



Primary tubercular mastopathy

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CASE REPORT

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Abstract

Primary breast tuberculosis is a rare entity in the developed world but is slightly more common in the developing world. All lesions that clinically, pathologically and imaging wise appear benign but do not respond to routine antibiotics, must be worked up for possible tubercular aetiology especially when they present as plain oedema, induration or as non-healing ulcers. Imaging has a role in defining the extent, deciding the type of management and duration of follow-up. This article highlights the clinical and sonographic imaging findings in one such case which was followed up for a period of one year.

Key Words: Primary breast tuberculosis; ultrasound; acid fast bacilli; imaging

Implications for Practice

1. Primary tuberculosis mastitis constitutes 0.1% of all reported breast lesions in developed nations and around 4.5% in developing nations.
2. This case shows how this important diagnosis was made by making use of imaging findings, cytology findings and finally by microbiological confirmation.
3. The correct diagnosis is often delayed and difficult because of the non-specific clinical, imaging, microbiological as well as histopathological findings.

Background

Primary tuberculosis of the breast (PBTb) is rare not only in developed nations but also in developing nations where the pulmonary, as well as extra pulmonary, manifestations of tuberculosis are rampant.¹

Globally tuberculous mastitis constitutes 0.1% of all reported breast lesions, and is slightly more common in developing nations where it accounts for 4.5% of breast disease.¹⁻⁴

Although it may rarely coexist with carcinoma, PBTb is rarely bilateral and commonly affects females between 20 and 50 years of age.^{5,6} Diagnosing PBTb is a challenge as its imaging, as well as clinico-pathological, features are quite non-specific and often inconclusive.

Case report

A 32-year-old, otherwise healthy lady presented with, heaviness, redness and oedema of the right breast developed over a period of one month. Although she had taken several antibiotics from her family physician there had been no noticeable improvement.

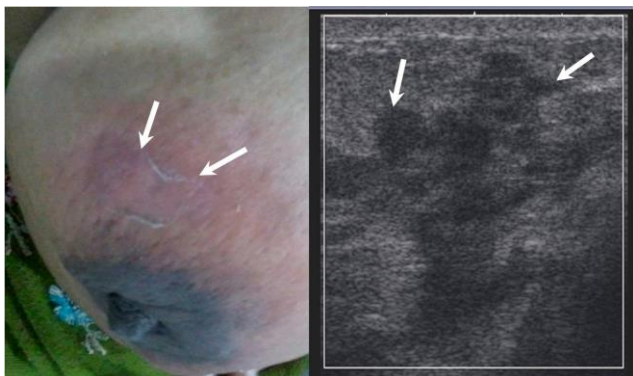
She was a non-smoker, non alcoholic and had no significant medical or surgical history. There was no history of any decreased appetite or weight loss. Upon inspection her right breast appeared swollen and showed focal induration and redness in its upper and inner quadrant (Figure 1). On palpation, the local temperature was not elevated, nor was the patient febrile. There was no nipple discharge. There was no lymphadenopathy, although she was pale.

Her sonomammogram at this stage (Figure 1) revealed an infiltrative hypoechoic relatively avascular lesion in the region of redness. There was no significant intra-mammary or axillary lymphadenopathy.

She was kept under observation while her clinico-laboratory work up was being done. Her haemoglobin was 9.9gm/dl and erythrocyte sedimentation rate was 110mm/hr. Her total leukocyte count was 10800/cu mm

and there were 73% polymorphs. Her platelet count was $350 \times 10^3/\mu\text{l}$. Her liver function tests as well as renal function tests were within normal range. She was HIV as well as HBSAg negative.

Figure 1: Clinical photograph and USG image on admission



As the heaviness increased, surgical incisions were given at the most prominent site believing in the age old adage that wherever there is suspicion of pus; let it out. Her clinical picture and sonomammogram at this stage showed an ulcer and well demarcated semi-liquid collection in the substance of breast parenchyma (Figure 2). On Colour Doppler minimal peripheral vascularity could be demonstrated now as shown.

