

Frequency of Tuberculous Mastitis, A Looming Epidemic, Hospital Based Study

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ABSTRACT

Background: Tuberculosis of the breast is a rare clinical entity.¹ it is classified as primary and secondary form.² It can be confused both clinically and radiologically with other breast diseases due to its rarity and variable clinical presentations. Therefore, high index of clinical suspicion is needed for the correct diagnosis of this disease³.

Methodology: Study was carried out in a Shahid surgical care hospital of Bahawalpur.

Duration of study: July 2018 to July 2019

Study design: Descriptive cross sectional

Sample size: All patients in study duration.

Sampling technique: Purposive sampling

Results: Frequency of tuberculous mastitis was 1.2 % of all the cases of breast lump presenting to the hospital in the study duration. The average age of the patients presenting to our setup with tuberculosis mastitis was 36.6 yr - +9.1SD with the age ranging from 22 -45 yrs. Core biopsy or open (incisional) biopsy showed multinucleated granulomas, supporting the diagnosis of a tuberculous lesion. All of the patients responded to anti TB treatment.

Conclusion: Despite being a rare disease one should always know where to suspect for tuberculous mastitis. Once the diagnosis is confirmed the treatment outcomes are rewarding.

Key words: breast tuberculosis, mimic cancer, mastitis

INTRODUCTION

World Health Organization (WHO) has declared tuberculosis as a global emergency. It is among the leading causes of death from a single infectious agent and in the top 10 causes of death worldwide.⁴ In 2017, the global incidence of tuberculosis was estimated to be 10 million, of which 3.2 million were females. Pakistan is among the 8 countries accounting for 60% of the new cases. As most cases occur in low resource countries like Pakistan, it will continue to be a major concern in the future as well.⁵

In the low resource countries, 3% to 4.5% of the surgically treated breast diseases are tuberculous in origin^{4,5}. Despite being a rare site of extra-pulmonary mycobacterial infection, tuberculous mastitis is not a new disease. This is because of the noticeable resistance of the mammary tissue to the Mycobacterium tuberculosis.⁶ In 1829, Sir Astley Cooper was the first to document tuberculous mastitis.^{4,7}

Tuberculous mastitis mostly appears in women of reproductive age.⁸ Multiparity, lactation, past history of suppurative mastitis and Aids also increase the chances of acquiring breast tuberculosis^{3,5,7,9}. Cases have been scarcely reported in women of older ages and males⁷. With the re-emergence of tuberculosis, atypical forms are appearing, increasing the proportion of extra-pulmonary disease⁵.

There are no absolute clinical or radiological diagnostic features of breast tuberculosis.⁹ Varied presentations have been reported on mammography as diffuse, nodular, sclerosing and simulating carcinoma.^{6,7} The diagnosis is usually confirmed by fine needle aspiration, core biopsy with histology and staining for acid-

fast bacilli, which is considered to be the gold standard, Mycobacterial culture or the polymerase chain reaction (PCR)⁹.

Both breasts are equally affected. It can be the primary site but more commonly, tuberculosis spreads to the breast through the mediastinal, axillary or cervical lymphatics system, haematogenous or direct inoculation from underlying structures such as the ribs and ductal infection.^{1,4,7} Clinically it has a multifaceted presentation with insidious, nonspecific signs often mimicking a carcinoma. In young patients it can even be mistaken for a pyogenic breast abscess, thus labeled as a "great masquerader".^{7,10}

Patients usually respond to the standard anti-tuberculous therapy (ATT)^{7,11}. It has been suggested that patients in endemic areas, presenting with a breast mass, in whom the histology reveals granulomatous inflammation, should receive ATT, even if culture results are -ve for TB¹²

TB of breast has physical similarity to carcinomas and bacterial abscesses posing a diagnostic difficulty. Knowledge of its increasing frequency, mode of presentation, clinical features and diagnostic modalities can help in diagnosing this relatively uncommon disease. The objective of this study was to document the presentation of breast tuberculosis, diagnosis and management of the patients to increase the awareness of surgeons, pathologists and radiologists about this easily treatable disease, which is frequently mistaken for breast cancer.

METHODOLOGY

It was descriptive cross sectional study conducted in Shahid surgical care hospital of Bahawalpur city from January 2018 to July 2019. All the histopathological confirmed cases of tuberculous mastitis in the clinic during study duration were included in the study through universal

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sampling method. Any patient with a comorbidities was excluded from the study.

