

STUDY OF BREAST TUBERCULOSIS ON FINE NEEDLE ASPIRATION CYTOLOGY

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Abstract: Pus discharging sinus, a characteristic features of tuberculosis mastitis appear late in the disease. It is commonly misdiagnosed for pyogenic abscess and malignancy. Fine-needle aspiration cytology (FNAC) is a minimum invasive and rapid tool to diagnose tuberculous mastitis in initial phase of disease. Tuberculous mastitis reported on FNAC at University Medical Complex & Research Center (UMC&RC) Sargodha (Punjab) during December 2017 to May 2018 was analyzed. After informed consent and before performing FNAC a detail history and clinical examination was carried out. Diagnosis was made by the combination of clinical suspicion and cytological findings. During the study period of 6 months, 9 (9%) cases were reported as tuberculous mastitis. Most of the cases were between 15-30 years of age. 5 (55.5 %) females were married and among them 4 (44.4%) were lactating. Left breast involvement was seen in 5 (55.5%) cases while right and bilateral involvement were seen in 2 cases each. In 5 (55.5%) patients' involvement of lymph node was seen. Pulmonary Tuberculosis (TB) was seen in 1 (11.1%) patients whereas 3 (33.3%) patients have family history of pulmonary TB. X-ray chest was positive in 1 (11.1%) case. Breast lump was the common presentation in all cases. Breast FNAC is a useful tool to diagnose tuberculous mastitis and help in differentiating same from pyogenic abscess and malignancy. Cytological diagnosis provides information about the type of lesion, which helps in planning the treatment modalities.

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INTRODUCTION

TB is a major cause of health issue and is a main reason of mortality and morbidity in all age groups (1). Among communicable diseases, it is the 2nd major cause of death around the world (2). Every year, 9 million new cases and approximately 2 million deaths due to TB are estimated to occur (2, 3). Pakistan is an endemic zone for TB with incidence of 430,000 cases annually. Among 22 high TB burden countries, Pakistan is at number six (4). Development of breast TB is a rare entity (5, 6). In clinical practice, extra-pulmonary manifestations of TB are usually seen as osteomyelitis, lymphadenopathy, meningitis, genital and renal tuberculosis. Breast along with skeleton muscles and spleen are considered to be the most resistant organ to tubercular infections (7-

9). A unilateral, hard lump at upper outer quadrant or in the center of the breast is the most common clinical presentation of breast TB. Sometimes, it is associated with overlying skin inflammation. In some cases, regional lymphadenopathy is also present (10, 11). Clinically early diagnosis is challenging as characteristic sinus formation occur late in the disease and patients are often misdiagnosed as pyogenic abscess or malignancy and underwent various investigations before final diagnosis. In such circumstances FNAC provide information about the type of lesion and helps in planning the treatment modalities. As in endemic area like Pakistan, Mantoux test usually is positive and gives a false positive result. To diagnose breast TB, radiological investigation like mammography, magnetic resonance imaging and

computerized tomography of breast has been studied but of no reward. It only helps to determine the extent of disease rather than diagnosis (12). Approximately 73 % of the cases of breast TB can be diagnosed by FNAC. FNAC is the most widely used initial invasive technique for the diagnosis of breast TB (6). The main objective of this study is to represent a clinico-pathological spectrum of tubercular mastitis and help in planning the treatment modalities.

MATERIALS AND METHODS

Female patients of age ranges 15-60 years who came for FNAC of the breast at UMC&RCSargodha (Punjab) during December 2017 to May 2018 were included in this study. Before aspiration consent for FNAC was taken and detail history and physical examination was carried out. During procedure, universal safety precautions were taken. FNAC was done using 5 ml or 10 mL syringe (disposable) of Becton and Dickinson (BD) (Malaysia) for each patient and for each prick. Needle of the syringe was introduced into the palpable lesion, either once, twice or thrice depending upon the size and gross appearance of the nodule. Cellular component was aspirated into a syringe and spread onto the slides. For each patient six to twelve slides were prepared. Slide was positioned on the table and on its frosted end a small or medium sized drop was placed. To spread this aspirated material another slide was used in the same manner that is used to prepare peripheral blood smear. The smears were air dried and stained with Hematoxylin & Eosin (H&E). Cover slip mounted with DPX (Di-n- butyl phthalate in xylene) and reported.

