TUBERCULOSIS OF BREAST: A CASE REPORT

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ABSTRACT

We report a 29 year old Asian lady with recurrent breast abscesses and axillary and supraclavicular lymphadenopathy. Smear for tuberculosis and TB tissue cultures were initially negative while the histopathology repeatedly showed granulomatous inflammation. Treatment with standard anti tubercular drugs was started once Mycobacterium Tuberculosis was finally cultured from the breast abscess.

This case highlights the difficulty in differentiating culture negative tuberculosis from other causes of chronic granulomatous mastitis and the importance of keeping a high index of clinical suspicion.

CASE REPORT

A 29 year old Asian lady, presented to her GP with a history of swelling in the right breast for about two weeks. She was treated with anti microbial agents (flucloxacillin, co-amoxyclav and ciprofloxacin) for several weeks. However, despite these her symptoms worsened with increasing pain, swelling and reddish discolouration of skin overlying the breast lump. The patient was referred to Ealing Hospital for further investigations On examination, she had a firm lump palpable in the right outer quadrant of the breast which measured 12x8 cm in size. The skin overlying the lump was erythematous. She had bilateral axillary nodes palpable. The rest of the physical examination was unremarkable.

Full blood count and biochemistry was unremarkable. Serum ACE was normal. Tissue auto antibodies and ANCA were negative. A chest radiograph and ultrasound abdomen was normal. Ultrasound of the breast[HS1] showed poorly outlined solid lump with 3x2 cm ipsilateral lymph node. Mammography showed right breast M3 and [HS2] left breast M1 lesion. MRI was suggestive of advanced right breast carcinoma with lymph node involvement or mastitis with reactive lymphadenopathy. Fine needle

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aspiration cytology from breast tissue showed chronic intralobular mastitis with fibrosis and necrosis. Histopathology of excised tissue showed chronic intralobular mastitis with fibrosis and focal fat necrosis suggestive of granulomatous infection. HIV antibody test was negative.

The patient was continued on broad spectrum antibiotics but three months later, developed fever and continued to have a painful lump in her right breast with a discharging sinus. The sinus discharge was bloody. On examination, she had a 6 cm scar on right breast of previous surgery with multiple draining sinuses from a fluctuant lump measuring 4x4 cm. There was right axillary and supraclavicular lymphadenopathy. An ultrasound of right breast was repeated which revealed persistence of wide spread abnormal appearance of the right breast tissue with pus collection. Subsequently, she underwent incision and drainage with further biopsy. The pus was sent for microbiology including for tuberculosis and fungi but was smear negative for acid fast bacilli. Cytology did not reveal any malignant or atypical cells. Histopathology on this occasion showed granulomatous mastitis. Quantiferon gold test for tuberculosis was negative.

Eight weeks later, the pus sample was culture positive for fully sensitive mycobacterium tuberculosis and the patient was started on standard quadruple anti-tubercular therapy.

DISCUSSION

Tuberculosis is a common disease but the incidence of breast tuberculosis is relatively rare. In the western countries, the incidence of tuberculosis is rising due to its association with HIV/AIDS.

The diagnosis of extra pulmonary tuberculosis still remains difficult due to low number of bacilli. A positive smear requires 1,000 to 10,000 mycobacterium per gram of tissue.(1) Radiometric BACTEC cultures have reduced the time limit for cultures to be positive as compared to conventional Lowenstein Jensen medium but still require relatively high bacilli in the tissue or biopsied specimen.(1) Direct detection of Mycobacterium tuberculosis DNA by polymerase chain reaction can detect 10 bacilli/ specimen. It has added advantage of rapid diagnosis, detecting mutations that confer rifampicin resistance and identifying multi drug resistant tuberculosis.(1)

Tuberculosis of the breast is a relatively uncommon disease with non-specific clinical, radiological and histological findings. Misdiagnosis is common as biopsy specimens are paucibacillary and investigations such as microscopy and culture are frequently negative.(2)

Mammary tuberculosis was first reported by Sir Astley Cooper in 1829. This is extremely uncommon in western population.(1,2,4,7,8,9,10) This is because the breast tissue is resistant to the growth of the tubercle bacillus and
this has been reflected by the extremely low prevalence in patients with pulmonary tuberculosis.\(^{(8,9,10)}\)

Mammary tuberculosis most commonly occurs in women in the age group from 20 to 50 years, and who have born children and lactated.\(^{(4,7,8)}\) Primary infection of the breast may occur through skin abrasions or through the ducts of the nipple. However, more commonly it may spread directly through haematogenous or lymphatic routes from other sites.\(^{(4,8)}\)

Mycobacterial culture, the gold standard for the diagnosis of TB, is often negative due to the paucibacillary nature of breast TB. Nucleic acid amplification tests (NAAT) such as polymerase chain reaction (PCR) are rapid and specific but suffer from low sensitivity especially in AFB smear negative cases. Sensitivity as low as 50% have been reported in some series.\(^{(8)}\) Further complicating the issue is the presence of polymerase enzyme inhibitors in approximately 20% of extra pulmonary specimens. If formalin fixed tissue is the only available material sensitivity of NAAT is compromised further. Thus a negative NAAT result does not exclude TB disease with certainty.\(^{(8)}\)

Mammography and ultrasonography are both unreliable in differentiating mammary tuberculosis from carcinoma.\(^{(11)}\) Fine-needle aspiration cytology can be diagnostic in about three-fourth of patients with the appearance of epitheloid granulomas or Langhan’s giant cells.\(^{(8)}\) Other types of biopsy, such as core needle or surgical biopsy, can get higher accuracy in diagnosis.\(^{(8)}\)

The differential diagnosis of mammary tuberculosis includes idiopathic granulomatous mastitis (GM). This usually occurs in women of reproductive age and may be associated with lactation or may occur in the postpartum period. The accurate diagnosis of idiopathic GM versus that of mammary tuberculosis is based upon the particular histological features of the biopsy specimens. The presence of predominant neutrophilic inflammation and the lack of caseous necrosis favour a diagnosis of idiopathic GM rather than that of mammary tuberculosis.\(^{(4)}\)

Actinomycosis may present as breast mass associated with draining sinuses that typically show sulphur granules in the discharging pus.\(^{(4)}\) Other fungal infection rarely stimulate such a picture and hence, staining and culture for fungi assume importance.

Sarcoidosis of the breast may present as non caseating granulomas on biopsy but not with draining sinuses. However, our patient had a normal serum ACE and no evidence of sarcoidosis elsewhere.\(^{(14)}\)

Another differential which needs to be ruled out is of granulomatous vasculitis. The two common types of vasculitis associated are giant cell arteritis and Wegener’s granulomatosis.\(^{(13)}\) Histology, is required for differentiation between tuberculosis and vasculitis of breast. Auto antibody and other immunological tests can also be of help.
Mammary tuberculosis is treated by standard anti-TB chemotherapy and responds well to treatment. Surgical intervention is reserved for patients with abscess formation.(3)

REFERENCES