After taking ethical approval from institutional ethical review committee and informed written consent from individual patient data was collected from the medical records of the histopathological confirmed cases of tuberculous mastitis by using preformed, pretested questionnaire. The questionnaire consisted of two parts. Part A was related to the personal biodata of the patient including age, marital status, occupation and area of residence while part B was regarding the questions pertaining the study i.e. presenting complaints of the patients with TB mastitis, history of contact with TB patient, history of tuberculosis in patients, duration of symptoms and location of the lesion. Data regarding the complete blood count and ESR was collected from medical records. Chest X-ray findings and histopathological report of the core or incisional biopsy was recorded. Lymphocyte count more than 45% of the total white blood cells and ESR greater than 20mm/hour were taken as raised. Data was analyzed by SPSS version 21. Frequencies and percentages were calculated.

RESULTS

Total 34 female patients were diagnosed with tuberculous mastitis from 2018 to mid of 2019 in our hospital. It constitutes of about 1.2% of all the diseases of the breast in the females presenting to this hospital. (35/2859)

The average age of the patients presenting to our setup with tuberculosis mastitis was 36.6 yr 9.1SD with the age ranging from 22 -45 yrs. All the subjects were in their reproductive age group. From these, 33 (85.7 %) were married housewives (71.4%) and most of them had education of more than 10yrs.(table 1)

All of the subjects, had a strong family history of contact with a patient with pulmonary tuberculosis. There were 2 (5.7%) females who gave a past history of tuberculosis which was treated with a complete course of ATT. One of the subject also suffered from tuberculous lymphadenitis as well and she had presented for the third time and this time with a breast lesion. Duration of symptoms were more than 3 months in most of the cases.

The data on receiving BCG in the past was inadequate. There was no difference seen in the side of appearance of the lesion in the breast . Only 1(2.8%) had a bilateral involvement of breast. Breast lump was located in the periareolar region in 30(85.7%) females; while it was seen in the mammary fold in 1(2.8%) patient only. Axillary lymph nodes were palpable in 4(11.4%) females. At the time of presentation, 4(11.4%) patients were lactating and were initially misdiagnosed to be mastitis. None of the female was pregnant at the time of presentation. The most common presenting symptoms are shown in table 2. Majority of the females, 31(88.7%) presented with sinuses suggestive of mammary tuberculosis.

Blood complete examination showed increased lymphocyte number in all the patients. Erythrocyte sedimentation rate was also significantly raised. Chest X-ray was carried out for all the subjects in order to rule out primary pulmonary tuberculosis. Only 1 X-ray gave the findings of pulmonary tuberculosis along with mastitis.

Core biopsy or open (incisional) biopsy were taken and samples were sent for histopathology which showed

multinucleated granulomas, supporting the diagnosis of a tuberculous lesion. After the confirmation of the diagnosis the patients were put on anti-tuberculous drugs (ATT) according to the standard regimen. Four drugs (isoniazid, rifampicin, pyrazinamide and ethambutol) for the first 2 months followed by 2 drugs (isoniazid and rifampicin) for 10 months.

There was complete resolution of the symptoms after the completion of required course of medication.

Table 1: Demographic profile

Age	n	%age
< than 30 yrs	4	11.4
>than 30 yrs	31	88.5
Marital status		
Single	4	11.4
Married	30	85.7
Widow	1	2.8
Occupation		
Housewife	25	71.4
Teacher	5	14.2
LHV	2	5.7
Doctor	1	2.8
Residential area		
Urban	20	57.1
Rural	15	42.8
History of contact with TB patient	35	100
Previous history of TB	2	5.7
Lactating mother	4	11.4
Duration of symptoms		
< than 3 months	4	11.4
> than 3 months	31	88.5
Location of the lesion		
Periaerolar	30	85.7
Near sternum	2	5.7
Mammary fold	3	8.5
Lab tests		
Increased lymphocytes	35	100
Raised ESR	35	100
Histopathological findings		
Multinucleated granulomas	35	100

Table 2: Common presentations of tuberculous mastitis

Symptoms	Frequency	percentage
Breast lump with pain	4	11.4
Discharging sinus	31	88.5
Fever	4	11.4
Axillary Lymph nodes	4	11.4

DISCUSSION

Extra-pulmonary tuberculosis of the breast is a rare disease in the developed countries.⁴ The prevalence of tuberculous mastitis among the surgically treated breast disease varies from 0.02% to 4% worldwide⁴. Our result was within the range (1.2%) but a rise has been observed in the prevalence of the disease in South Punjab since the previous years. These figures are exactly similar to studies from our neighbouring country India ⁴ where breast tb was about 1.21% of all breast disease. This may attribute to various factors including immunosuppression, cultural, socio-economic conditions and history of close contact with a tuberculos patients.in our study there was 100% history of contact withpatients of pulmonary tuberculosis.

