



Primary mammary tuberculosis: Clinical diagnostic dilemma

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ABSTRACT

Background: Primary mammary tubercular swelling poses a clinical diagnostic dilemma owing to its atypical clinical picture which may mimic breast malignancy or breast abscess. In all the three condition axillary lymph nodes are involved no doubt their consistency is variable. Keeping this in mind this study was carried out.

Material and Methods: In our study, we report five patients with mammary tuberculosis who presented with painless mass during one year period. One patient was having involvement of ipsilateral axillary lymph nodes. Clinical diagnosis was confusing as all patients were in late twenties or late thirties. Fine-needle aspiration cytology proved the diagnosis.

Results: Mainstay of treatment was Antitubercular drug therapy. In all the five patients lump resolved completely. None of our patient required surgical intervention.

Conclusion: Breast Tuberculosis is uncommon in countries where incidence of pulmonary and extrapulmonary tuberculosis is very high. It continues to pose a diagnostic challenge due to its rarity, atypical clinical features and non confirmatory radiological modalities. Unnecessary mastectomy can be avoided if we keep this rare but medically treatable condition on back of our mind.

Key words: Anti-tubercular therapy, breast tuberculosis, caseating granuloma, malignancy

Introduction

Human beings and tuberculosis (TB) bacilli have existed together as far back as 5000 BC, as reported in studies of TB spines from Egyptian mummies [1]. In 1829, Sir Astley Cooper cited the first case of breast TB and called it "Scrofulous swelling of bosom" [2]. Though the prevalence of pulmonary TB is very high in India, it was been reported that breast TB among the total number of mammary conditions varies between 0.64% and 3.59% only [3]. With the increased spread of HIV infection, incidence of TB has also risen in devel-

oped countries [3]. The TB bacilli can neither survive nor multiply in body organs like the mammary gland, thyroid gland, spleen and skeletal muscles [4], hence, the primary involvement of the breast by TB remains a clinical curiosity. Since breast TB can resemble breast malignancy or breast abscess, clinically and radiologically, it poses a diagnostic dilemma [5]. This paper presents five cases to high-light that breast TB should be considered as a differential diagnosis of breast lesions like breast carcinoma, especially in endemic regions like India.

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Received / Accepted : July 30, 2014 / August 13, 2014

Materials and Methods

This study was done in a medical college from January 2013 to 2014 in the northern part of India. Five women presented with mass breast. The mean age of the patients was 33 years (range: 28-44). The disease affected the right breast in three patients and the left breast was involved in two cases. The commonest clinical feature was breast lump, which was observed in all patients. The size of lumps ranged between 3 and 5 cm. The lump was located in upper outer quadrant in all the five patients. There was no nipple retraction. Clinically, there was no lymphadenopathy except in one case. Clinically, the patients were diagnosed malignancy or breast abscess (Figures 1A-E).

There was no history of smoking or a recent exposure to TB in all the five patients. There was neither history of TB nor family history of breast cancer. The tuberculin skin test result (Mantoux) was negative in all cases. Their routine blood tests were normal, including blood test for HIV. Erythrocyte sedimentation rates were normal in all the five patients. Chest X-rays were normal in all patients. Biopsies fine-needle aspiration cytology (FNAC) was done in all patients (Figure 2). The specimens were stained for acid-fast bacilli, and the result was positive (Figure 3), thus confirmed the diagnosis of mammary TB.

Results

All the five patients were treated with a 6 months course of anti-tubercular treatment (ATT), i.e., rifampicin, isoniazid, ethambutol, and pyrazinamide for 2 months followed by rifampicin and isoniazid for another 4 months. Lumps resolved completely with ATT therapy and surgery was not required as there was no residual mass. Patients were followed up to 9 months, and there was no recurrence.

Discussion

Tubercular infection is prevalent all over the world with higher incidence reported in the developing countries. The cases have been reported from age 6 months to 73 years and it is more common in women between 20 and 50 years of age. As the breasts of multiparous and lactating females are more sensitive to infection and trauma, tubercular mastitis is more common among them. Incidence of involvement of the right and left breast is equal, except in one study in which there

is a slight higher tendency for the right breast to be affected [6], as it was in our patient series. Usually the duration of symptoms ranged from 6 months to 2 years. The clinical signs of mammary TB can be insidious and imprecise, and often imitate signs of breast carcinoma. Tubercular lumps are mostly irregular, ill-defined and mostly more painful than that seen in carcinoma. Pain is usually dull and constant in breast TB. Mammary TB may also affect males in 4.5% of cases [7].

