J Nepal Health Res Counc 2014 May-Aug;12(27):138-40

Tubercular Breast Abscess - A Diagnostic Dilemma

Mallick D,[1] Saha M,[1] Chakrabarti S,[1] Chakrabarty J[1]

[1]Department of Pathology, ESI PGIMSR, Manicktala Kolkata, Kolkata, West Bengal, India.

ABSTRACT

Tuberculosis affects many organs, however isolated tubercular breast lesion is rare. Clinically as well as radiologically it may mimic both pyogenic abscess and malignancy. One such case is being reported where a middle aged woman presented with painful, gradually increasing breast lump and was diagnosed clinically, radiologically, cytologically and even histologically as pyogenic abscess. Poor response to antibiotics raised the suspicion of malignancy for which repeat fine needle aspiration cytology was done. Well formed granulomas, necrosis and finally demonstration of acid fast bacilli established the diagnosis of tubercular abscess. No other organs were involved by tuberculosis in this case. Patient responded well to antitubercular drugs. Thus diagnostic challenge lies in the demonstration of acid fast bacilli in cases of equivocal morphology in routine cytology as well as histology. High clinical suspicion, poor response to antibiotics, suggestive radiological findings, cytology, histology and demonstration of acid fast bacilli –all contributes to the diagnosis of breast tuberculosis.

Keywords: breast; clinical presentation; diagnosis; tuberculosis.

INTRODUCTION

Pyogenic abscess is a common breast lesion. Isolated involvement of breast by tuberculosis producing an abscess is uncommon. Sometimes it may clinically mimic a malignancy, thereby generates producing considerable diagnostic dilemma. Though ultrasonographic findings are suggestive, identification of acid fast bacilli (AFB) is necessary for confirmation.[1] One such case is being reported where a tubercular abscess was mimicking both pyogenic abscess as well as malignancy. However final diagnosis of Tubercular breast abscess was confirmed by demonstration of AFB.

CASE REPORT

A 35 years old female presented in a peripheral institution, with a left breast lump of 6x6cm noticed three months back (Fig 1A). Initially the lump was small having 2x2cm in dimension, painful, gradually increasing in size and was associated with fever. Routine hemogram showed haemoglobin 9.9gm%, Total Leucocyte Count (TLC) 7.4 x 10^9/L, ESR 110mm (1^{st} hour). Clinical examination revealed a nodular breast lump with irregular margins, firm in consistency and no palpable axillary lymph node. Ultrasonography by high resolution probe showed hypoechoic lesion, profuse oedema and inflammatory changes without any axillary lymphadenopathy suggesting pyogenic abscess (Figure 1B). Fine needle aspiration cytology (FNAC) was performed which also showed both acute and chronic inflammatory cells, few histiocytes and benign epithelial cells suggestive of breast abscess. The abscess was drained by multiple radial incisions and biopsy of the abscess wall was sent for histopathological examination. The histological features were dense inflammatory cell infiltration and necrosis corroborating the previous diagnosis of breast abscess. However the lump was increasing in size and not responding to antibiotics during next two months. The patient was then referred to this institute to exclude malignancy. A repeat FNAC was performed which macroscopically was caseous in nature. Leishman Geimsa stained smears revealed well-formed granulomas composed of epithelioid cells and necrosis (Figure 2). Ziehl Neelsen (ZN) stain showed AFB confirming tubercular infection of the breast (Figure 2).

Correspondence: Debjani Mallick, Department of Pathology, ESI PGIMSR & Medical College, Joka, Kolkata, West Bengal, India. Email: dr.debjani.m@gmail.com, Phone: +919830381441.

