



General Surgery

MUSCULOSKELETAL TUBERCULOSIS AND COLD ABSCESS-STILL ENCOUNTERED IN SURGICAL PRACTICE: A CASE REPORT

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ABSTRACT

Background: Tuberculosis is a hygienic issue in advanced societies. Tuberculosis of the chest wall cold abscess diagnosis is difficult and often requires a surgical biopsy. Tuberculosis of the chest wall may be in the form of a cold abscess or a pseudo-tumor mass. In the endemic areas, the diagnosis of tuberculosis of the chest wall should be analyzed before signs of clinical and radiological finding. The outcome of the disease is generally better on multidrug therapy within six months associated with complete surgical resection of the abscess. **Methods:** Two cases of tuberculosis cold abscess were treated with surgery in association to anti-tubercular therapy were analyzed retrospectively, at Saveetha Medical College and Hospital, Saveetha Institute of Medical and Technical Sciences, Saveetha University, 162, Poonamallee High Road, Poonamallee, Chennai, Tamil Nadu 600077. **Results:** Here, we present two cases of tuberculosis cold abscess. **Case 1:** A 43-year-old female presented with a cold abscess over the neck and back secondary to a focus in the rib cage. The neck lesion was aspirated and the back one was incised and drained. 200 mL pus was drained and the cavity packed. Biopsy from the wall of the abscess showed a tuberculous granuloma. Evaluation of the thorax showed no lesions in the lungs, pleura or bone. The patient was started on anti-tuberculous therapy (ATT) and the abscess resolved after six months of anti-tuberculous therapy. **Case 2:** 70-year-old male presented with a swelling in the right side of back, associated with pain, pus discharge and size increase for 1 month. CT Thorax revealed well defined, inter scapular collection of volume 430 cc in subcutaneous plane of posterior chest wall. Incision-drainage was done and 400 mL pus drained. Gene Xpert detected TB positive. ATT was started. At review 21 days after discharge, there was no recurrence. **Conclusion:** Cold abscess and atypical presentations of tuberculosis are still common in the Indian subcontinent.

KEYWORDS : Tuberculosis, Musculoskeletal, Cold abscess, Extra pulmonary TB, Surgery

INTRODUCTION

Tuberculosis (TB) is a global health problem and a major concern, particularly in developing and less developed countries. Musculoskeletal TB accounts for 1%-2% of all types of TB and 10%-35% of extra pulmonary TB. The most common form of skeletal TB is Pott's disease, which comprises approximately half of musculoskeletal TB cases. The next most common form of musculoskeletal TB is tuberculous arthritis (HIP), followed by extra spinal tuberculous osteomyelitis. [1]

Bone and joint tuberculosis (TB) are an ancient disease. Evidence of osteoarticular TB has been detected in Egyptian mummies (2). Tubercular abscess of the chest wall accounts for 1%-5% of all cases of musculoskeletal TB. Skeletal TB is usually seen in association with primary pulmonary form. Primary TB of the chest wall is a rare entity. Here, we present two cases of tuberculosis cold abscess.

Tuberculosis is a hygienic issue in advanced societies. Tuberculosis of the chest wall is rare and often presents as cold abscess or pseudo tumoral mass, whose diagnosis is difficult and often requires a surgical biopsy. Tuberculosis of the chest wall may be in the form of a cold abscess or a pseudo-tumor mass. In the endemic areas, the diagnosis of tuberculosis of the chest wall should be analyzed before signs of clinical and radiological finding. The outcome of the disease is generally better on multidrug therapy within six months associated with complete surgical resection of the abscess.

CASE PRESENTATION(S)**Case I:**

A 43-year-old female presented with complaints of swelling in the left side of the back and the neck for three months. The swellings were

associated with pain and were increasing in size. There was no history of trauma, fever, weight loss or respiratory complaints. Clinically, the swelling over the back was 15 x 15 cm in infra scapular region, was warm, tender and fluctuant. The swelling over the side of neck, of 4 x 4 cm size, was similarly warm, tender and fluctuant. Routine blood investigations at presentation were normal. ESR was 69 mm/ 1st hour and TLC was 10,000. USG showed well encapsulated, hypo echoic collections. CT Thorax revealed a well-defined, infra scapular soft tissue dense lesion of size 23.6 x 20.1 x 7 cm (TR x AP x CC) with volume ~430 cc in right lateral chest wall in intra muscular and subcutaneous plane, along with periosteal reaction of 8th and 9th ribs. Incision and drainage were done and around 600 mL pus drained from the cervical and chest wall abscesses. Drain tubes were placed. The pus was sent for culture sensitivity, gram staining, AFB staining, KOH mount, fungal culture and Gene Xpert tests, out of which GeneXpert turned positive while rest were negative. Patient was started on Anti Tuberculous Therapy (ATT). The drain tubes were removed on 10th post op day as there was significant drainage and soakage of dressings until then.

