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Primary chest wall tuberculosis mimicking gynecomastia: A case report

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ABSTRACT

INTRODUCTION: Musculoskeletal tuberculosis (TB) is a rare variant of the disease. Involvement of the chest wall is even rarer. This paper aims to report a case of primary chest wall TB mimicking gynecomastia.

CASE REPORT: An 11-year-old male presented with gradual left breast enlargement for one year duration, clinically diagnosed as a case of gynecomastia. On examination; there was a firm swelling involving left anterior chest wall elevating the nipple and areolar region. Ultrasound showed thick wall cystic lesion with internal debris and bone erosion. Computed tomography scan (CT scan) of the chest revealed a cystic lesion containing fluid with a similar cystic lesion in the substernal area. Under general anesthesia, through an anterolateral incision, a thick wall cystic lesion with a very thick pus content was found connecting to another similar lesion in the anterior mediastinum with a localized thickening of the pleura. Both of the lesions, and the fifth rib with a part of the fourth rib were resected and sent for histopathological examination which revealed multiple granulomas with caseating material, typical for tuberculosis.

DISCUSSION: Pathogenesis of chest wall TB has been explained by one or more of the three mechanisms: due to direct extension from an underlying disease; hematogenous dissemination, and direct extension from neighboring affected lymph node groups in the chest wall.

CONCLUSION: Chest wall TB is a rare condition. It can mimic other pathologies due to nonspecific signs and symptoms. Surgical debridement with postoperative chemotherapy is the most effective strategy of management.

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1. Introduction

TB is an airborne infectious disease that is a major cause of morbidity and mortality worldwide [1]. It has become a significant international public health problem largely because of widespread immigration, infection with the human immunodeficiency virus and non-immunization of elderly people [2].

Each year, 10 million people get sick with TB. Although it is a preventable and curable disease, 1.5 million per year people die which makes it the world's top fatal infectious disease [3].

Lungs are the main site in the primary infection, extrapulmonary involvement has been reported to constitute 15–20% of all TB cases [4]. Musculoskeletal TB is a rare variant of the disease, involvement of the chest wall is even rarer (1%–5% of all musculoskeletal TB) [5].

This paper aims to report and discuss a case of an enlarged breast mimicking gynecomastia and finally diagnosed as a case of primary chest wall TB, this has been done in line with SCARE guidelines [6].

1.1. Patient information

An 11-year-old male presented with gradual left breast enlargement for one year duration. Frequently he visited pediatricians and provisionally diagnosed as a case of gynecomastia with reassurance and observation. Past medical, surgical, family and drug history, all were negative.

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Fig. 1. Axial CT scan of the chest showing anterior chest wall cystic lesion with nearly similar lesion in the anterior mediastinum.

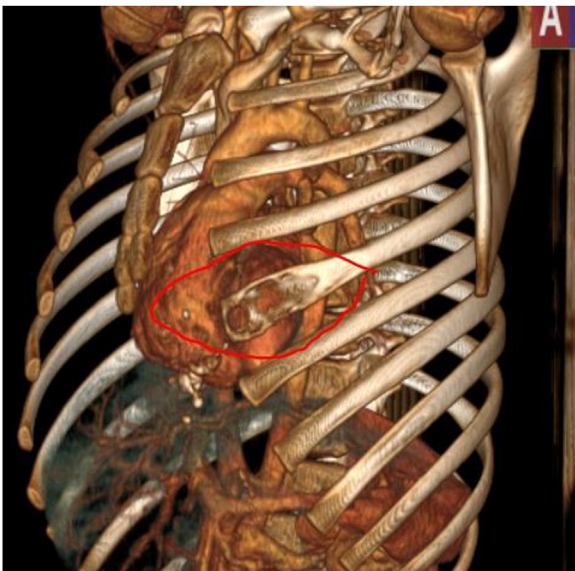


Fig. 2. 3D CT scan bone reconstruction showing a hole in the fifth rib.

1.2. Clinical finding

A firm swelling involving left anterior chest wall elevating the nipple and areolar region. The swelling was ill-defined, non-tender, non-fluctuating, non-illuminating with normal overlying skin. Vital signs were within the normal ranges.

1.3. Diagnostic assessment

Hematological tests were normal. Ultrasound examination showed a thick wall cystic lesion with internal debris and bone erosion suspecting chronic infection. CT scan of chest revealed a cystic lesion with fluid content measuring 12 × 8 cm in size connecting with a similar cystic lesion in the substernal area through a hole in the fifth rib (Figs. 1 and 2).

