

## A Rare Case of Tubercular Breast Abscess in a Young Immunocompetent Non-Lactating Female

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### Abstract

Tuberculosis (TB) is a major public health problem in India accounting for one-fourth of the global incident TB cases annually and associated with high morbidity and mortality if not treated adequately. However, breast tuberculosis is a very rare entity with an incidence between 0.1%-3% of all breast diseases, and approximately 4% incidence among breast diseases in TB endemic countries. Here we are reporting a rare case of primary tubercular abscess in the subareolar region of right breast of a young non-lactating female that initially presented with a painful lump and non-specific symptoms. Ultrasound breast suggested breast abscess and diagnosis of tuberculosis was made by FNAC (Fine Needle Aspiration Cytology) and ZN Staining (Ziehl Neelson Staining) of the pus which was confirmed on culture. Patient was started on anti-tubercular therapy and responded well on follow up.

**Keywords:** Tuberculosis; Tubercular breast abscess; ZN staining

### Introduction

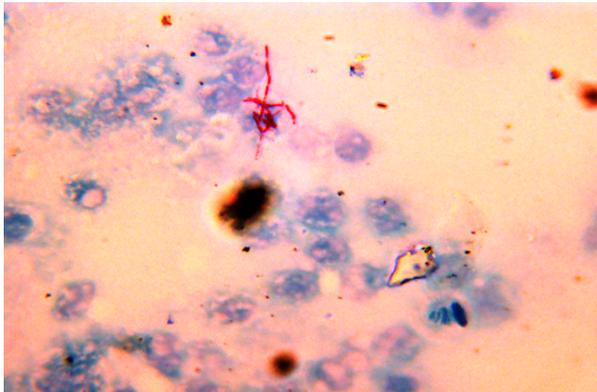
In India, tuberculosis (TB) is a major public health problem accounting for one-fourth of the global incident TB cases annually and associated with high morbidity and mortality if not treated adequately. As per the WHO (World Health Organisation) Global Report on tuberculosis in 2013, 20% of all the freshly diagnosed cases in India are extrapulmonary. Also India has the burden of 64,000 Multi-Drug Resistant TB cases (MDR-TB) out of 300,000 cases of MDR in the world [1,2]. Breast tuberculosis is a very rare entity with an incidence between 0.1%-3% of all breast diseases, and approximately 4% incidence among breast diseases in TB endemic countries [3]. It mostly affects young lactating women and it is often misdiagnosed as an abscess or carcinoma breast. Hence high index of suspicion is required for its diagnosis and Fine Needle Aspiration Cytology (FNAC) or biopsy is required for definitive diagnosis. Here we are reporting a case of primary tubercular abscess in the right breast of a young female that was initially diagnosed as a case of breast abscess and was later identified as tubercular breast abscess.

### Case Report

A 22-year-old non-HIV female presented to the surgical OPD (Outpatient Department) with complaints of pain in right breast since 6 months, which increased during menstruation. After two months of pain, patient felt pea sized lesion (1 cm × 1 cm) in the subareolar region of the right breast which gradually increased to the present size of 2 cm × 3 cm. There was history of intermittent fever, loss of appetite and loss of weight for the last 5-6 weeks. There were no respiratory complaints, past history or recent exposure to tuberculosis, diabetes, immunosuppression in the patient. On examination, the patient was average built, afebrile, and with normal vitals. She was married two years back and was planning to conceive since 6 months. Respiratory system examination was normal. Local examination revealed 2 cm × 3

cm firm, tender, well defined mass with irregular edges in the subareolar region in the upper outer quadrant of her right breast with no other signs of inflammation. Nipple was normal with no discharge and there was no associated palpable lymphadenopathy. Left breast was normal in appearance and texture.

