

Original Research Article

Tuberculosis of breast: scrofulous swelling in the bosom of young women

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ABSTRACT

Background: Tuberculous breast is a rare extra pulmonary presentation of tuberculosis with nonspecific clinical, radiological and histological findings. The significance of breast tuberculosis lies in its rare occurrence and mistaken identity with breast carcinoma and pyogenic abscess.

Methods: A prospective observational study was done to know the incidence, presentation and management modality of tuberculosis of breast.

Results: 8 female patients, ranging between 21- 50 years were included, painless lump in breast in 4 patients (50%) was the most common presentation followed by 2 (25%) multiple discharging sinus, 1 (12.5%) patient presented as abscess and one had painful lump. Axillary lymphadenopathy seen in 3 (37.5%) patients. All patients had an FNAC but Core needle biopsy or excisional biopsy was definitive for diagnosis. Anti-tubercular chemotherapy was the mainstay of treatment.

Conclusions: Breast tuberculosis is an obscure disease and clinical signs can be insidious and non-specific Diagnostic expertise can identify a potentially curable disease of breast tuberculosis.

Keywords: Tuberculous breast, Extra-pulmonary tuberculosis

INTRODUCTION

Tuberculosis of breast is rare entity, caused by Mycobacterium Tuberculosis primarily affecting the lungs. Its incidence being <0.1% in the western countries while in the developing country like India it still occurs at a rate of 1-4%.^{1,2} It signifies resurgence of the disease in developing countries.

Breast tissue is remarkably resistant to tuberculosis for the fact that it gives an infertile environment for survival and multiplication of tubercle bacilli like skeletal muscle and spleen.¹ "Scrofulous swelling in the bosom of young women" was the description given by Sir Astley Cooper who recorded first ever Breast Tuberculosis.^{3,4}

Breast tuberculosis commonly affects women of reproductive age, usually between 21 and 30 years and can present either as an abscess or as a unilateral, painless breast mass.¹ From few months to few years duration, breast tuberculosis usually presents as a solitary breast lump in the central or upper outer quadrant due to frequent extension from axillary lymph node to the breast. Presentation with multiple or bilateral breast masses is uncommon. The lump is usually solitary, hard, irregular, ill-defined mimicking carcinoma. It may be painful, mobile or fixed to skin or underlying muscle and chest wall and can also present with ulceration of the overlying skin, breast abscess, nipple retraction, peau d'orange and breast edema. Diagnosis of breast tuberculosis is even harder to make and less likely to be considered in men.⁵

Tuberculosis of breast is a rare extra pulmonary presentation of tuberculosis with nonspecific clinical, radiological and histological findings. It is an obscure disease and clinical signs can be insidious and non-specific. A high index of suspicion is required because the disease can usually be treated conservatively with current anti-tubercular modalities. Surgical intervention maybe required in medically unresponsive cases.

This study was undertaken with an intention to study the case profile of the patients diagnosed with tuberculosis of the breast.

Aims and objectives

To highlight various clinical presentations and investigations of breast tuberculosis. To disseminate the message that clinical expertise is needed for an early diagnosis with a high index of suspicion.

METHODS

A prospective observational study undertaken at Department of General Surgery; SSIMS and RC, Davanagere, over a period of 2 and half years from June 2018 to December 2020. 8 cases of tuberculosis of breast were identified and included in the present study. Diagnosis was made on the basis of clinical history of breast lump, discharging sinus, ulcer and or accompanying breast abscess. Constitutional symptoms were low grade fever, loss of weight and decreased appetite. All the patients were subjected to Chest X ray, bilateral breast Ultrasonography (USG), Magnetic resonance imaging was optional, Fine needle aspiration cytology (FNAC), core needle biopsy (CNB) from breast lump and excisional biopsy was done if FNAC/CNB was inconclusive. The cytology and histopathology material was subjected to Acid Fast Bacilli stain, nucleic acid amplification tests and culture. Once diagnosis was confirmed patients were started on anti-tubercular treatment (ATT). Response was evaluated on the healing of wound, sinus, abscess and resolution of radiological findings during follow up. Patients were considered for breast abscess drainage and excision if it did not resolve on ATT treatment.

RESULTS

8 patients of tuberculosis of breast were evaluated in the present study. All the patients were females. Age ranged between 21- 50 years (median 36 years). Diabetes mellitus and or hypertension were comorbidities in % (3/11) patients. 62.5% (5/8) patients had left breast involvement, 37.5% (3/8) right breast.