Case II:

A 70-year-old male patient presented with complaints of swelling in the right side of back for 10 years. The swelling was associated with recent onset pain and was increasing in size gradually and was discharging pus for 1 month. History of cough with expectoration was present since 1 month. There was no history of fever, loss of appetite or weight. Patient was a known case of extra pulmonary tuberculosis 40 years ago for which had completed full course of ATT and had history of tobacco and alcohol abuse since 30 years. A swelling was present over right upper back 20 x 15 cm size, warm, tender, cystic and fluctuant. Routine blood investigations at presentation revealed

elevated total counts (21,000/ cu mm). USG showed well encapsulated collection of size 12.7 x 4.3 x 15 cm. CT Thorax revealed a well-defined, inter scapular soft tissue dense lesion of size 13.2 x 3.6 x 18.4 cm (TR x AP x CC) with volume ~ 430 cc in posterior chest wall in subcutaneous plane, at the level of T6-T12, with multiple internal septations. The right lung showed dense fibro consolidatory changes with fibrosis and multiple calcific foci with cystic bronchiectatic changes. The spine was normal. Incision and drainage were done and around 325 mL pus drained. Drain tube was placed. The pus was sent for culture sensitivity, gram staining, AFB staining, KOH mount, fungal culture, and Gene Xpert tests. I.V. Ceftriaxone was given as per culture-sensitivity report. Gene Xpert detected TB positive, while all the other tests returned negative. Sputum for culture sensitivity and AFB was negative. Gene Xpert detected MTB., following which ATT was started. At review 21 days after discharge, there was no recurrence of the swelling.

DISCUSSION

Three mechanisms can lead to development of a tuberculosis chest wall abscess: (A) direct extension from pleura or lungs, activation of a dormant tuberculosis focus and hematogenous spread, (B) and lymphadenitis of the chest wall causing direct extension (c). Three mechanisms have been described to explain the pathogenesis of chest wall tuberculosis: contiguous extension of pulmonary or pleural involvement, haematogenous dissemination, direct transcutaneous inoculation, or extension from adenitis of the chest wall (1, 2, 3).

Tuberculosis of the chest wall is an extra-pulmonary location and represents 1%–5% of all musculoskeletal tuberculosis (4,5,6). Tuberculosis of the chest wall is rare and often presents as cold abscess, whose diagnosis is difficult and often requires a surgical biopsy. (7)

Involvement of the ribs can occur rarely and is usually associated with rib destruction and chest wall abscess. When ribs are involved rarely in the disease, it is usually not diagnosed till swelling or sinuses due to cold abscess have formed. Radiological assessment of sternum and rib TB is very difficult and may reveal irregular destruction and cavities.

Clinically, Tuberculosis of the chest wall can affect all anatomical structures and usually are painless cystic masses without inflammatory signs on the skin giving the appearance of a cold abscess or a solid tissue mass. Ribs are more affected than the sternum, clavicle, and vertebrae [8]. Intercostal spaces are affected without bone involvement during cold subcutaneous abscess, rarely. Skin fistulation is rare and is often observed in case of delayed treatment [3].

X-rays of the thorax may be normal at the beginning-pleural effusion, pleural thickening, or parietal opacity can be present [9]. In a region with a high TB endemicity, some clinical clues can lead to the diagnosis; a history of tuberculosis, parietal swelling gradually increasing in volume without major associated inflammatory signs. The geneXpert study technique is nowadays a rapid and effective diagnostic tool for tuberculosis compared to microscopy, which has a low sensitivity and often a long culture [10]

Ultrasonography is particularly useful for specifying the echogenicity of the content observed on clinical examination (9). Thoracic CT is the imaging test of choice for the exploration of tuberculous lesions of the chest wall. It can also reveal the presence of bone lysis, intrathoracic lymphadenopathy or even pleuropulmonary lesions. At times, diagnostic confusion with tumors can occur. Scintigraphy is particularly useful for detecting mute bone sites (9,3,11).

