

# Breast tuberculosis

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## ABSTRACT

Tuberculosis is the most widespread and persistent human infection in the world. Tuberculosis of the breast is an uncommon disease with an incidence range between 0.1-3%, for all the breast diseases treated surgically. We present a case with primary breast tuberculosis. The diagnosis was made based on result of pathological examination of incision biopsy and cure had been obtained with anti-tuberculosis therapy with 4 drugs. Especially for patients from the areas where tuberculosis is endemic, tuberculosis must be considered in differential diagnosis of breast lesions.

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Tuberculosis continues to be an important reason of mortality and morbidity due to spread of HIV infection, increased number of multidrug resistant cases, absence of new, effective drug, and vaccine. Although important efforts are continuing all over the world for eliminating and eradicating this disease, there are an estimated 8.5 million new cases annually with an annual death toll of nearly 1.7 million.<sup>1</sup> Most commonly, tuberculosis affects the lungs and any other organ. Infections often pass through a dormant period, with symptoms appearing in whatever organ the bacteria inhabit, most often the apical area of the lungs. Immunosuppressive conditions, aging, transplantations, chronic diseases, and HIV infections lead tuberculosis to present atypically and sometimes with predominant extrapulmonary manifestations that result in delays in diagnosis and treatment. It has been suggested that mammary gland tissue such as spleen and skeletal muscle offers resistance to the survival and multiplication of the tuberculosis bacillus.<sup>2</sup> Also, tuberculosis of the breast is an uncommon disease with an incidence range between 0.1-3%, for all the breast diseases treated surgically.<sup>3</sup> Its incidence in western countries is less than 0.1% of breast lesions examined

histologically and 3-4.4% in developing world where tuberculosis is endemic.<sup>4</sup> It occurs mostly in young multiparous lactating women with reproductive age.<sup>5</sup>

In general, tuberculosis of breast is a frequently missed diagnosis, especially in different clinical patterns. Tuberculosis mastitis (TM) might mimic breast carcinoma or breast abscess clinically and radiologically, we present this case to mention that a high level of suspicion is the corner stone for the diagnosis.

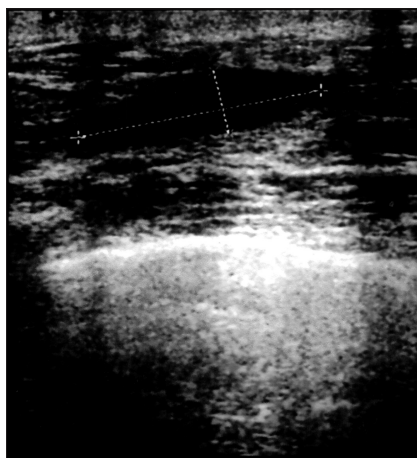
**Case Report.** A 26-year-old Caucasian lady, presented with painful swelling, high fever, and a tender lump in her right breast to a local hospital. She was treated with intravenous ampicillin and fluoroquinolones as she was considered to have pyogenic breast abscess. On admission, her temperature was 39.1°C, the findings of the physical examinations were normal except redness and lump in her right breast. Her chest x-ray was normal. Laboratory data revealed leukocyte 15.600/mm<sup>3</sup>, and erythrocyte sedimentation rate (ESR) 70 mm/hr. After a course of antibiotics, her fever reduced, leukocyte count became normal and ESR reduced to 40 mm/hr, but

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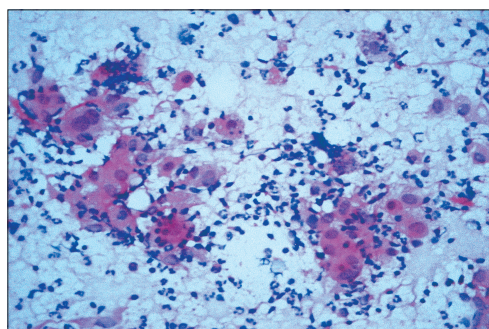
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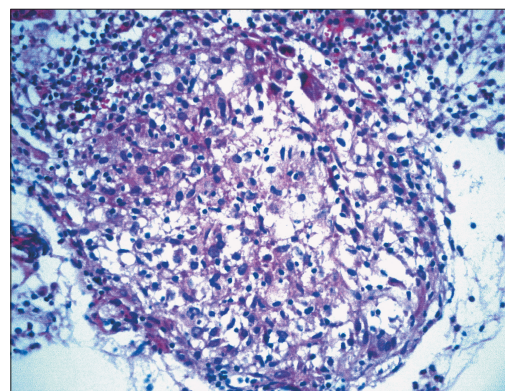