The clinical presentation was painless lump in 50% (Figure 1) patients and painful in 1 (12.5%). 25% (2/8) patient had multiple discharging sinus (Figure 2). 1 (12.5%) patient presented with abscess (Figure 3, 8).



Figure 1: Presenting as lump in breast.



Figure 2: Presenting as abscess.

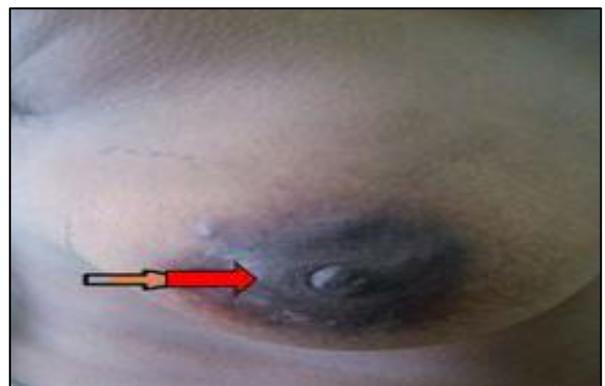


Figure 3: Presenting as discharging sinus.

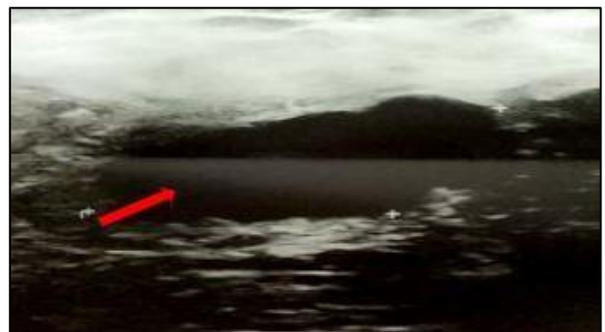


Figure 4: USG of breast image with breast abscess with hypochoic collection.

Axillary nodes were palpable in 37.5% (3/8) patients (Figure 9), and 2 patients had past history of pulmonary tuberculosis. Chest X ray revealed cavitory lesion in 3 (37.5%) patients.

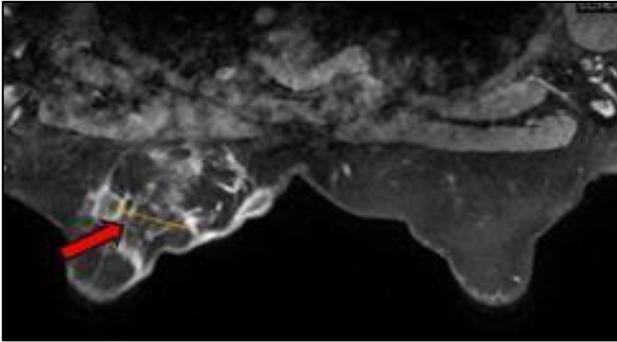


Figure 5: MRI of breast image showing ring enhancing lesion on contrast.

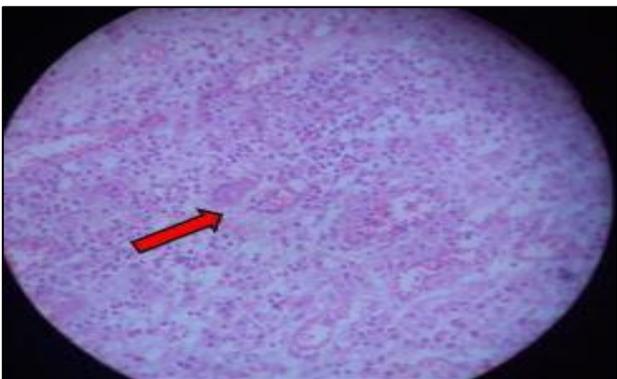


Figure 6: Biopsy slide showing epithelioid cells with Langhans' giant cells.

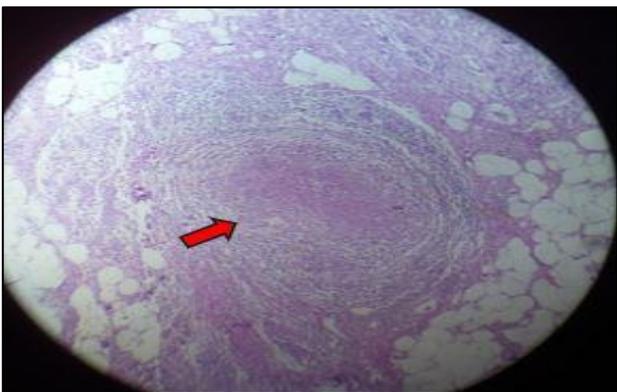


Figure 7: Histopathology of excisional biopsy showing epithelioid cells with langhans' giant cells with central necrosis.

