



## Original Article

### PRIMARY TUBERCULOUS MASTITIS.

Rupsha Nura Laila<sup>1</sup>, Shahanaz Banu<sup>2</sup>, Jamil Raihan<sup>3</sup>

#### Abstract

**Background:** Tuberculous mastitis is a rare entity in patients with mammary disease even in countries where incidence of tuberculosis is high. In Bangladesh, TB is an endemic disease but breast tuberculosis is rarely reported. Its clinical patterns and treatment strategies are changing day by day.

**Objective:** To analyze the clinical presentations, diagnosis and treatment of tuberculous mastitis

**Methods:** This is a prospective nonrandomized descriptive study to analyze clinical presentations, diagnosis and treatment of hundred (100) cases received care for tuberculous mastitis at the Chest Disease Hospital, Rajshahi, from July' 2012 to July' 2016. Diagnosis was made in all patients by cytological examination from suspected lesions, which revealed typical tuberculous lesions. Patient with some atypical presentations and doubts in the diagnosis needed histopathological examination and Gene x-pert test to exclude idiopathic granulomatous mastitis and concomitant malignancy.

**Results:** Most of the patients were within reproductive age. The disease affecting the right breast in fifty six patients (56%), left breast in forty three patients (43%) and bilateral in one patient (1%). Palpable lump were present in eighteen patients (18%), chronic discharging sinus with or without lump in thirty four (34%) and breast abscess with or without discharging sinus in eighteen patients (18%), recent abscess drainage scar with lump in thirty patients (30%).

Medical therapy with anti-tubercular drugs ranging from 9 to 12 months with follow up monthly was the mainstay of treatment. Surgical intervention reserved for selected refractory cases. Extension of anti-tubercular therapy from 9 to 12 or 18 months required in fifty-eight (58) patients on the basis of slow clinical response. Complete resolution obtained in 92 patients but residual tiny mass in eight patients confirmed by repeated FNAC to be fibrotic.

**Conclusion:** Treatment is simple but high index of suspicion is the cornerstone for diagnosis.

**Key Words:** TB Mastitis

1. Junior Consultant (Surgery), Chest Disease Hospital, Rajshahi.
2. Medical Officer, Model Family Planning outdoor, Rajshahi Medical College Hospital
3. Assistant Professor, Department of Anaesthesia, Rajshahi Medical College.

**Correspondence to:** Correspondence to: Dr. Rupsha Nura Laila, Junior Consultant (Surgery), Chest Disease Hospital, Rajshahi.

E-mail: rupsha.rajshahi@gmail.com

Mob: +8801715204738

## Introduction

Primary breast TB is a rare form of extra-pulmonary TB, with an incidence of less than 0.1% of all breast lesions in Western countries and 4% of all breast lesions in higher TB endemic countries like the Indian subcontinent<sup>1</sup>. The first case of mammary tuberculosis was reported in 1829, by Sir Astley Cooper as 'scrofulous swelling of the bosom'<sup>2</sup>. Since then few case reports and reviews have been published at infrequent intervals mostly in western literatures and few studies have published in various papers of the subcontinent. Bangladesh ranks 6th among the 22 high TB burden countries, 3 but breast tuberculosis is very rarely reported. Despite the encouraging worldwide progress in concerted preventive program on tuberculosis, global tuberculosis burden recently has increased in many industrialized countries due to increased number of immunocompromised and AIDS patients. As incidence of tuberculosis increase, an increase in extra pulmonary involvement can be expected<sup>4</sup>. The incidence, clinical presentation, diagnostic tools and therapeutic modalities of breast tuberculosis has been gradually changing due to changes in the environment and socio-economic conditions. So study of cases of mammary tuberculosis is necessary to acclimatize with the changing clinical patterns and newer therapeutic approaches.