**Figure 1** - Ultrasonographic finding of cystic breast mass.



**Figure 2** - Fine needle aspiration cytology with groups of epithelioid histiocytes (Hematoxylin and Eosin x 400).

the tenderness and swelling in her breast remained the same. After 3 months, she noticed multiple discharge of sinus in her breast, she was treated with cefuroxime axetil and trimethoprim-sulfamethoxazole. However, as the lesions in her breast did not get well at the end of 6 months, she referred to our hospital. She denied smoking, risk factors for HIV and recent exposure to tuberculosis. She had no past history of tuberculosis. She admitted to our general surgery department, and both Tru-Cut and fine needle biopsy were applied. And from the discharge of sinus in the breast, culture and polymerase chain reaction (PCR) for mycobacterium tuberculosis were sent to the laboratory. Her purified protein derivative (PPD) skin test was 16 mm. The sputum smears and discharge material for acid-fast bacilli (AFB) were found negative. A breast echogram disclosed a well-defined hypoechoic cystic mass lesion (**Figure 1**). Pathology showed epithelioid granulomas with Langhans giant cells and lymphohistiocytic aggregates (**Figures 2 & 3**). She was diagnosed as breast tuberculosis. The intensive therapy with anti-



**Figure 3** - In tissue biopsy, formation of epithelioid granulomas with Langhans giant cells and lymphohistiocytic aggregates (Hematoxylin and Eosin x 400).

tuberculosis drugs (isoniazid 300 mg, rifampicin 600 mg, pyrazinamide 1500 mg, and ethambutol 1000 mg per day) was started. The following month her swallow was less, and lesions in the breast steadily improved.

**Discussion.** A young multiparous lactating woman with a lesion of discharging sinus from an endemic region of tuberculosis should arouse the suspicion of TM. The diagnosis of mammary tuberculosis was confirmed of clinical suspicion and histopathological findings. Most of the time, pathological examinations are more valuable and preferred for the accurate diagnosis, but also diagnosis can be obtained by fine needle aspiration cytology (FNAC). Khanna et al<sup>6</sup> found that in 52 patients with breast tuberculosis FNAC was 100% reliable in diagnosing breast tuberculosis. Cytological findings of granulomatous mastitis (GM) can also be found in idiopathic GM, fat necrosis, and actinomycosis. The distribution of granulomas in idiopathic GM, are mostly localized, perilobular and periacinar without caseation necrosis.<sup>7</sup> In TM, the distribution of granulomas is diffuse and unlimited to the lobules and will be accompanied by caseation necrosis and as a result of this necrosis, the characteristic lesion of fistulization to skin occurs. By the absence of sulfur granules in the discharge of sinus of the suppurating lesions, actinomycosis can be eliminated. By the absence of fat globules, fat necrosis can also be eliminated.<sup>8</sup>

The 3 main features of mammary tuberculosis were nodular, disseminated and sclerosing. And as a result of these findings multiple discharging sinuses, lump, ulcer, and recurring abscess of breast were seen.<sup>8</sup> According to Wilson and Macgregor<sup>9</sup> the right and left sides of the breast were equally involved. On the other hand, according to Pal<sup>10</sup> there is a slight

tendency for the right breast to be more frequently affected as it was in our patient. Sharma et al<sup>11</sup> found that duration of symptoms ranged from 6 months to 2 years, and in the series of Khanna et al<sup>6</sup> the mean duration of symptoms was 8.5 months. In our case, it was approximately 6 months. Early diagnosis is difficult, as the characteristic sinuses occur late in the course of the disease. Although cases have been reported from those aged 6 months to 73 years, yet most cases are between 20-40 years old.<sup>4,12</sup>

There are 3 recognized modes of spread of the tubercle bacilli to the breast: direct, lymphatic and hematogenous. It is generally believed that breast gets involved by retrograde lymphatic extension from mediastinal, axilla and cervical region.<sup>5,8</sup> Supporting this associated axillary lymphadenopathy was found in 50-75% of the patients,<sup>2,13</sup> but in our case there was no associated lymphadenopathy as we obtained by physical examination and ultrasonography. Direct infection of the breast may occur through skin abrasions or through the duct. In our case, we found no other foci of tuberculosis infection, and her chest x-ray was normal. The reported prevalence of demonstration AFB in smears has varied from 0-38.6% of TM cases.<sup>14</sup> Bacteriological examination of discharge from the sinus was negative for AFB on staining as well as culture in most cases.<sup>6,9</sup> Our bacteriological results were also negative for both stain, culture and PCR. Radiological imaging modalities such as mammography or ultrasonography are unreliable in distinguishing TM from carcinoma.<sup>15</sup> Similarly, computed tomography and magnetic resonance imaging are not diagnostic without histological confirmation.

Mammary tuberculosis should be included in the differential diagnosis of breast lesions such as breast carcinoma, persistent breast abscess and sinuses, especially in women from high risk populations and endemic regions.

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