Alternative diagnosis must be considered like non tuberculosis abscess, benign or malignant necrotic tumors (8); Needle aspiration alone is often not so reliable, and surgical biopsy is often needed to establish the definite diagnosis (12)

Definitive diagnosis is based on the detection of the tuberculous bacillus in the puncture fluid and/or in the biopsy fragments in direct examination and especially after culture in a specific medium. Histology shows a nonspecific granuloma with caseous necrosis. The sample can be obtained surgically or directly by needle aspiration (13). Surgical biopsy is an interesting alternative for diagnostic and therapeutic purposes, especially in case of cold or localized mass abscess (8,14)

The geneXpert study technique is nowadays a rapid and effective diagnostic tool for tuberculosis compared to microscopy, which has a

low sensitivity and often a long culture (15). This technique allows early detection of tuberculosis cases, thus enabling the establishment of treatment and stopping the chain of transmission. Similarly, it can detect resistance to rifampicin (15,3)

Medical management of tubercular abscess of the chest wall (TACW) and osteomyelitis of the ribs are often suboptimal. Surgical excision of the affected tissue under cover of ATT is generally advised for which prevents recurrence (16,17). Anti-tuberculosis medication alone has been regarded an optimal treatment for TACW by some authors (18). Medical treatment alone is not suitable and many authors recommend a combination of medical and surgical management (19)

Tuberculosis of the chest wall is rare and often presents as cold abscess (to differentiate from pyogenic abscess) or pseudotumoral mass whose diagnosis is difficult and often requires a surgical biopsy Although anti-tuberculosis medication is essential for the treatment of tuberculous abscess of the chest wall, surgical treatment also plays an important role. (20). As for the surgical method, when the abscess is left open, the wound healing could be markedly prolonged as this favors chronic sinus formation. The wound should be primarily closed and obliterating the dead space is essential (5,7).

Sakuraba and associates (3) reported that the duration required for the wounds to close and be covered with skin ranged from 13 to 241 days (mean, 79.9 days) in 9 patients among their 13 patients. Segmental rib resection generally has been considered an essential procedure to reduce the surgical complication, including recurrence, by eradicating all the infected tissue and uprooting the dead space that resulted from abscess excision (7,4). Anti-tubercular treatment was routinely administered (6-9 months) with drug combinations of Isoniaside, Rifampicin, Pyrazinamide and Ethambutol. The evolution was favorable in all cases without complications or recurrences. (21)

CONCLUSIONS

In spite of BCG vaccination and increased awareness, extra pulmonary TB still exists in India in non-immunocompromised patients. A high index of suspicion is essential for early diagnosis and prompt treatment. Musculoskeletal Tuberculosis and cold abscess can occur with various presentations and can involve any age group. It needs a high index of suspicion as diagnosis is usually delayed. Tuberculosis of the chest wall is rare and often presents as cold abscess (to differentiate from pyogenic abscess) or pseudotumoral mass whose diagnosis is difficult and often requires a surgical biopsy Although anti-tuberculosis medication is essential for the treatment of tuberculous abscess of the chest wall, surgical treatment also plays an important role Surgical involvement is required to authorize the diagnosis, and to treat the musculoskeletal Tuberculosis abscess aggravations of the disease, particularly in cases with slow presentation. Fallouts may be maximized through early detection and treatment, although adequate results can still be achieved with recover procedures in patients presenting with late stages of disease.

Contributions of the author

Research concept- P Pavan Goud

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Fig. 1: Patient at initial clinical presentation



Fig. 2: Pre op CT sagittal section of male patient



Fig. 3: Intra-op image of pus being aspirated from the neck abscess

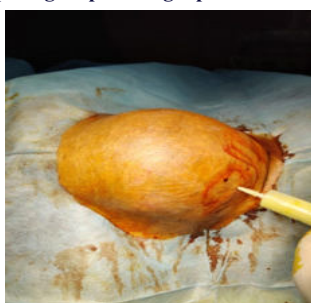


Fig. 4: Pus being aspirated from the chest wall abscess



Fig. 5: Drains inserted and secured to skin



Fig. 6: Post op image of male patient showing continuing drainage on day-6

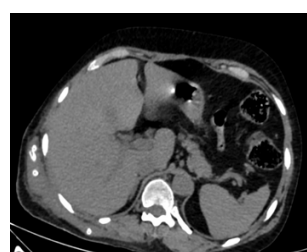


Fig. 7: Post op CT transverse section of female patient showing reduction in abscess volume. Drains in situ.

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