It generally affects women of reproductive age group; however, can also be seen in young girls, elderly women and males. ⁴ Our study included females only. the mean

age of the patients was 36.6yrs which is similar to the study in Turkey² where the mean age was 36.4 years.

Various risk factors such as multiparity, pregnancy and lactation have been reported in the etiology of breast tuberculosis.^{2,3} Among these, presence of lactation seems to be more associated with the development of tuberculous mastitis, with a reported incidence rate of up to 30%.^{2,6} increased vascularity of the mammary gland during lactation and lacerations at the areola, may be the cause of this increases incidence.³ In our study, where most of the cases were multiparous, only 11.4% of the patients were lactating at their first presentation. This was similar to another study in Pakistan³ and turkey² where TM in lactating mothers was found to be 13% and 13% respectively. Shinde¹¹, mehta⁴ and Banerjee¹² reported 7%, 22.2% and 33% of their patients to be lactating at the time of initial presentation.

No difference was seen in the side of involvement of breast. it usually has a unilateral involvement with both sides having an equal chance of getting the disease. in our study, only 1(2.8%) patient suffered from a bilateral disease, similar in results to the Turkish² and indian⁴ studies. The common locations of the breast lump is the central or upper outer quadrant of the breast as mentioned in a study in Italy. This literature is similar to our finding where periareolar region was the most frequently involved region of the breast in tuberculous infection.

The patients with breast tuberculosis are often symptomatic prior to their presentation to a health care professional. A delay of more than 3 months has been observed in the initial presentation of our patients in seeking medical care. This was similar to other studies conducted nationally and internationally as well.^{3,4,6}

Breast tuberculosis has nonspecific radiological findings. Nonspecific stromal coarsening, ill-defined nodules and asymmetric density are among the most common mammographic findings.^{2,4} low specificity(yield) and high cost was the reason that we didn't preferred mammography in any of our patients. Only chest x-ray was advised to rule out the pulmonary involvement. 2 patients out of 35 had a pulmonary involvement as well.

Patients coming from endemic areas will usually have a positive Montoux test, therefore it may not be helpful in the diagnosis of breast tuberculosis. Additionally, high false positivity rate of this test in BCG-vaccinated people due to cross reaction with BCG limits its widespread use.² Today it stands obsolete.⁸ On the bases of this knowledge Montoux test was not considered in our patients.

Although Ziehl Neelsen staining or culture for the detection of tuberculous bacilli is accepted as the gold standard diagnostic method,⁸ these tests have some limitations. It is well known that culture requires a lot of time and frequently gives negative results.^{2,8} Similarly, a low positivity rates of AFB staining has been reported in previous studies^{4,8} on the bases of this literature these were also not preferred in our study. Another method, PCR, is known as a rapid diagnostic and sensitive test⁴, but its high cost was the disadvantage for its general use in our low resource area. As a result, histopathology by core

biopsy and open (incisional) biopsy was mainly considered for the definitive diagnosis in our study population. Fine needle aspiration cytology (FNAC) has been reported as a method with high diagnostic yield but some authors concluded that definitive diagnosis of breast TB may need a larger tissue sample because granulomatous inflammation cannot be confidently differentiated on FNAC only.⁴ In accordance to this we used core or open biopsy in the diagnostic algorithm and obtained high diagnostic yield. It should be noted here that cancer cannot be excluded even after the recognition of tuberculosis. In our study, biopsy specimens did not reveal cancer cells in any of the samples.

The disease is curable with anti-tubercular drugs and there was an excellent response of the patients to the treatment.

CONCLUSION

TB should be considered as one of the differential diagnosis in refractory cases of breast abscesses not responding to routine antibiotics or other inflammatory breast lesions and tumors. Diagnostic delay results in high morbidity, therefore ATT drugs can be given in patients with high risk of suspicion.

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