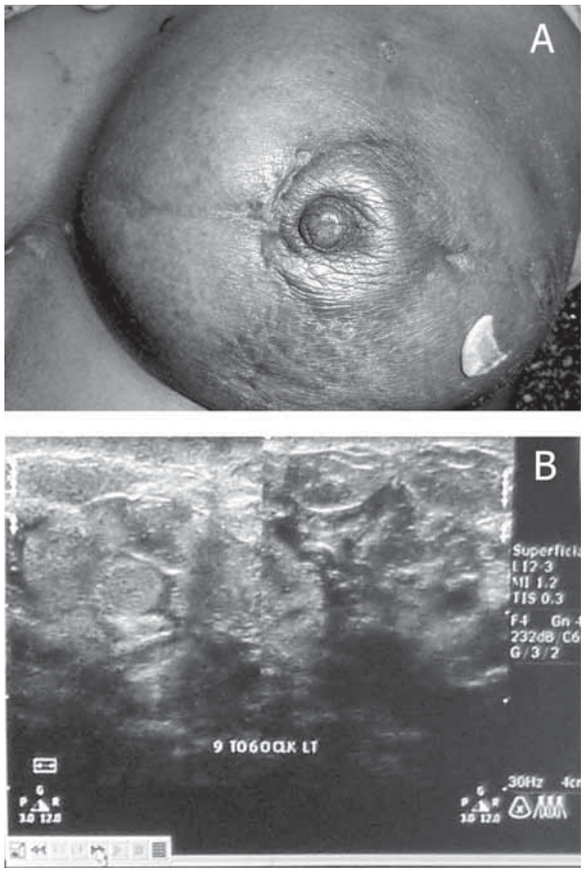

Figure 1A. The nodular breast lump with multiple scar marks.

Figure 1B. Ultrasonography showing hypoechoic lesion and oedema.

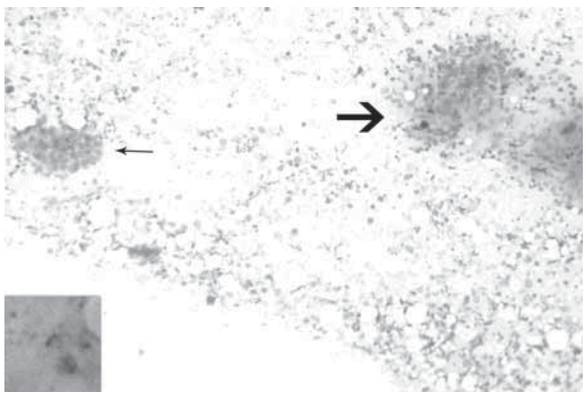

Figure 2. Leishman Geimsa stained smear showing granuloma (thick arrow) and cluster of benign ductal epithelial cells (thin arrow) [40X]. The inset shows acid fast bacilli in Ziehl Neelson stain [100X].

To find out evidence of tuberculosis in other organs, a thorough physical examination, radiological (chest radiogram, ultrasonography of abdomen etc) and other laboratory assessment were done. Mantoux test was negative. Chest radiogram was within normal limit, ultrasonography of abdomen did not show any lymph nodes, nor she had any superficial enlarged lymph nodes. She was HIV negative and had no lactational history, nor any family history of tuberculosis. Hence a diagnosis of isolated breast tubercular abscess was rendered. The patient was treated with antitubercular therapy and lump size decreased gradually in a follow up of three months.

DISCUSSION

Breast Tuberculosis is a rare extrapulmonary presentation of tuberculosis, accounting for less than 1.0% of all diseases of the breast in the industrialized world.[2] The reason for this is that mammary tissue is an inhospitable site for survival and multiplication of tubercle bacilli, akin to skeletal muscle and spleen. Young females are commonly infected.[3] The present case also occurred in a middle aged woman, with a unilateral mammary involvement.

Breast tuberculosis is classified as primary or secondary. Mammary tuberculosis may be primary when no other focus of tuberculosis is detectable or secondary, when a source can be identified, mainly located pulmonary.[4] The present case did not show any evidence of infection in any other organs.

Primary form may result from infection of the breast through abrasions or through openings of the ducts in the nipple. Secondary infection of the breast may occur through various routes e.g., (i) haematogenous, (ii) lymphatic, (iii) spread from contiguous structures, (iv) direct inoculation, and (v) ductal infection.[5]

Risk factors for tuberculosis of the breast appear to be related to AIDS, multiparity, lactation, previous suppurative mastitis and trauma.[1] None of above mentioned risk factors were present in our case.

There are three clinical varieties of mammary tuberculosis namely, nodular, disseminated, and sclerosing. The nodular variant is often mistaken for a fibroadenoma or carcinoma.[3] Clinically the present case is of nodular type.

Clinical examination often fails to differentiate carcinoma breast from tuberculosis and high index of suspicion is necessary.[5] Factors predictive but not diagnostic of breast tuberculosis include constitutional symptoms, mobile breast lump, multiple sinuses, and an intact nipple and areola in young, multiparous or lactating females, whereas nipple retraction, peau d'orange, and involvement of axillary lymph nodes are

more common in malignancy than in tuberculosis.[6,7] The present case had a nodular breast lump with irregular margins, firm in consistency with intact nipple areola and no palpable axillary lymph node.