Her haemogram, ESR (Erythrocyte Sedimentation Rate), liver, and renal functions were within reference ranges. X-ray chest did not show any abnormality. Ultrasound breast showed a well-defined hypoechoic lesion measuring 22 mm × 19 mm × 16 mm with coarse internal echoes and thick wall in the subareolar region of the right breast suggestive of right sided breast abscess. Left sided breast was normal and there was no associated bilateral axillary lymphadenopathy. FNAC revealed frank pus and smear showing dense acute and chronic inflammation along with groups of degenerating ductal epithelial cells and few histiocytic cell clusters. The drained pus material was sent to the microbiology laboratory for pyogenic culture and Ziehl Neelsen (ZN) staining. There was no growth of any pyogenic organism after 48 hrs of incubation but ZN stain was positive for acid fast bacilli suggestive of tubercular abscess (Figure 1). Ultrasound abdomen was within normal limits. Urine sample was negative for AFB. Pus sample was also sent to the LRS (Lala Ram Swaroop) Institute of Tuberculosis and Respiratory Diseases (National Reference Laboratory) for culture and sensitivity of *Mycobacterium tuberculosis*. Sample grew *M. tuberculosis* on LJ (Lowenstein Jensen) medium after two weeks of incubation. The isolate was identified as *M. tuberculosis* and found to be sensitive to isoniazid (H), rifampicin (R) pyrazinamide (Z) and ethambutol (E) by Bactec MGIT (Mycobacteria Growth Indicator Tube) 960 system. The patient was put on Category I Anti-Tubercular Therapy (ATT) which consists of an intensive phase of H, R, Z, and E administered under direct supervision thrice weekly on alternate days for 2 months, followed by a continuation phase of H and R thrice weekly on alternate days for 4 months. On follow-up after four months, patient responded well to treatment and no breast mass was palpable.



**Figure 1:** Ziehl Neelsen (ZN) staining showing acid fast bacilli in aspirated material from breast abscess.

## Discussion

*Mycobacterium tuberculosis* can involve any organ in the body but involvement of extra pulmonary sites like breast, spleen, skeletal muscles etc is very rare. An incidence between 0.64% to 3.59% of tuberculous mastitis has been reported from several studies in India, as breast tissue does not provide favourable environment for the survival and multiplication of tubercle bacilli [4]. Also it is seen that there is under-reporting of tubercular mastitis due to lack of awareness of clinical symptoms, misdiagnosis, and inadequate laboratory facilities etc. Breast tuberculosis commonly affects young multiparous, lactating women. This entity is mostly misdiagnosed as fibroadenoma, fibroadenosis, malignancy or breast abscess. It can spread from contiguous structures, lymphatic, hematogenous, direct inoculation and ductal infection. The most accepted mechanism for tubercular mastitis is by retrograde lymphatic extension from the mediastinal, axilla and cervical region [5]. Tubercular mastitis is classified into three categories (i) nodulocaseous tubercular mastitis, (ii) disseminated/confluent tubercular mastitis and (iii) tubercular breast abscess [3]. Mycobacterial culture remains the gold standard for diagnosis of tuberculosis, however the time required and frequent negative results in paucibacillary specimens are important limitations. Polymerase Chain Reaction (PCR) is highly sensitive in culture negative specimens. Hence diagnosis of tubercular breast abscess is based on clinical suspicion, radiological features and pathological and microbiological investigations [6]. Breast TB responds well to standard

ATT for 6 months and surgical intervention is rarely required in non-responders and patients with extensive disease.

The present case was a young non-lactating female presenting with non-specific complaints like pain in breast, loss of appetite, weight loss and intermittent fever and was diagnosed as a case of breast abscess by ultrasound breast and advised for FNAC. FNAC report was suggestive of chronic inflammation with clusters of degenerated epithelial cells and histiocytes. In ZN stain, acid fast bacilli were seen and the culture was positive for *M. tuberculosis*. Our case was most probably a case of primary tubercular abscess as there was no evidence of infection in other organs. The pathogenesis in our case remains unclear as there was no history of trauma, lactation, multiparity or any other risk factor. Also there was no associated lymphadenopathy on clinical examination and ultrasound breast. However in this reproductive age group, breast undergoes developmental changes due to hormonal changes making the organ more susceptible to infection. As soon as the diagnosis of tubercular breast abscess made, patient was put to Category I ATT and patient responded well to treatment during follow up.

## Conclusion

To conclude, breast tuberculosis although is a rare entity should be kept in the differential diagnosis of breast lump especially in tubercular endemic countries like India. A basic microbiological investigation like acid fast staining on aspirated material with strict internal quality control in all cases of breast abscess can assist in early diagnosis and prompt treatment thereby reducing the morbidity in such cases.

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