

## Case Report

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# Primary tuberculosis of the breast: a diagnostic dilemma

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## ABSTRACT

Primary tuberculosis of the breast is a rare disease, despite the high prevalence of pulmonary and extra-pulmonary tuberculosis in disease endemic countries. The diagnosis of primary breast tuberculosis is challenging due to its non-specific clinical and imaging findings. Lesions of tuberculosis such as nodular mastitis, disseminated mastitis, and sclerosing lesions clinically mimic fibroadenoma, carcinoma, and fibrocystic changes, depending on the mode of presentation. We report a case of primary tuberculosis of breast, she presented with breast lump. The diagnosis was confirmed on histopathology after wide excision of the lump. The patient recovered uneventfully and was discharged on antitubercular therapy for 9 months with follow-up protocol. The primary tuberculosis of the breast presents with a diagnostic dilemma for the surgeons. A high index of suspicion for tuberculosis is needed in diseases endemic countries, especially in the Indian subcontinent.

**Keywords:** Breast lump, Inflammatory granuloma, Nodular tuberculosis

## INTRODUCTION

Breast tuberculosis (TB) is a rare disease, with an incidence of less than 0.1% of all breast lesions in Western countries and 4% of all breast lesions in TB endemic countries like India. It typically affects young lactating multiparous women and can present either as an abscess or as a unilateral, painless breast mass.<sup>1</sup> Clinical presentation is usually of a solitary, ill-defined, unilateral hard lump situated in the upper outer quadrant of the breast. However, the disease is not diagnosed easily because of its physical similarity to carcinoma and bacterial abscesses.<sup>2</sup> Sir Astley Cooper reported the first case of tuberculous mastitis in 1829 and called it 'scrofulous swelling of the bosom'.<sup>3</sup> We present a case report of primary tuberculosis of breast which was diagnosed on histopathology due to diagnostic dilemma.

## CASE REPORT

A 32-year-old HIV negative non-lactating woman presented to our hospital with a painless lump in the right

breast. The lump was noticed four to five months before during breast self-examination, and has been gradually enlarging in size since then. There was no history of trauma, fever, night sweats, weight loss or any other symptom. She had received antibiotic therapy from the local practitioners, but there was no resolution of the lump. Her husband had pulmonary tuberculosis 5 years before, and had received full treatment from the DOTS Center. There was no family history of breast cancer, and no personal history of diabetes and tuberculosis.

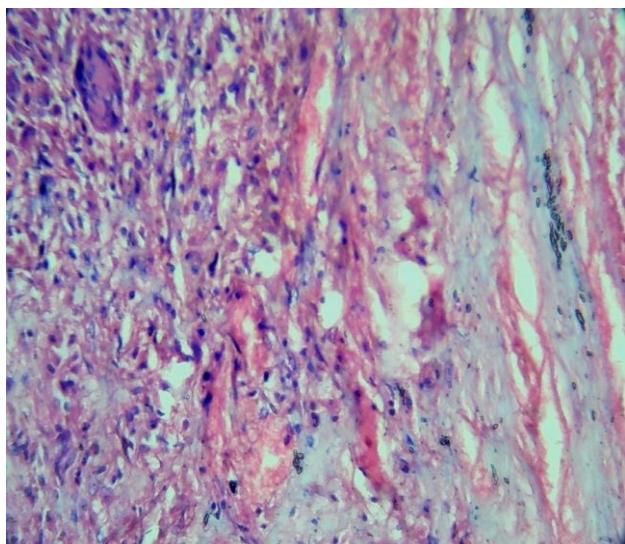
Physical examination revealed a palpable lump in the upper-outer quadrant of the right breast, measuring about 6×10 cm. The skin overlying the lump was eutermic, mildly tender, firm to hard in consistency, with irregular margins, mobile in both perpendicular axis, but was fixed to the overlying skin in the central portion. However, there were no overlying ulceration, sinuses, or punctum in the skin. The lump was fixed to the underlying fascia of the chest wall. The nipple-areola complex were normal, and there was no discharge from the nipple.

Sonography of the right breast revealed an irregular heterogeneously hypoechoic lesion in upper outer quadrant of the right breast parenchyma with few calcific specks, BIRADS -4. FNAC of the lump revealed inflammatory granulomatous lesion, suggestive of tubercular mastitis. The blood routine investigations, radiogram of chest, and sonography of the abdomen were unremarkable.

Considering the size of the lump, and to rule out the other diagnosis like fibrocystic breast diseases, phyllod tumor, sarcoidosis, fungal granulomas, or a co-existing carcinoma, wide excision of the lump was done (Figure 1).



