Tuberculous cold abscess of the chest wall masquerading as unilateral apparent gynecomastia

Sir,

Tuberculosis (TB) is endemic in India, and consistent clinical history with radiographic findings alert the astute clinician of the possibility. Microbial evaluation of sputum or other relevant clinical samples confirms the diagnosis in the majority of cases and a successful outcome is the norm in most patients who adhere to standard therapy. Clinical worsening on optimal anti-TB chemotherapy is occasionally encountered, which alerts the physician to think of possibilities such as drug resistance, irregular drug intake, drug reactions (immune reconstitution inflammatory syndrome), inadequate drug penetration to the active site of disease (central nervous system, bones, and pus collection) among others. We describe the case of a male with microbially confirmed pulmonary TB (Broncho alveolar lavage [BAL] positive for *Mycobacterium tuberculosis* by cartridge-based nuclear acid amplification test (CB-NAAT) and Rif resistance not detected) on anti-TB therapy who developed sudden painful swelling of the

right breast. The evaluation revealed him to be having a cold abscess involving the right chest wall, which promptly responded to drainage and continuation of anti-TB drugs.

A 22-year-old student presented to the pulmonary medicine outpatient department with low-grade fever, cough, and weight loss of 2 months duration. He had no background atopy or usage of tobacco products. He had no shortness of breath, wheeze, skin, or joint disease. He denied a history of thyroid disease or high-risk sexual behavior. His chest radiograph and computed tomography (CT) examination of the thorax [Figures 1 and 2] revealed bilateral extensive lung parenchymal infiltrates with cavitation. Enzyme-linked immunosorbent assay for HIV was negative. Since adequate sputum could not be obtained despite attempted sputum induction, a diagnostic bronchoscopy was performed. BAL acid-fast bacilli (AFB) smear revealed acid-fast bacilli and CB-NAAT detected *M. tuberculosis* with no rifampicin resistance. He was started on standard four drugs anti-TB treatment with a good symptomatic improvement of cough and weight gain.

He presented at 2 months of therapy with sudden acute pain and swelling of the right breast, which developed over 3 days. Inspection revealed enlargement of the right breast [Figure 3] suspicious of gynecomastia. The differentials entertained included drug (Isoniazid)-induced gynecomastia, TB of the breast, cold abscess of the chest wall, thrombocytopenia with chest wall bleeding, etc., However, on palpation, the enlarged area was soft and fluctuant; there was no firm cord-like enlargement of peri-areolar tissue. Blood counts and liver functions were normal. A repeat CT of the chest was done, which revealed an irregular thin-walled collection in the chest wall measuring 5.9 cm × 8.9 cm × 2.7 cm with peripheral rim enhancement involving the right pectoralis major muscle, [Figure 4] consistent with cold abscess. Reasonable resolution of previous parenchymal lesions and an interval development of small patchy focus of consolidation in the right middle lobe measuring 16 mm × 14 mm with cavitation was noted. Magnetic resonance imaging of the thorax confirmed the findings and showed marrow edema of the fourth rib anteriorly. The parenchymal lesions of TB showed interval reduction, although a new right upper lobe small patchy consolidative focus had formed adjacent to the collection and osteomyelitis of the fourth right rib was seen.

Suspicion of irregular drug intake and drug-resistant TB were entertained. However, the patient denied irregular drug intake. Drainage of the chest wall collection was undertaken with image-guided needle aspiration. The pus genexpert was positive in low titers. Pus was also sent for a line probe assay, which was negative. A repeat bronchoscopy and BAL were done to rule out any alternate diagnosis. BAL CB-NAAT and AFB culture by Mycobacteria growth indicator tube (MGIT) was negative. The same drug regimen was continued. There was no reaccumulation of the cold abscess. He completed 9 months of anti-TB therapy with good resolution of parenchymal lesions, chest wall collection, and rib lesions without the need for any surgical interventions. He continues to be on follow-up.