## Methods

This is a prospective non randomized descriptive study. A total of 100 consecutive TB Mastitis patients of Chest disease Hospital, Rajshahi were enrolled in this study within a period of 04 years from July 2012 to July 2016. Photograph of breast with academically interesting lesion were taken for printing and publication purpose which was clearly explained to the patients and permission were taken. Data for each patient were recorded. Detail clinical information including age, socioeconomic status, reproductive history, lactational status, clinical presentations, duration of symptoms, previous history of pulmonary or extrapulmonary TB, contact with TB patients and findings of relevant investigations like ESR, mantoux test and chest radiogram were recorded for all patients in a predesigned data record sheet. The inclusion criteria for the study were - adult female patients, had breast lump/s sinus/s or abscess/s and

whose diagnosis were confirmed as mammary tuberculosis on the basis of clinical suspicion and cytological or histological findings of epitheloid granuloma. Male patients, patients below the age of 12 years and patients who had concomitant pulmonary or extra pulmonary TB were excluded from the study.

Diagnoses were made by clinical suspicion and presence of chronic granulomatous inflammation consisting of caseation necrosis, epitheloid cell and Langhans giant cell in the cytological or histopathological slide prepared from the collected specimen. For detection of acid fast bacilli discharge (if scanty) is sent for Z-N staining and when discharge or pus more or about two (2) ml sent for Gene x-pert test. FNAC were done initially for all suspected TB mastitis patients who had lump/s but no abscess or sinus. Cases with abscess or sinus with or without underlying lump had directly undergone core cut biopsy or open biopsy on the basis of clinical judgement.

A nine months regimen of four drugs anti-tubercular therapy were given to all patients in combination with surgical intervention in the form of lumpectomy, incision drainage or sinectomy as necessary. The doses of drugs and duration of therapy were adjusted depending on the weight of the patient and clinical response to therapy respectively. A short course of flucloxacillin was given to those patients who needed surgical intervention.

## Results

**Table 1:** Age specific distribution of the patients (n=100)

Age range (years)	No of patient	Percentage (%)
< 20	03	03
21-30	49	49
31-40	27	27
41-50	14	14
51-60	05	05
> 60	02	02
Total	100	100

**Table 2:** Clinical presentation at study entry of mammary Tuberculosis (n=100)

Clinical presentation	Right	Left	Bilateral	Total no	Percentage
Multiple sinus/s with underlying breast lump	20	11	01	32	32
Breast lump with abscess	06	04	00	10	10
Abscess drainage scar with lump	18	12	00	30	30
Lump Only	07	11	00	18	18
Discharging sinus/s with no lump	02	00	00	02	02
Discharging sinus/s with abscess	03	05	00	08	08
Total	56	43	01	100	100



Table 3: Additional clinical information

Clinical information	No	Percentage
Previous History of TB (PTB/EPTB)	03	03%
Lactating at the time of presentation	01	01%
Nulliparous	13	13%
Postmenopausal	12	12%
Constitutional symptoms	09	09%
Axillary lymphadenopathy	23	23%
Pregnancy at the time of Presentation	03	03%
History of contact with TB patient	03	03%

Table 4: Anatomical distribution of lumps in the breast (n=100)

Anatomical sites in breast	No	Percent (%)
Upper and outer quadrant	56	56
Upper and inner quadrant	1	1
Lower and outer quadrant	21	21
Lower and inner quadrant	03	03
Central sub areolar area	19	19
Total	100	100

Table 5: Distribution of patients depending on investigations Modalities (n=100)

Investigation modalities	No of patient sent	Percentage	Positive Result
Chest radiogram	100	100%	Old PTB (03 cases)
ESR	100	100%	Raised (90 cases)
Mantoux test	100	100%	Positive (15 cases)
FNAC	100	100%	Positive (100 cases)
Open biopsy			
a)Excision of lumps including sinus	06	6%	Positive (06)
b)Incision and drainage + incision	21	21%	Positive (21)
biopsy	05	05%	Positive(05)
from abscess wall	04	04%	Positive(04)
d)Excision of the mass			
e)Wedge excision from the mouth of the sinus			
Core cut Biopsy	30		
USG of Breast	100		
Ziehl - Neehlnson stain	21		
ICT for TB (from pus )	21		
Gene Xpert test (From pus)	21		

