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Original Article

Breast Tuberculosis vs Breast Cancer in Bangladesh: A diagnostic Ambiguity

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ABSTRACT: Tuberculosis is a major public health problem in developing country like Bangladesh, whereas breast tuberculosis is known as an uncommon disease, which placed physicians in an ambiguous state for diagnosis in contrast to breast tumor or breast cancer. This disease is accountable for 1.2% of all breast diseases according to World Health Organization. In this study, we presented 39 cases of breast tuberculosis confirmed by histopathological or cytopathological test, tuberculosis culture test and Ultrasonography (USG) during a period of 2 years in "Tasmia Tahmid Breast Care Hospital," Dhaka. Initial diagnosis was suspected clinically on the basis of lump or lumpiness and/or solitary or multiple chronic discharging sinuses in the breast or axilla. All patients were female and their age range from 14yrs to 55yrs. Among 39 cases, 24 (61.53 %) patients showed symptoms on right breast, 9 on left breast (L/B), 1 midline skin tuberculosis and rest 5 are bilateral (B/L) tuberculosis. All patients were treated with drug combination of anti-tubercular therapy for 6 to 12 months. However, 9 patients required some forms of surgery.

Keywords: *Breast Tuberculosis, Drug Combination, Public Health, Bangladesh*

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INTRODUCTION

Breast tuberculosis (TB) is classified as either primary or secondary TB.[1] It was first defined by Sir Astley Cooper as "scrofulous swelling in young lactating women which is characterized either as an abscess or as a painless breast mass.[2] Tuberculosis (TB) is a major public health problem in developing countries of sub-Saharan Africa and Asia. According to the WHO global TB report, there were 9 million cases of tuberculosis in 2014. [3] Despite the high prevalence of tuberculosis, mammary cells offer great resistance to the survival and multiplication of mycobacterium tuberculosis. [4] The disease may be of primary etiology when infection affects only the breast, or it may result from other foci in the body, which is termed as secondary breast TB. [5] Again its diagnosis is not straightforward because it closely mimics breast carcinoma and bacterial abscesses. It commonly affects women in reproductive stage during lactation. Breast tuberculosis is often misdiagnosed as pyogenic abscess or carcinoma of breast, both clinically as well as radiologically, especially if well-defined clinical features are absent. [6] Breast tuberculosis has been classified into three types; Nodular, disseminated and sclerosing varieties. Mammography is not useful for diagnosis because of its nonspecific features, also difficult to differentiate from malignancy when occur in elderly women. [7]

In this study we presented the most common clinical features of 39 patients. The common features found were; pain, lump, feverish, itching, redness, swelling, and night sweating. Present study also suggests interesting fact that young girls (11yrs to 14 yrs) not in lactating stage are also being affected by breast TB from

the urban community of well being socioeconomic status.

METHODS AND MATERIALS

In this study, we presented 39 cases of breast tuberculosis confirmed by Histopathological examination, tuberculosis culture and Radiology, USG or cytopathological test during a period of 2 years in "Tasmia Tahmid Breast Care Hospital," Dhaka. These patients were visited hospital from different parts of Bangladesh. Diagnosis was suspected clinically on the basis of lump or lumpiness and/or solitary or multiple chronic discharging sinuses in the breast or axilla. Detail history, physical examination and some investigations including cytology or biopsy were done for each patient. This is a retrospective observational study where case numbers and percentages are used.

Interpretation of US scores: The ultrasonographical score is designated as US point score for grading the stiffness of breast mass. Five-point scale elasticity scores (Tsukuba score) with increasing probability of malignancy [8].

When the breast tissue is pressed by the transducer, a hard lesion undergoes less strain than does the surrounding soft background. A score of 1 indicates even strain throughout the entire hypoechoic lesion; a score of 2 indicates strain in most of the hypoechoic lesion with some areas of no strain; a score of 3 indicates strain at the periphery of the hypoechoic lesion with sparing of the center of the lesion; a score of 4 indicates no strain throughout the entire hypoechoic lesion; and a score of 5 indicates no strain throughout the entire hypoechoic lesion or in the surrounding area. **Figure 1 shows** USG scoring image.