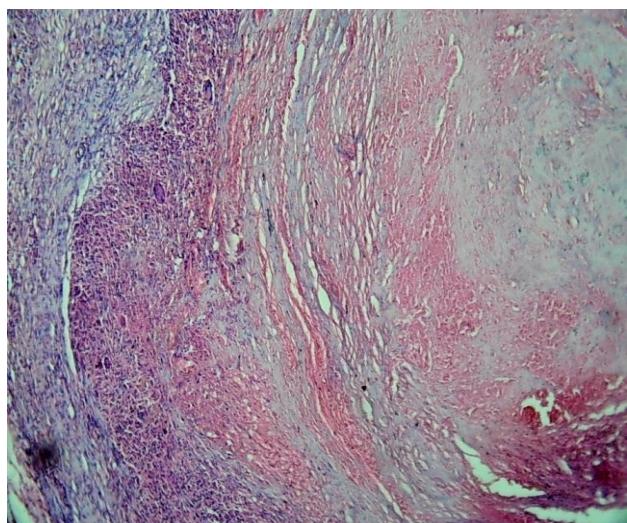
**Figure 1: Excised breast lump.**



**Figure 2: Histopathology-granuloma with Langhan giant cell.**

The histopathological evaluation of the lump revealed epithelioid granulomas with Langhans' giant cells and central caseous necrosis, which confirmed the diagnosis

of breast tuberculosis (Figure 2 and 3). The patient had no focus of tuberculosis elsewhere in the body, both on physical and radiological examination, and hence was finally diagnosed as primary tuberculosis of the breast. The patient was put on 9 months regimen (2 months of rifampicin, isoniazid, pyrazinamide, and ethambutol/ 7 months of rifampicin and isoniazid), due to disease endemicity in our region, and is claimed to have less relapse rate. She was discharged on the 5th day postoperatively. The 2 months follow up is normal.



**Figure 3: Histopathology- granuloma with caseous necrosis.**

## DISCUSSION

Primary tuberculosis of the breast is a rare disease and often its presentation mimics the features of breast neoplasms, and other benign breast diseases. The diagnosis of breast tuberculosis is difficult because of non specific clinical and radiologic findings. Tuberculosis lesions such as nodular mastitis, disseminated mastitis, and sclerosing lesions clinically mimic fibroadenoma, carcinoma, and fibrocystic change, depending on the mode of presentation.<sup>4</sup> Breast tuberculosis has been estimated to be 0.1% of breast lesions examined histologically, and it constitutes about 3–4.5% of surgically treated breast diseases in developing countries. Breast tuberculosis is paucibacillary and routine diagnostic tests such as microscopy, culture, and nucleic acid amplification tests such as polymerase chain reaction techniques do not have the same diagnostic utility as they do in pulmonary tuberculosis. Also, the histology resembles various other granulomatous mastitis.<sup>5</sup>

The gold standard for the diagnosis of breast tuberculosis is detection of *Mycobacterium tuberculosis* by Ziehl Neelsen or culture. However, histochemistry is not practical and culture of *M. tuberculosis* has limitations due to the delay in obtaining the final result and the possibility of false-negative results in paucibacillary samples.<sup>6</sup>

Microbiological and histological examinations remain the gold standard for the diagnosis of this uncommon disease.<sup>7</sup> Diagnostic modalities include, mammography, FNAC and excision biopsy, with accuracies of 14%, 12%, and 60%, respectively. Mammography and ultrasonography are the primary imaging methods in the evaluation of breast lesions.<sup>4</sup> Mammography and ultrasonography are unreliable in differentiating mammary tuberculosis from carcinoma.<sup>8</sup> FNAC may not be able to detect the responsible pathogen itself but is detecting the presence of epithelioid cell granulomas and necrosis, leading to definitive diagnosis in up to 73% of cases. Polymerase chain reaction (PCR) is highly sensitive for the diagnosis of breast tuberculosis. Although seldom used, it is recommended in cases with negative culture results or differential diagnosis between others forms of granulomatous mastitis. Finally, histopathology of the lesion identifies a chronic granulomatous inflammation with caseous necrosis and Langhans type giant cells, contributing to diagnosis in the majority of the cases.<sup>6</sup> Biopsy such as core needle or surgical biopsy can get higher accuracy in diagnosis.<sup>9</sup>

In our case, breast tuberculosis was diagnosed on histopathology. Before the advent of antitubercular drugs (ATD), breast tuberculosis was treated by simple excision of the lump, drainage of the abscess, and lastly surgery as extensive as mastectomy. However, with the development of pharmacotherapy, the indicated treatment is conservative surgery (local excision of the mass) followed by antitubercular therapy.<sup>10</sup> The patient had no focus of tuberculosis elsewhere in the body and hence was diagnosed to have primary tuberculosis of breast.

## CONCLUSION

Despite high prevalence of pulmonary and extra-pulmonary tuberculosis, primary breast tuberculosis is a rare disease. It has non-specific clinical features, and mimics benign and malignant breast diseases. It is a diagnostic dilemma for the clinicians. We recommend when the FNAC is inconclusive, or/and in the presence of large size lumps ( $>5$  cm) should be excised with 1.5 cm margins, and biopsied to establish the diagnosis. The disease is curable with antitubercular therapy.

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