Figure 2: Clinical photograph and USG image at one month follow-up

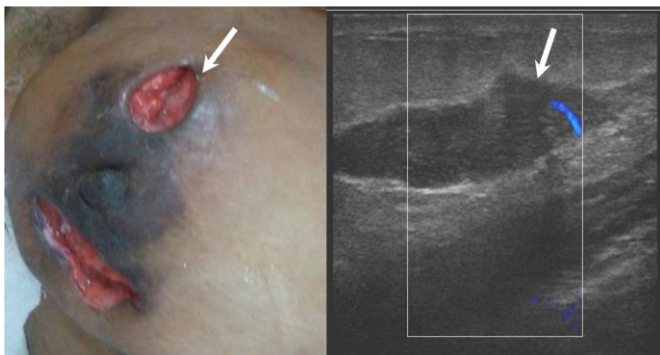
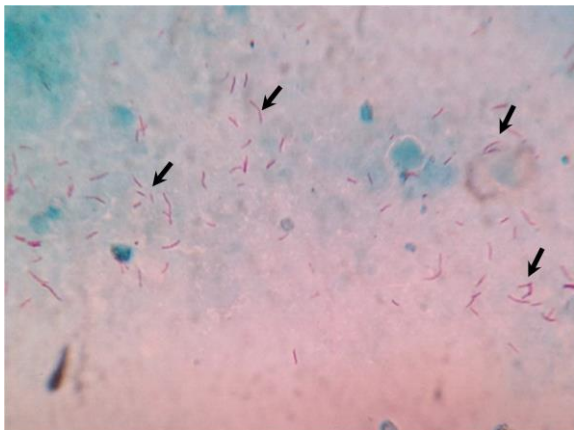


Figure 3: Culture of the secretions-positive for acid fast bacilli



Gram staining of the cheesy discharge from the lesion showed many pus cells. Ziehl Neelsen staining however demonstrated many acid fast bacilli (Figure 3). It is important to note that histopathology of the sample from the drained area demonstrated keratinised stratified squamous epithelium and sub epithelial tissue with diffuse infiltration of acute inflammatory cells. The infiltrates were mainly polymorphs, along with lymphocytes and occasional multinucleated giant cells. Few ducts were seen, lined by cuboidal epithelial cells. There was no evidence of micro calcification, ductal carcinoma in situ, or invasive malignancy. Thus histopathology was not at all suggestive of tubercular nature of this lesion.

Figure 4: Sonomammogram at nine months follow-up

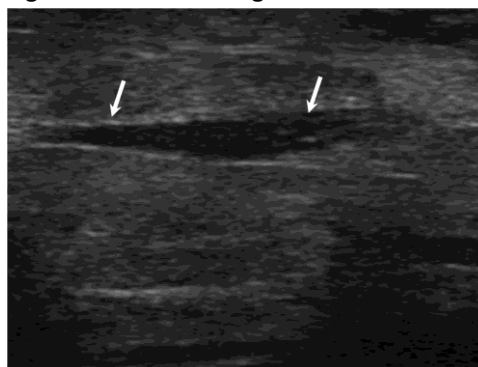
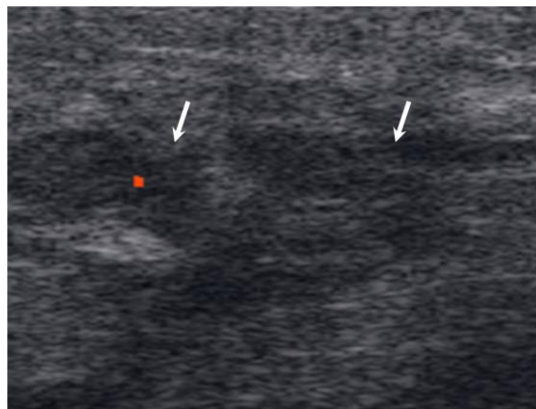