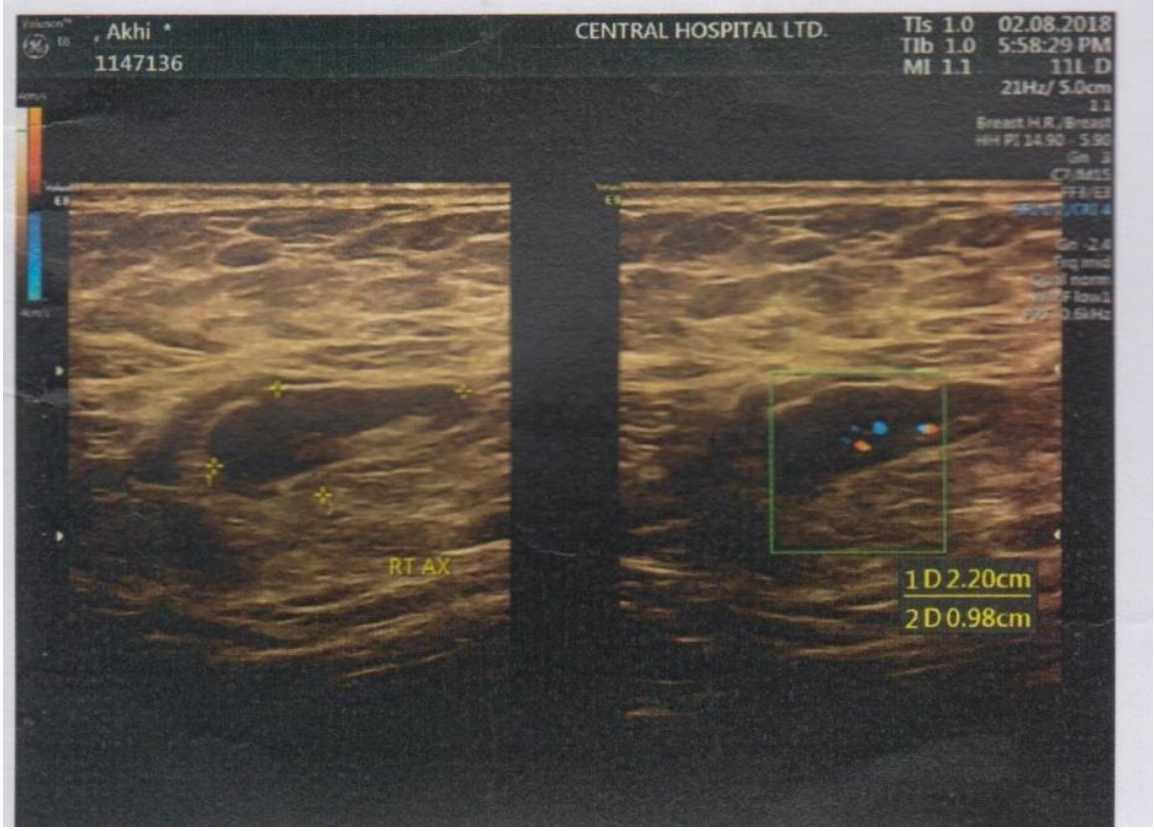
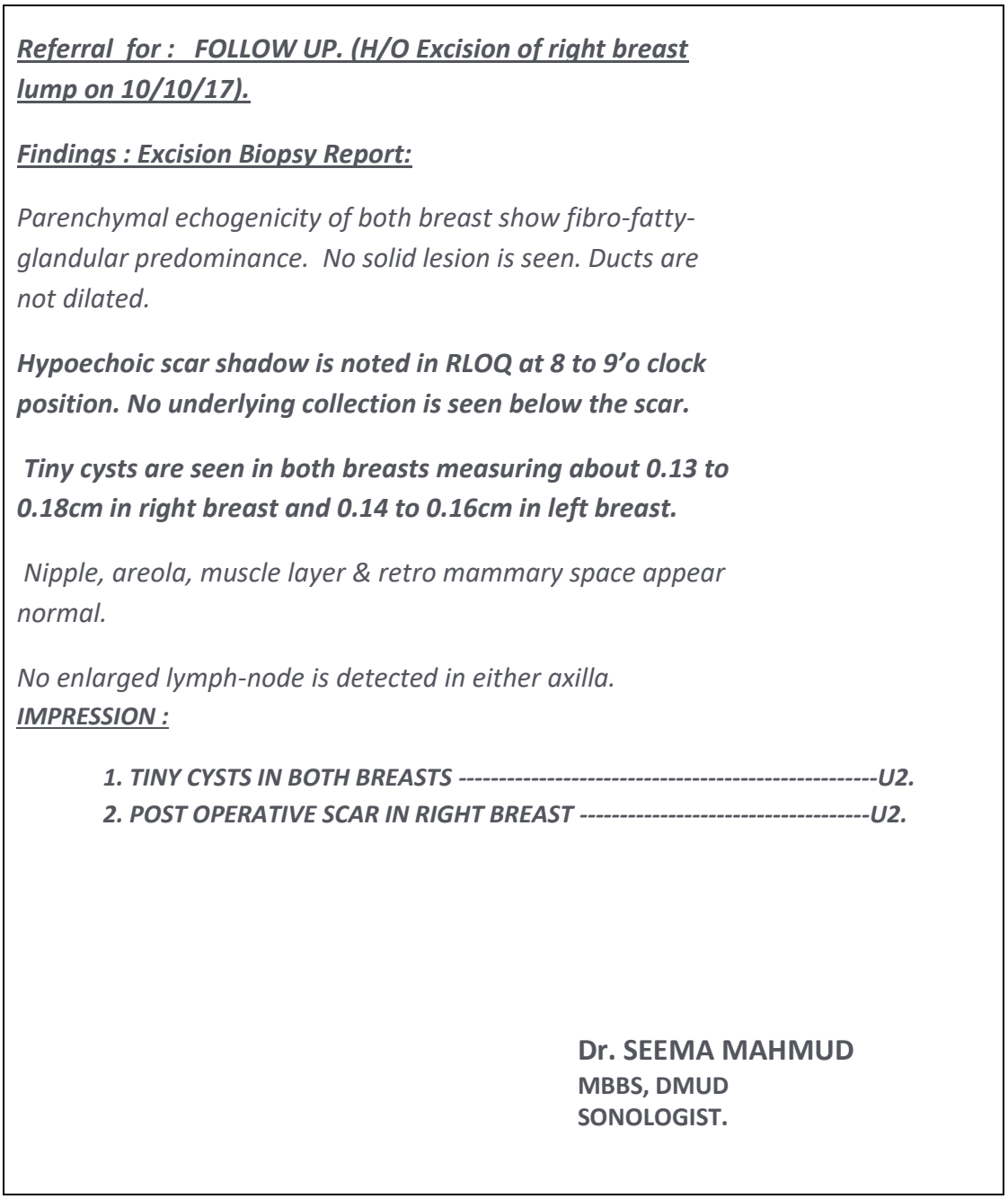