The mammary TB being of five types, i.e. (i) nodular, (ii) disseminated, (iii) sclerosing, (iv) Tubercular mastitis obliterans, (v) Acute millitary tubercular mastitis, can clinically present as lumps, recurring abscess, multiple discharging sinuses or as ulceration. TB breast can mimic as fibro adenoma or as carcinoma and therefore can be misleading [2]. It affects the breast mostly during the reproductive age and more commonly during the lactating period [4], but none of the cases here reported was lactating.

Breast TB can be of two varieties: Primary or secondary. It is considered as primary when there is no other focus of disease elsewhere in the body, as in our cases. Mycobacterium TB can infect breast directly or via hematogenous or lymphatic route. Lymphatic spread is in a retrograde fashion from mediastinal, cervical or axillary nodes. Occasionally, tuberculous focus is not noticeable clinically or radiologically. Due to the proximity of axillary lymph nodes, the upper outer quadrant of the breast is the most frequently involved site [1]. Contiguous spread can occur from the chest and also intra-abdominal foci [8].

During lactation, susceptibility to the tubercle bacilli varies between 7% and 30%, as described by two different studies [9]. During the lactation period, there is increased blood supply to the breast as well stress on the mother. Due to these two factors, there are increased chances of breast infection. If there is coincidental TB of the faucial tonsils of suckling infants, then direct spread of TB can also occur through nipple skin abrasions or through milk duct openings [2].

None of our patients had proof of active pulmonary TB on X-ray chest. The main clinical feature was a breast lump, as in other studies [9,10]. The commonest location of the lumps is the central or upper outer quadrant of the breast, as in our cases. Nipple and skin

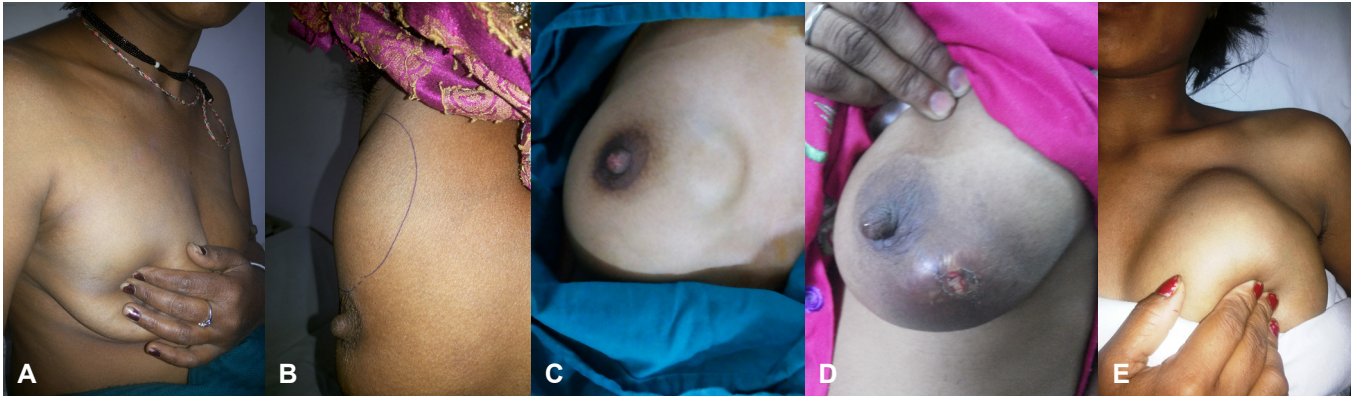


Figure 1. Photographs of the five breast lump cases (A,B,C,D,E).