USG bilateral breast reported cystic lesion with dilated ducts in 37.5% (3/8) and multilocular abscess in 25% (2/8) patients (Figure 4) other 3 patients USG breast was inconclusive with description of benign fibrofatty lesion.

MRI breast was done in one patient with findings suggestive of granulomatous mastitis.

Cytological assessment was positive for granulomatous lesion in only 12.5% (1/8) patients. Biopsy was positive in cases where FNAC was inconclusive (Figure 3). FNAC was done from axillary node also. The cytology and histopathology material were subjected to Acid Fast Bacilli stain which was positive in only 1 patient. Nucleic acid amplification test was done in all cases with positive results in 75% (6/8) patient. Biopsy was positive in 4 (50%) cases where FNAC was inconclusive, rest 50% patient biopsy results were suggestive of granulomatous finding with no definitive findings suggestive of tuberculosis.

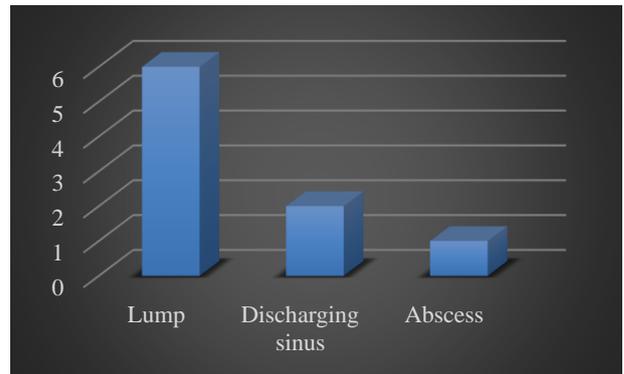


Figure 8: Patient presenting complaints.

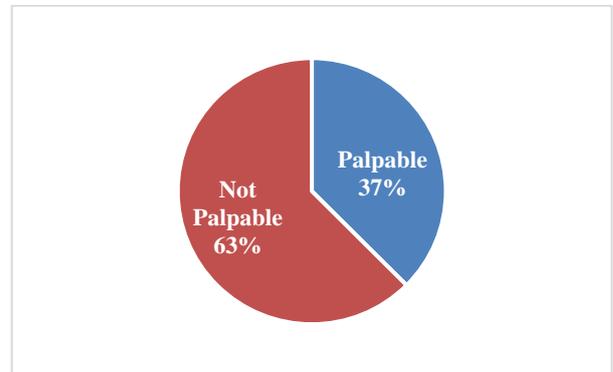


Figure 9: Axillary lymph nodes presentation.

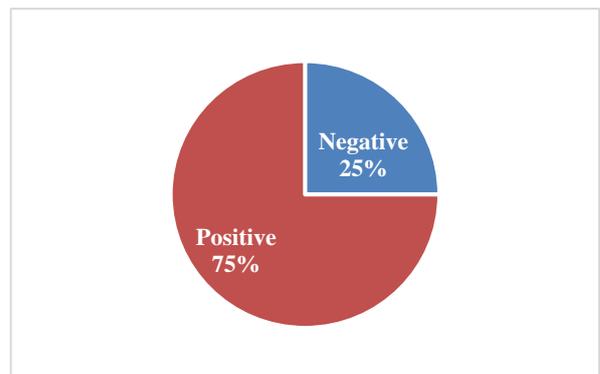


Figure 10: Nucleic acid amplification test result.

All 8 patients were started on anti-tubercular treatment. Breast abscess drainage was performed in 12.5% (1/8) patients in view of patient being symptomatic. 12.5% (1/8) patient underwent mastectomy in view of not resolution of lesion. Patients are on regular follow up.

DISCUSSION

Primary and disseminated tuberculosis is a very common entity in developing country like India. Tuberculosis of breast is a rare entity with primary tuberculosis of breast being very rare. Tuberculosis of the breast was first documented in medical literature by Sir Astley Cooper in 1829.³ The incidence of breast tuberculosis amongst the total number of mammary conditions in several Indian series varies between 0.64 and 3.59 per cent.

