¹ Of all the cases of tuberculosis, up to 3% cases have musculoskeletal involvement and less than 1% of those have scapular involvement.² To our knowledge, this case is only the third case of acromion involvement in the available literature.^{3,4} With the unconventional radiographic site and presentation of the case, it is important to have a high suspicion of tuberculosis at such rare site especially when associated Human Immunodeficiency Virus (HIV) infection is at a rise.

2. Case report

A fourteen-year-old, thin built female presented with the complaints of dull aching shoulder pain of the dominant right limb for past 3 months. The pain was gradually progressive over time, now causing mild limitation of shoulder movements especially

after exertional activities. There was presence of constitutional symptoms like loss of appetite and weight loss; however, there was no history of fever. There was no history of previous pulmonary or extra-pulmonary tuberculosis and no family history of tubercular infection. Prior treatment with analgesics by preceding physicians was not effective.

No evidence of local swelling or any discharging sinus was present. There was mild tenderness over the posterior part of the acromion. Active and Passive movements of the shoulder were complete and painless except the terminal 10° of abduction. There was no enlargement of regional group of lymph nodes. Haematologic investigations displayed mild leucocytosis (11450 cells/mm³) with normal differential cell count but with an increase in Erythrocyte Sedimentation Rate (Westergren) of 53 mm/h. A Mantoux tuberculin skin test was positive with 13 mm of induration. Plain radiographs of antero-posterior view of the shoulder joint demonstrated a lytic lesion over the acromion process of the scapula. Computerized Tomography showed a 1.8 cm × 0.9 cm eccentric lytic lesion with a breach in the posterior cortex (Fig. 1). Magnetic Resonance Imaging confirmed the pathology to be contained within the bone with no involvement of surrounding muscles and other soft tissue with no extension into the joint. The lesion was hyper-intense on T2 weighted images and hypo-intense on T1 weighted images. Enzyme-Linked Immunosorbent Assay (ELISA) test for HIV was negative ruling

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Fig. 1. Computerized tomographic section showing a lytic lesion over acromion measuring 2 cm × 1 cm.

out a concomitant infection. Chest radiograph, urine and sputum examination were normal. A working differential diagnosis of chronic infection and tumorous conditions was kept under consideration.

Smears from fine needle aspirates under C-arm guidance underwent microscopic examination for gram staining, acid fast bacilli and routine culture tests apart from cytological analysis. Smears were negative for bacteria and acid fast bacilli and the cytological analysis showed few necrotic polymorphonuclear leucocytes. Culture yielded no growth.

Keeping a working diagnosis of chondroblastoma in consideration, open biopsy from the involved site under anaesthesia was planned (Fig. 2). During surgery, after creating a bone window in the acromion, thick, straw-coloured fluid from the cavity was noticed (Fig. 3). Caseous necrotic tissue was also present at the pathological site (Fig. 4). With the suspicion of tuberculosis becoming clear, a thorough curettage and debridement was done followed by instillation of Streptomycin powder at the local site. Wound was washed and closure done. Arm Sling was applied. Patient was started on four drugs regimen [i.e., Isoniazid (H), Rifampicin (R), Pyrazinamide (Z) and Ethambutol (E) for 2 months in intensive phase and HRZ for 4 months in continuation phase]. Patient was followed up at sequential period of 3 weeks, 3 months and 6 months with full movements at shoulder and complete resolution of constitutional symptoms.

Fig. 2. Surface marking of bony prominences and provisional skin incision marked during surgery.

Fig. 3. Intra-operative image showing thick, whitish pus discharge from the lesion site.

3. Discussion

Tuberculosis has primarily a pulmonary affliction, with relatively less frequent involvement seen in extra-pulmonary sites including the skeletal system. In the skeletal tuberculosis, the most commonly affected are the spine, ends of long bones, and joints. Flat bones like scapula, clavicle etc. are some of the rarely affected sites. However, any lytic lesions in flat bones on imaging usually entail a primary diagnosis other than tuberculosis.