Figure 1. Shows Ultrasonography scoring of patients suspecting breast tuberculosis.

U1 -U3 benign
U4-U5 Malignant

Excision Biopsy Method: In this study, excision biopsy was done on the basis of physician's advice for those patients wherever necessary. Excision Biopsy means complete removal of tumor. Excision Biopsy was conducted for those patients where physicians suspects melanoma for breast. Most are performed with local anesthetic and sedation only without the need for general anesthesia. Patients go home on the same day. It involves removal of tumor tissue along with surrounding normal tissues. The normal tissue taken (clinical margins) depends on the thickness of the tumor. (Detail methodology is preserved with the physicians). Detail report of excision biopsy is shown in **Figure 2.**



Referral for : FOLLOW UP. (H/O Excision of right breast lump on 10/10/17).

Findings : Excision Biopsy Report:

Parenchymal echogenicity of both breast show fibro-fatty-glandular predominance. No solid lesion is seen. Ducts are not dilated.

Hypoechoic scar shadow is noted in RLOQ at 8 to 9'o clock position. No underlying collection is seen below the scar.

Tiny cysts are seen in both breasts measuring about 0.13 to 0.18cm in right breast and 0.14 to 0.16cm in left breast.

Nipple, areola, muscle layer & retro mammary space appear normal.

No enlarged lymph-node is detected in either axilla.