1.4. Therapeutic intervention

Under general anesthesia, in supine position, through anterolateral incision, a thick wall cystic lesion under the skin with a very thick pus content was found connecting to another similar lesion in the anterior mediastinum through a hole in the fifth rib with localized thickening of the pleura. Both of the lesions, the fifth rib with a part of fourth rib and a piece of pleura were resected and sent for histopathological examination which revealed multiple granu-

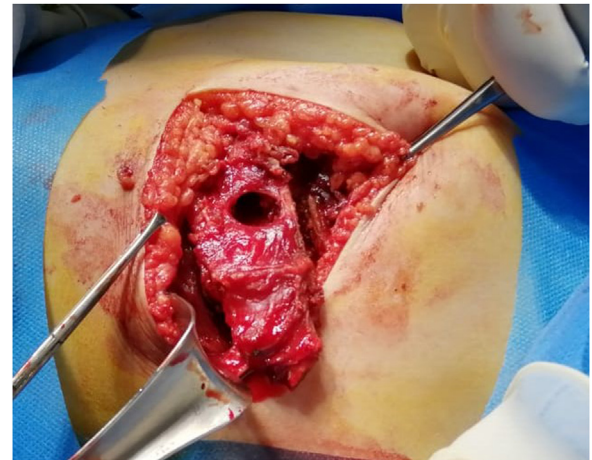


Fig. 3. Intraoperative finding revealing a hole in the fifth rib.

loma with caseating material, typical for TB. The wound was closed in layers after insertion of intrathoracic drain (Fig. 3).

1.5. Follow up

The postoperative course was uneventful. The patient was put on anti-TB regular regimen for three months.

2. Discussion

Primary chest wall TB, though it's rare, still remains as a diagnostic and therapeutic challenge [7]. It can involve the sternum, costochondral junctions, vertebrae, costovertebral joints, and the ribs. Generally, it occurs as a solitary lesion [8]. The unique finding in the current case was that the pathology involved both subcutaneous tissue and the anterior mediastinum connecting together through a hole in the rib, confirming rib TB as well.

Due to rarity of the condition, the epidemiology of chest wall TB is not well known. It is more common in male by some authors and in female by others [9,10]. There are also different reports with regard to the frequently affected age [11,12]. The current case was an 11-year-old male.

Pathogenesis of chest wall TB has been explained by one or more of the following three mechanisms: due to direct extension from underlying pleural or pulmonary parenchymal disease; hematogenous dissemination associated with the activation of a dormant TB focus; and direct extension from the nearby affected lymph node groups in the chest wall [13]. In this case, the ipsilateral lung was spared, lymph node was not found in the region, making hematogenous spread as the most logical explanation.

Diagnosis of primary chest wall TB is often delayed because of non-specific signs and symptoms, in most of the cases the lesions grossly simulate pyogenic abscess or tumor [8]. It may present as a painful mass. The palpable mass is frequently cystic, doughy or soft, on physical examination it may fluctuate [4]. In the present case, the swelling was firm and elevating nipple with areola in the left anterior chest wall, on examination it was non-tender and non-fluctuating making the diagnosis of gynecomastia more apparent. Kuzucu reported six cases, five of them had a soft abscess, only one of them was firm [4]. The average size of the cold abscess of the chest was 5.4 (3–10) cm as reported by Hsu [7]. However, the average size of 7.8 cm (4–10) was reported by Kuzucu [4].

Needle aspiration or biopsy is necessary in some cases to establish the diagnosis and exclude other diagnoses such as malignancy and infections [13]. As reported by Lee, more than half of chest wall TB cases show no evidence of rib destruction. In this case, the

ultrasound revealed thick wall cystic lesions with internal debris and bone erosion. CT scan of the chest discovered rib destruction.

Management of chest wall TB is still debated, however, the surgical debridement (or excision based on lesion extension) and antitubercular therapy have been used in the majority of the cases [14]. It is usually difficult to treat most of chest wall TB cases with chemotherapy alone. However, most of the data suggest that chest wall TB patients require at least 2–3 months of preoperative anti-TB treatment to comprehensively control TB infection and avoid postoperative TB recurrence.

Some investigators suggest that the instant use of anti-tuberculous drugs for several months is the most significant factor in achieving a successful outcome [13]. However, the number of cases with follow up period is too short to formulate a solid evidence. In a report by Hsu et al. of seven cases, only one of them underwent a successful medical therapy alone, the other six patients underwent surgical debridement. However, if surgery is undertaken, adequate debridement is essential to prevent recurrence [7].

In conclusion, chest wall TB is a rare but critical condition, it can mimic other pathologies due to nonspecific signs and symptoms. Surgical debridement under general anesthesia with postoperative chemotherapy is most effective strategy of management.

Declaration of Competing Interest

There is no conflict to be declared.

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Ethical approval

Approval is not necessary for case report in our locality.

Consent

Consent has been taken from the patient and the family of the patient

Author's contribution

Fahmi H. Kakamad: Surgeons performing the operation, follow up the patient, writing the manuscript and final approval of the manuscript.

Marwan N. Hassan, Gasha S. Ahmed, Berwn A. Abdullah: Writing the manuscript, final approval of the manuscript.

Shvan H. Mohammed, Abdulwahid M. Salih: major contribution to the idea, final revision of the manuscript.

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