**Table 6:** Therapeutics modalities of Mammary Tuberculosis (n=100)

Therapeutic modalities	No	Percentage (%)
Excision of the lump + ATT	05	05
Excision of mass + Sinectomy + ATT	06	06
Incision drainage of abscess +ATT	21	21
ATT Only	68	68
Total	100	100

**Table 7:** Duration of ATT

Duration	No of patients
9 months	42
12 months	52
16 months	05
18 months	01

**Picture 1:** Tubercular breast abscess**Picture 2:** Tubercular mastitis with ch discharging sinus

## Discussion

Breast tissue remarkably resistance to the survival and multiplication of the tubercle bacillus like spleen and skeletal muscle<sup>4</sup>. Breast TB may be primary when no demonstrable tuberculosis focus exists, or secondary to a lesion elsewhere in the body<sup>5</sup>. here are three recognized modes of spread of the tubercle bacilli to the breast: direct, lymphatic and Haematogenous<sup>6</sup>. Primary infection of the breast may occur through skin abrasions or through the duct openings on the nipple. Dilated ducts of the breast in pregnant and lactating women appear to be especially susceptible to infection. In our series three (3) pregnant and one (1) women were lactating at presentation .Direct extension from the contiguous ribs is another possible mode of infection. However it is generally believed that infection of the breast is usually secondary to a tuberculosis focus elsewhere which may not be clinically or radiologically apparent. Such a focus could be pulmonary or a lymph node in the internal mammary or axillary group<sup>7</sup>.

Three forms of breast tuberculosis nodular, disseminated, and sclerosing, have been described<sup>8</sup>. Nodular pattern may be mistaken for a fibro adenoma or carcinoma. The disseminated form frequently leads to caseation and sinus formation. We observed 42 out of 100 patients had sinus formation almost nearer to that reported by Khanna et al(26 out of 52)<sup>9</sup>. Sclerosing tuberculosis generally appears in older women. Mammary tuberculosis is a disease of younger age group; uncommonly an older patient may present with a mass that mimics carcinoma, whereas the younger patient usually manifests sign of a pyogenic breast abscess.

According to Hamit<sup>10</sup> in 60 per cent of cases it may not be possible to recover acid fast bacilli from any site, but the breast. Acid fast bacilli were recovered from only in 2 cases in our series, an incidence similar to that reported by Morgen<sup>11</sup>. In 1829, Cooper postulated that the breasts get secondarily involved by retrograde lymphatic extension from primary foci of disease in the lymph nodes of the mediastinum, axilla and parasternal and cervical region<sup>12</sup>. Supporting this hypothesis is the fact that axillary node involvement occurs in 50 to 75 per cent of cases of tuberculosis mastitis. In our series same side axillary lymph node involvement was present in 23 cases (23%).



Both breasts can be affected equally but bilateral involvement is very uncommon. In our study fifty six (56) involved right breast, forty three (43) left breast and bi-lateral involvement was in only one (1) case. Although the upper-outer quadrant seems to be the most frequently involved site due to its proximity to the axillary nodes, any area of the breast can be affected. Early diagnosis is difficult, as the characteristic sinuses occur late in the course of the disease. In addition, presence of these sinuses is not the distinctive feature of tuberculosis, as several cases of non-tuberculosis granulomatous mastitis also present with sinuses. However, tuberculosis should be suspected in a patient who has a recurring breast abscess after adequate drainage on previous occasions.

Various tests are useful in the diagnosis and further evaluation of patients with breast tuberculosis. Mantoux testing does not offer definitive diagnosis, but confirms exposure of the patient to tubercle bacilli. In this series only fifteen patients (15) was Mantoux positive. Mammography is not helpful, especially in young women, due to high density of the breast tissue. On the other hand, mammography findings in elderly women are generally indistinguishable from breast carcinoma. At ultrasonography, a hypoechogenic mass is found in 60% of patients and the method may sometimes identify a fistula or a sinus tract which can be seen in cases of tuberculosis mastitis. Computed tomography and nuclear magnetic resonance are used to evaluate the extension of the lesion beyond the breast, principally towards the thoracic wall.