A review of previously published cases revealed seventeen studies with scapular tuberculosis with only two cases with involvement in acromion⁵ (Table 1).

Non-specific clinical presentation also presents a challenge in the diagnosis. Pain and swelling over shoulder region with or without presence of a draining sinus are the usual clinical symptoms. Restriction of shoulder movements may also be present which mimics other shoulder pathologies causing delay in diagnosis. As seen in our case, minimal pain with no swelling or sinus and largely preserved shoulder range of motion presents a more logical diagnosis of non-infective pathology with lytic lesion, likely pyogenic infections, bone cysts, eosinophilic granuloma,

Fig. 4. Intra-operative image showing a crater-shaped bone defect which was filled with granulation tissue.

Table 1

Review of literature of Tuberculosis of Scapula.

Study	Location	Patient details (age/sex)	Treatment	Complaints	Involvement
Lafond ⁸	Scapula	NA	NA	NA	NA
Martini ³	Acromion	NA	NA	NA	NA
Shannon ⁹	Scapula	4/M	ATT	Pain, swelling	Multifocal
Mohan et al. ²	Body of scapula	23/F	Drainage and ATT	Pain, Swelling	Isolated
Gusati et al. ¹⁰	Spine of scapula	NA	Surgery and ATT	Pain	Isolated
Vohra et al. ¹¹	Body of scapula	NA	NA	NA	Isolated
Kam et al. ⁴	Acromion	33/M	Surgery and ATT	Pain, Discharging sinus, 3 cm Circular bony defect	Isolated
Greenhow et al. ¹²	Lateral border of scapula	22/F	ATT	Asymptomatic	Multifocal
Stones et al. ¹³	Inferior aspect	14/F	Excision of mass	Nontender mass,	NA
Husen et al. ¹⁴	Scapula	42/M	Expired	Discharging sinus	Multifocal
Srivastava et al. ¹⁵	Spine of scapula	18/M	ATT	Pain	Isolated
Solav ¹⁶	Inferior angle	26/F	Aspiration and ATT	Pain and Swelling	Isolated
	Spine of scapula, medial margin	54/F	ATT	Pain	Isolated
	Scapula	26/M	NA	Pain, Occipital headache	Multifocal
	Scapula	40/M	NA	Pain	Multifocal
Jain et al. ⁵	Body of Scapula near glenoid	14/M	ATT	Pain, Discharging Sinus	Isolated
Singh et al. ⁷	Inferior angle scapula	49/F	Drainage, ATT	Pain, Swelling	Isolated
Tripathy et al. ⁶	Body of scapula	22/M	ATT	Pain, Swelling	Isolated
Jagtap et al. ¹⁷	Inferior angle of scapula	25/M	Drainage, ATT	Pain, Swelling	Isolated
Sharma et al. ¹⁸	Inferior angle of scapula	56/F	ATT	Swelling, No Pain	Isolated

ATT, anti-tubercular therapy.

sarcoidosis, and benign or malignant tumour conditions like telangiectatic osteosarcoma.⁶ Constitutional symptoms may or may not be present. Diagnosis may be facilitated by Computerized Tomography (CT) or Magnetic Resonance Imaging (MRI) scans. Histopathological examination is the gold standard for diagnosis.

Treatment includes medical therapy in the form of multi drug therapy. Most cases begin to respond to medical therapy after 3–4 weeks.⁷ In cases not improving on medical therapy or resistant cases, use of surgical procedures like sequestrectomy, debridement may decrease infection load, and help in early recovery.⁷ Initial rest followed by early physiotherapy may help in gain of functional range of motion.

4. Conclusion

A high index of suspicion of tuberculosis in all patients with scapular conditions in endemic countries may decrease the chances of missed cases. Optimal use of radiography in all cases will help in early identification and prevent delay in treatment. Needle aspiration and biopsy in suspected cases will aid in diagnosis. Early institution of treatment will improve prognosis.

Conflicts of interest

The authors have none to declare.

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