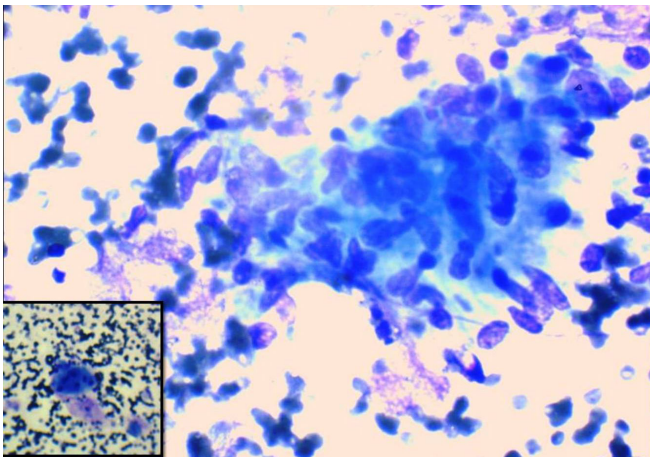


Figure 2. Fine-needle aspiration cytology slide of epithelioid cell granuloma with Langhan's giant cells and lymphocytic aggregation.

retraction can also occur, but breast discharge and pain are uncommon [10-12]. In our patients, the masses were commonly located in the upper outer quadrant and nipple was not retracted in all the five cases.

Early diagnosis is difficult. A high degree of clinical suspicion and familiarity with physical examination findings are necessary to facilitate an early diagnosis in suspected patients. No doubt, culture and polymerase chain reaction are the gold standard tests for diagnosis of TB but these tests are time-consuming and delay the treatment. FNAC is quick and reliable up to 100% as reported in one study of 52 cases by Khanna et al., [9]. All the smears may not be positive for acid-fast bacilli (AFB) as breast tubercular tissue may not have *Mycobacterium TB* bacilli as the mammary gland tissue is resistant to the survival and multiplication of the TB bacillus. A newly developed T-cell-based, whole-blood enzyme-linked immunosorbent interferon release assay detects interferon. This test has higher specificity than the tuberculin skin test [1] and results are available in 24 h. However, this test is not available

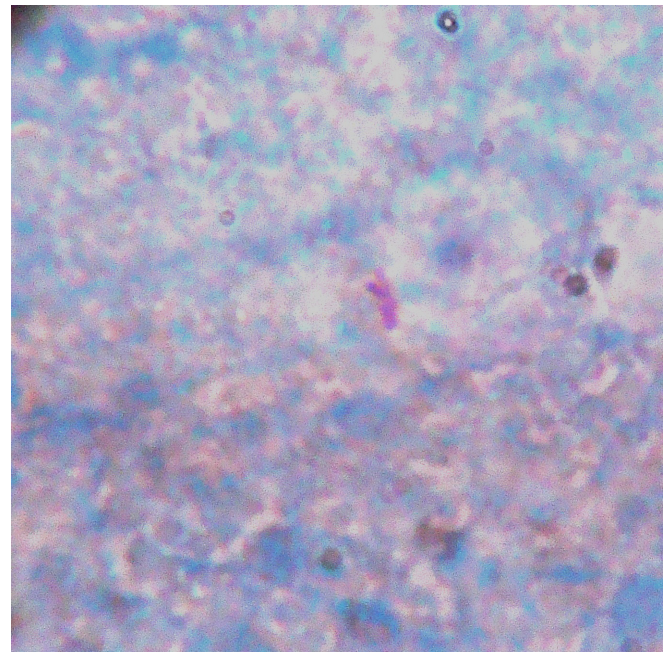


Figure 3. Positive acid fast bacilli smear.

in our hospital.

Mammography is less accurate than ultrasonography in the diagnosis of breast TB. Ultrasound is especially useful in the abscess form of the tubercular disease of the breast [1]. Histopathologically, presence of caseous necrosis, epithelioid cell granuloma with presence of Langhan's giant cells and lymphocytic aggregation is diagnostic. In countries like India, where TB is endemic, the finding of granuloma on FNAC necessitates empirical treatment for TB even in the absence of positive AFB and culture results [8]. Similarly, computed tomography (CT) and magnetic resonance imaging (MRI) are not confirmatory without histologic evidence, but may tell the extent of disease which is required for surgery. We did not perform these techniques (CT and MRI) in our patients as cytology confirmed the diagnosis.

Medical treatment of mammary TB is similar to pulmonary TB and consists of four-drug regimen. Surgical intervention is required for aspiration of cold abscesses and excision of residual sinuses and masses.

Conclusion

Mammary Tuberculosis is uncommon in countries where incidence of pulmonary and extrapulmonary TB is very high. It continues to pose a diagnostic challenge due to its rarity, atypical clinical features and non-confirmatory radiological modalities. Unnecessary mastectomy can be avoided if we keep this rare but medically treatable condition in the back of our mind.

Conflict of interest statement

The authors have no conflicts of interest to declare.

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