Breast tissue is remarkably resistant to tuberculosis. In our study 5 patients had a normal Chest X-ray and did not have any other focus of tubercular infection with the probability of breast being the primary site of tuberculosis. Primary breast tuberculosis has also been reported in case reports by Biswas et al⁶, Singal et al and Azorkar et al.^{7,8} It usually affects females in reproductive age group reason being frequent changes in the breast which predisposes it to trauma and infection. In this study also 87.5% (7/8) females were in the reproductive age group. Breast tuberculosis most common presentation is a breast lump so its identity is mistaken with breast carcinoma. In our study also 62.5% (5/8) patients presented with breast lump presentation being breast abscess in 12.5% (1/8) and pus discharging sinus was seen in 25% (2/8) patients.

Tuberculous infection of breast is either secondary, via lymphatic, hematogenous, or contiguous contamination from adjacent structures (lung, pleura); or primary, after direct inoculation of the bacilli through abrasions in the nipple.⁹ Lymphatic retrograde transmission seems to be the most frequent way of breast contamination since many patients with breast tuberculosis have also lymph node involvement.^{2,9,10} On the basis of this hypothesis axillary involvement may occur in 50- 75% cases. In our study axillary lymphadenopathy was present in 37.5% (3/8) of patients.

Depending on the clinical and radiological features, breast tuberculosis has been classified most recently into three forms: nodular, diffuse and sclerosing. The nodular form is slow growing and well circumscribed. It has an oval tumor shadow on mammography, which can hardly be differentiated from breast cancer. The disseminated form is characterized by multiple lesions associated with sinus formation. This form mimics inflammatory breast cancer on mammography. The sclerosing form of the disease is seen in elderly women and is characterized by an excessive fibrotic process.¹¹⁻¹³

The gold standard diagnosis of Breast tuberculosis is by bacteriological culture of breast tissue or by Ziehl Neelsen (ZN) stain. However, in Breast tuberculosis the bacilli are

isolated in only 25% of cases, and acid-fast bacilli (AFB) are identified only in 12% of the patients. Histopathological examination is very useful for the diagnosis of TM, as it can reveal the granulomas associated with the typical caseous necrosis. Core biopsy should be preferred to fine-needle aspiration.⁵ Use of ultrasound-guided breast core biopsy rather than FNAC, is advocated by some author as the first-line intervention to establish or exclude the diagnosis.¹⁴ In our patient's cytological assessment was positive for granulomatous lesion in only 12.5% (1/8) patients. Biopsy reported giant cell granulomas which was consistent with tuberculosis and Acid-Fast Bacilli stain which was positive in only 12.5% (1/8) of patients. Mantoux test is of no diagnostic value for breast tuberculosis and today stands obsolete. We also did not perform Mantoux testing for our patients. The radiological investigations like mammography, computed tomography (CT-scan) and magnetic resonance imaging (MRI) of the breast have been extensively explored for the diagnosis of breast tuberculosis but of no benefit. Ultrasonography of the breast is cheap, easily accessible and helps in characterizing the lesion better (especially cystic from solid lesions) without exposure to radiation.¹³ Nucleic acid amplification test was done in all cases with positive results in 75% (6/8) patient.

All patients should receive anti tubercular chemotherapy. Breast tuberculosis is treated as any other form of extrapulmonary tuberculosis. The therapy includes generally for six months (2HRZE/4HR) or nine months (2HRE/7HR, 2HRZ/7HR), unless drug resistance is present the first line drugs being rifampicin (R) 450 mg, isoniazid (H) 600 mg and pyrazinamide (Z) 1500 mg ethambutol (E) 1200 mg; streptomycin (S) 750 mg. The prognosis is excellent after treatment. After complete ATT, residual lumps should be excised. Aspiration or surgical drainage may be required in some cases. In extensive cases and fulminant infection, a simple mastectomy can be done as done in one of our patients in view of non-healing sinuses persisting despite of therapy. Radical mastectomy is best avoided unless there is a co-existing malignancy.

Limitations

As Tuberculosis of breast is very rare disease, incidence being only 1-4% with limited time period of 2 and half year's study was done on small sample size and emphasis on other rare causes of granulomatous conditions of breast like Idiopathic granulomatous mastitis, Wegener's granulomatosis and sarcoidosis would have been made.

CONCLUSION

Tuberculosis of the breast is a great mimicker, especially in the developing countries. A high index of suspicion is needed to identify the diagnostic dilemma on clinical, radiological and cytopathological investigations. Prompt diagnosis and aggressive medical and if required surgical management will cure this disease.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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