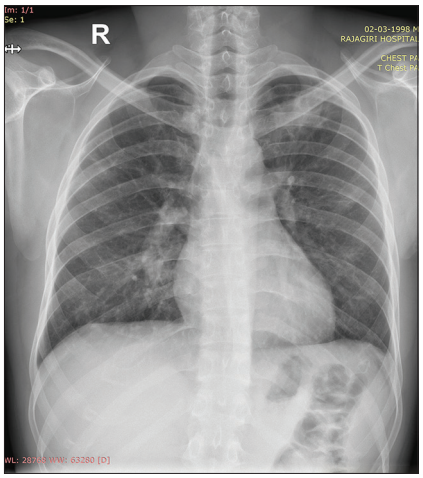

Figure 1: Chest X-ray showing bilateral alveolar shadows

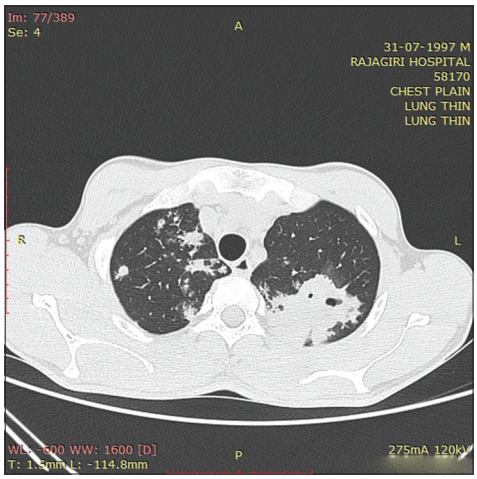

Figure 2: Computed tomography of the chest showing bilateral consolidation with cavitation

Figure 3: The right breast enlargement

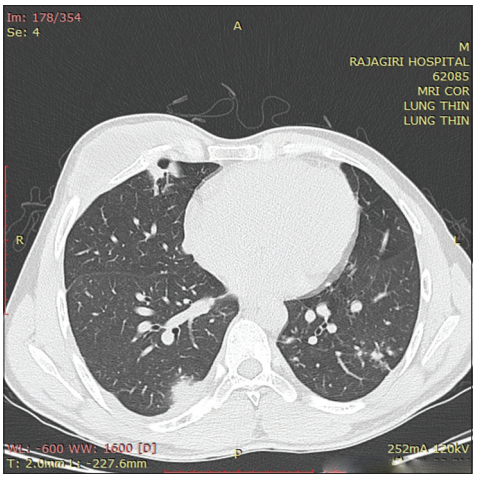

Figure 4: Repeat computed tomography of the chest showing soft-tissue collection with partial resolution of consolidations

The first step in the clinical evaluation of a patient with breast enlargement is to determine whether he has true or pseudo gynecomastia. True gynecomastia is defined as glandular enlargement of the breast tissue of more than 4 cm in men. On palpation, firm, fibrous cord-like tissue that is concentric with nipple-areola complex is felt. Pseudogynecomastia is characterized by increased subareolar fat without enlargement of the breast glandular component. Lesions of the overlying chest wall, like the cold abscess in our case, present as apparent gynecomastia. Drug-induced gynecomastia has been reported with anti-mycobacterial agents such as INH, thioacetazone, and ethionamide.[1,2] The exact mechanism of isoniazid causing gynecomastia remains unknown; plausible proposed mechanisms are altered androgen–estrogen due to disturbance in pyridoxine metabolism (especially in slow acetylators) as well as refeeding syndrome during recovery from chronic illness.

The development of the cold abscess is an important cause for poor clinical response in TB. It accompanies about 0.1% of musculoskeletal TB. Tuberculous abscess of the chest wall (TACW) is most frequently found at the margins of the sternum and along the rib shafts.[3] The lesions can be single or multiple. Chest wall TB may occur by means of three mechanisms: (a) hematogenous dissemination (b) direct extension from lymphadenitis of chest wall,[4] (c) associated with pleuropulmonary disease.

In the present case, the patient had multiple cavitating parenchymal lesions initially without any extrapulmonary involvement. Although parenchymal lesions improved at 2 months of Anti tuberculosis treatment (ATT), he developed the small patchy subpleural focus of consolidation in the right middle lobe, soft-tissue collection, and early osteomyelitis of the ribs. The chest wall abscess could have developed either from infection in a draining lymph node (which developed into an abscess) or extension of the peripheral parenchymal cavitation into the chest wall. Lack of pleural inflammation or effusion is uncharacteristic, but pleural reaction causing adhesion between pleural layers could have prevented abscess spillage to pleura.[5]

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.[6,7] However, our patient had a prompt response to drainage of the abscess, and no surgical intervention was needed.

The case provides several learning points. Tuberculous cold abscess developing in the chest wall and masquerading as gynecomastia, while on appropriate therapy is distinctly rare. The causes of clinical worsening while on anti-TB drugs require systematic evaluation; any drainable focus of pus collection has to be tackled appropriately. The distinction between gynecomastia, pseudogynecomastia, and apparent gynecomastia has to be made on clinical grounds, and the differentiation may have diagnostic and therapeutic implications. Gynecomastia in a patient with TB has limited differentials of which drug-induced (Isoniazid) occurrence needs to be borne in mind.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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