The gold standard for the diagnosis of breast tuberculosis is detection of *M. tuberculosis* by Ziehl Neelsen staining or by culture. Fine needle aspiration cytology may not be able to detect the responsible pathogen itself, but is detecting the presence of epithelioid cell granulomas and necrosis, leading to definitive diagnosis in up to 73% of cases. Polymerase chain reaction (PCR) is highly sensitive for the diagnosis of breast tuberculosis. Finally, histopathology of the lesion identifies a chronic granulomatous inflammation with caseous necrosis and Langhans type giant cells, contributing to diagnosis in the majority of the cases. In our series aspirated pus or discharge sent for Gene xpert test (PCR based test), ICT and Z-N staining but it was positive in only twenty one (21) cases. The principal differential diagnosis is that of breast carcinoma. Before the discovery of anti-tuberculosis drugs, surgeons performed mastectomies to treat mammary tuberculosis. Wilson and MacGregor<sup>12</sup> recommended simple mastectomy for most cases, due to development of local recurrence in three of their five patients following less severe procedures. However, today the combination of drug therapy and limited excision of diseased breast tissue is a method of choice. In our series, anti-tubercular chemotherapy was given to all cases. In thirty two (32) cases it was given in combination with excision of necrotic tissue and drainage of

abscess. The rate of surgical intervention is lower in our series than that of khanna et al (24 out of 52). Follow up done monthly up to complete resolution and extension of ATT needed highest 18 months. Complete resolution observed in ninety two (92) patients and residual tiny lumpiness in rest eight (8) patients confirmed by repeated FNAC as fibrotic. Most of our cases presented to us long after the development of their first symptoms and due to this delay at presentation the lesion had already been complicated by abscess or sinus formation for which surgical intervention were mandatory. The cause of this late presentation was probably due to conservative social customs, ignorance and poverty.

### Conclusion

As it is not an uncommon entity in our daily practice, tuberculous mastitis should be kept in mind for differential diagnosis in patients who have no response to standard non tubercular antibiotic therapy with chronic breast infections including recurrent breast abscess or breast lump mimicking carcinoma of breast.

### References

1. Tse GM, Poon CS, Ramachandram K, Ma TK, Pang LM, Law BK, et al. Granulomatous mastitis: A clinicopathological review of 26 cases. *Pathology*. 2004; 36:254-7.
2. Cooper A. Illustration of the diseases of the breast. In: Longmans, Orme, Brown, Green, editors. Part I. London: 1829. p. 7.
3. Global Tuberculosis Report 2013
4. Bannerjee SN, Ananthakrishnan N, Mehta RB, et al. Tuberculosis mastitis: a continuing problem. *World J Surg* 1987; 11:105-9.
5. 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.
6. Ala Garatnam TT, Ong GB. Tuberculosis of the breast. *Brit J Surg* 1980; 67:125-126
7. Khanna R, Prasanna GV, Gupta P, Kumar M, Khanna S, Khanna AK. Mammary tuberculosis: report on 52 cases. *Postgrad Med J* 2002; 78:422-424.
8. Tabar L, Kett K, Nemth A. Tuberculosis of the breast. *Radiology* 1976; 118:587-589.
9. Mckeown KC, Wilkinson KW. Tuberculous disease of the breast. *Brit J Surg* 1952; 39:420-429.
10. Hamit HF, Ragsdale TH. Mammary tuberculosis. ??(Editorial) *JR Soc Med* 1982; 75:764-765.
11. Morgen M. Tuberculosis of the breast. *Surg Gynecol Obstet* 1931; 53:593-605.
12. Wilson TS, Macgregor JW. The diagnosis and treatment of tuberculosis of the breast. *Can Med Assoc J* 1963; 89:1118-24.