Figure 5: Sonomammogram at 12 months follow-up



As Tuberculin skin test as well as chest radiographic findings were normal, the case was labelled as a case of Primary Breast Tuberculosis (PBTb). The patient was put on rifampicin, isoniazid, and pyrazinamide antituberculous therapy (ATT) for 12 months. A systemic work-up did not reveal any other foci of tuberculosis. The patient responded very well to antituberculous therapy alone and did not require additional surgical treatment as is evident from her sonomammography images at nine months (Figure 4) and at 12 months follow-up (Figure 5). Although the lesion had significantly reduced at nine months follow-up, still the ATT was continued for three



more months as the lesion had not completely regressed. At 12 months follow-up only the hypoechoic oedema was seen and hence the ATT was stopped. The patient was advised six monthly follow-up for the next couple of years.

Discussion

Breast tuberculosis is usually secondary to a tubercular lesion elsewhere in the body, generally in the lungs. But when no other tubercular lesion is found except in the breasts the entity is labelled as PBTb.

Infections associated with reconstructive surgery and nipple piercing,¹⁻³ dermal abrasions or through ductal openings at nipples in women of reproductive age is the usual mechanism⁷⁻⁹ although; often the exact mechanism remains unknown. Increased risk of PBTb has been reported in lactating females.⁴

PBTb accounts for only 0.06% to 1.78% cases of breast surgical cases in the west but reaches upto 4.5% in the east.^{1, 4, 6}

Diagnosis of tuberculosis of the breast may be difficult because the clinical and radiographic appearances are non-specific. Furthermore, microbiological and histopathological results might not always be conclusive and affirmative. In our case, the discharge was positive for acid fast bacilli but the histopathology did not reveal any features of granulomatous disease. Cases have been reported where histopathology revealed features of granulomatous disease but pus was negative for acid fast bacilli.^{4, 10}

Primary breast tuberculosis is nothing but granulomatous lobular mastitis on histopathology and therefore its likely differentials are sarcoidosis, leprosy, syphilis, actinomycosis, typhus, and cat scratch disease.^{5, 6, 11}

Morphologically three forms⁶ of breast tuberculosis are known and they are the nodular form which may be mistaken for a fibroadenoma or carcinoma,¹² disseminated form that results into caseation and sinus formation, and a sclerosing form which manifests as dense, fibrotic breast tissue and is slow growing in absence of any suppuration. Our patient fits in the category of the disseminated form.

Clinically PBTb presents as a painless mass, oedema, or local abscess that is insidious in onset and is gradually progressive.^{4, 5}

Both the X-ray mammography as well as sono mammography findings are non-specific and variable depending upon the morphological subtype.^{3, 5}

To have a confirmed diagnosis of tuberculous mastitis acid fast bacilli have to be isolated from the tissue cultures. But many times these results of bacteriologic studies are negative,⁴ then a direct visualisation of a granulomatous lesion with caseous necrosis and bacilli on an acid fast stain of the histopathologic specimen^{10, 13} aids in confirming the diagnosis. Hence we believe that microbiological as well as histopathological tests should be done to get a confirmative diagnosis.

Thus, although PBTb is a rare entity it must always be kept in mind in clinical, pathological and imaging wise benign looking lesions especially when such lesions do not respond to routine antibiotics. The correct diagnosis is often delayed and difficult because of the non-specific clinical, imaging, microbiological as well as histopathological findings. Hence a high index of suspicion acquires an important position. Therefore all methods must be employed until a satisfactory diagnosis is reached.

Ultrasound can be effectively used for follow-up of these cases and to visualise response to ATT. Ultrasound can even aid in deciding whether to stop the treatment after completing the routine course or if lesions remain unhealed it can enable strengthening of the decision of further continuing the treatment until complete resolution has taken place. Evidently the disease is remarkably responsive to treatment with the modern antitubercular chemotherapeutic drugs and surgery has a background role to drain the pus if it is there.

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CONFLICTS OF INTEREST

The authors declare that they have no competing interests

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