Mantoux testing does not offer definitive diagnosis, but confirms exposure of the patient to tubercle bacilli.[4]

Although tuberculous mastitis has no specific ultrasonographic findings, it may play an important role in differentiating it from a carcinoma in some cases. Ultrasonographically, nodular form usually appears as a heterogeneous hypoechoic lesion, with irregular margins and posterior acoustic enhancement.[8] If there is abscess formation, perilesional oedema or scarring, the nodule is irregular in outline mimicking a cancer.[1] However in the present case, ultrasonographic findings were hypoechoic lesion profuse oedema and inflammatory changes which was interpreted as pyogenic abscess.

The diagnostic challenge lies in the demonstration of AFB in cases of equivocal morphology in routine cytology smears as well as histology sections. The accuracy of fine-needle aspiration in diagnosing breast tuberculosis varies is approximately 73% .[5, 9] Cytological findings of granulomatous mastitis can also be found in plasma cell mastitis, fat necrosis, and actinomycosis.[3]

FNAC may be inconclusive and the FNAC picture may be dominated by acute inflammatory exudates.[5] Initial cytological features of the present case was that of a pyogenic abscess. Similarly inadequate sampling of abscess wall may be the reason of absence of definitive morphological features (epithelioid granulomas, Langhans giant cells) in histopathology as happened in the current case.

The demonstration of AFB on FNAC is difficult, since for AFB to be seen microscopically, their number must be 10,000- 100,000/ml of material. In tubercular breast abscess, AFB negative breast abscess that fail to heal despite adequate drainage and antibiotic therapy, and those with persistent discharging sinuses should raise suspicion of underlying tuberculosis.[5] Similarly the present case was initially diagnosed as pyogenic abscess which failed to heal producing a suspicion of malignancy.

Though mycobacterial culture remains the gold standard for diagnosis of tuberculosis, the time required and frequent negative results in paucibacillary specimens are important limitations. Polymerase chain reaction (PCR) is highly sensitive in culture negative specimens.[5]

Hence diagnosis of tubercular breast abscess depends on a comprehensive approach - clinical suspicion, suggestive radiological findings and finally confirmatory results in pathological and microbiological investigations.[1] In conclusion, the significance of diagnosing breast tuberculosis lies in the fact that it can mimic a spectrum of lesions like benign pyogenic abscess to malignancy, therefore correct diagnosis ensures proper management of the patient.

REFERENCES

1. Meerkotter D, Spiegel K, Page-Shipp LS. Imaging of tuberculosis of the breast: 21 cases and a review of the literature. J Med Imaging Radiat Oncol. 2011;55:453–60.
2. Tanrikulu AC, Abakay A, Abakay O, Kapan M. Breast Tuberculosis in Southeast Turkey: Report of 27 Cases. Breast Care (Basel). 2010;5:154-7.
3. Khanna R, Prasanna GV, Gupta P, Kumar M, Khanna S, Khanna AK. Mammary tuberculosis: report on 52 cases. Postgrad Med J. 2002;78:422-4.
4. Marinopoulos S, Lourantou D, Gatzionis T, Dimitrakakis C, Papaspyrou I, Antsaklis A. Breast tuberculosis: Diagnosis, management and treatment . Int J Surg Case Rep. 2012; 3:548-50.
5. Tewari M, Shukla HS. Breast tuberculosis: diagnosis, clinical features & management. Indian J Med Res. 2005;122:103-10.
6. Banerjee SN, Ananthakrishnan N, Mehta RB, Prakash S. Tuberculous mastitis: a continuing problem. World J Surg. 1987;11:105-9
7. Shinde SR, Chandawarkar RY, Deshmukh SP. Tuberculosis of the breast masquerading as carcinoma: a study of 100 patients. World J Surg. 1995;19:379-81.
8. Madhusudhan KS, Gamanagatti. Primary breast tuberculosis masquerading as carcinoma. Singapore Med J. 2008;49(1):e3-5.
9. Kakkar S, Kapila K, Singh MK, Verma K. Tuberculosis of the breast: a cytomorphologic study. Acta Cytol. 2000;44:292-6.