IMPRESSION :

1. TINY CYSTS IN BOTH BREASTS ----------U2.
2. POST OPERATIVE SCAR IN RIGHT BREAST ----------U2.

Dr. SEEMA MAHMUD
MBBS, DMUD
SONOLOGIST.

Figure 2. Shows the Detail Excision Report of Breast Tuberculosis patient

RESULTS

In this study 39 known breast TB cases were identified, and all the patients were female. The most common radiology findings were breast abscesses and axillary lymph nodes. All of the patients were treated with anti-tuberculosis therapy with or without surgical drainage except nine women.

The mean age of the patients was 32 years (range 14 to 55 years). Among 39 cases, 24 (61.53%) patients showed symptoms on right breast, 9 on left breast, 1 midline skin tuberculosis and rest 5 are bilateral tuberculosis. Most of the patients were from urban and rural area mixed rather than urban. The ultrasound imaging score found were U2 in 78.7% patients and U3 in 21.21% patients. The most frequently used diagnostic tool was excisional biopsy (88.83%) and positive TB culture (9.09%). The symptoms of breast pathology are diagnosis and treatment followed shown in **Table 1.**

Table 1. Shows comprehensive of disease symptoms, diagnosis and treatment records from Tasmia Tahmid Breastcare Hospital.

Case No.	Initial symptoms	Test performed	Diagnosis	Treatment & Drugs prescribed
22	Lump, pain and swelling, weight loss	USG, Hematological Test, THS, FNAC	No malignant cells, predicted tubercular abscess.	Levoflox-500mg for 10 days Oradexon-14 days
5	Pain and redness, malaise and increased temperature	USG, Blood test, tuberculosis culture	TB positive	Ciprocin-500mg-10 days Oradexon-14 days
6	Lump and oozing coming out of nipples	USG, Blood Test, tuberculosis culture	Breast Tuberculosis abscess positive	Rifampicin and Isoniazide, for two months
4	Multiple cystic lesion on chest wall, swelling and pain	USG, Estrogen, HER2, Mammography, tuberculosis culture	Breast cancer negative	Drainage of breast abscesses, excision of residual sinus tracts or lumps after poor response to-anti-tuberculosis therapy.
2	Burning sensation on the breast for months	USG, tuberculosis culture, THS, FNAC	Breast Tuberculosis positive	Treatment mode information unavailable from the hospital record.

Table 2. Shows percentage of disease diagnosed

No of samples	Type of diagnosis	Percentage of (%)
24	symptoms on right breast	61.53
9	on left breast	23.07
1	midline skin tuberculosis	2.56
5	Bilateral tuberculosis	12.82

9 patients underwent surgical removal of lump treated with anti-tuberculosis drugs. Rest of the thirty patients underwent anti-tuberculosis drug therapy after biopsy for 6 months. The most interesting finding of this study was teenage patients from high socioeconomic status (6.06%).

DISCUSSION

Breast TB is very uncommon disease but recent survey and study suggests that breast TB incidence is increasing in Bangladesh and the percentage increases nearly 4% of all breast lesions [9]. It mainly affects young and lactating women including teenage girls (this study). The disease most commonly presented as breast mass or an abscess or sinus which is usually unilateral [10]. The study population average age 33 years and is

consistent with the previous study [11]. The study populations showed breast pain, burning sensation on touch, weight loss and increased temperature are most common presentations [12] Present study also misdiagnosed (12% cases) breast abscess as granulomatous mastitis abscess which was also similar to Sriram et al. [14]

We report here two teen age girls from higher socioeconomic status, as rare cases. One age 14yrs shows symptoms of pain, lumps and pain on touch, and enlarged lymphoid in right axilla (U2). Second case age 15 yrs shows similar symptoms as case one, but suggestive of abscess in interior chest wall (U2). Mastectomy has been performed confusing this form of presentation to malignancy in case one. [15]

In conclusion, breast tuberculosis cannot be differentiated from the myriad of breast lesions such as fibro adenoma, fibrocystic changes, and inflammatory diseases of the breast malignancies on clinical features alone [16, 17]. A combination of FNAC for palpable masses, laparoscopy and tissue biopsy is the best approach for diagnosis in reproductive age women as well as a high index of suspicion especially in susceptible population [18]. Accurate diagnosis can prevent unnecessary surgery, and mortality.

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