RESULTS

During the study period 100 cases of breast lump were examined. Among them 9 (9%) patients were found to have been suffering from tuberculosis. The age of patients ranges from 20- 41 years with a mean age of 28.11 years with 7 cases (77.7 %) were in age group of 15-30 years.

4 patients (44.4%) were lactating. Duration of symptoms was between 2 months to 18 months with a mean of 7.1 months. Involvement of left breast was in 5 cases (55.5%) while right and

bilateral involvement shares common figure, i.e. 2 cases each (22.2%). Clinical findings of patients reported as tuberculosis mastitis are shown in table 1. Symptoms of acute inflammation like fever and pain were present in 8 cases (88.8%). Axillary lymph nodes were palpable in 6 patients (66.6%). All patients (n=9) had lump in the breast, and 1 patient (11.1%) had ulcerated skin over the lump. Pus was aspirated in 6 cases (66.6%), cheesy material in 2 cases and remaining 1 case (11.1%) was blood mixed. In all cases, cellularity on aspiration was adequate for reporting. The cytological findings of lymphohistiocytic aggregates, Langhans' giant cells, and epithelioid cell granulomas confirmed the diagnosis of TB.

DISCUSSION

Breast tuberculosis is a rare disease. Clinically it stimulates various breast diseases like carcinoma, chronic non-specific inflammation, chronic granulomatous inflammation and duct ectasia. In endemic area of tuberculosis, it is advisable that TB should be considered in the differential diagnosis (D/D) of breast lump (9, 13-16). Tuberculous mastitis (TBM) is either primary or secondary and it spreads via blood, lymphatic or via direct inoculation. Primary TBM is rare; a 10-year study conducted in Qatar reported only 0.4% cases / year (n=13) (17, 18). Though as compared to primary TBM, secondary TBM is more common, we found a high frequency of primary breast TB

i.e. is 8 cases (88.8%). This might be due to the selection criteria as in this study we included only those patients presented with breast involvement. Generally, disease involves one breast, but bilateral involvement of TBM has been reported up to 30 % (19). In this study 22.2 % patients had bilateral involvement of breast. Lactation increases the susceptibility to tubercle bacilli. An association between prevalence of TB in faecal tonsil of weaning babies and higher incidence of TB in lactating females has been found. In this study duration of symptoms were from 2 months to 1.5 years. History of symptoms varies from weeks to several years. Patel (2016) demonstrate 7/7 (100%) lump, 0/7 (0%) ulcer and 1/7 (14%) sinus whereas this study had 9/9 (100%) lump, 1/9 (11.1%) ulcer and 0/9 (0%) sinus during

presentation of patients (5, 20). Multiple lumps are not usually present and this study also has no such presentation. It is unlikely for TB mastitis to have systemic or pulmonary symptoms (21- 23). Radiology and mammographic techniques have a limited role as findings are often indistinguishable from breast carcinoma (24, 25). In this study, 4 patients have history of X-ray chest and 1 patient has history of ultrasonography of breast and all are inconclusive for breast TB. Breast tuberculosis is a disease of young woman. In present study the mean age of patients were 28.11 years. Breast tuberculosis may resemble pyogenic abscess in younger patients whereas in older patients it mimics carcinoma. Whereas, treatment modalities for TBM significantly differ from pyogenic abscess, carcinoma and require early and prompt diagnosis to avoid unnecessary

investigations and treatment.

CONCLUSION

Although breast TB is a rare entity but still prevalent in developing countries and TBM has to be considered in differential diagnosis of breast lumps. Characteristic features of TB like sinus formation appear late in the disease and true nature of the disease remains obscure and is often mistaken for pyogenic breast or breast carcinoma. Emphasis should be made for early diagnosis to help in planning the treatment modalities. In developing countries, FNAC should be used as first line diagnostic tool for prompt diagnosis of TBM and also used to differentiate from pyogenic abscess and malignancy to avoid unnecessary investigation and treatment.

Table 1: Findings of patients diagnosed as Tuberculosis mastitis

Patient #	1	2	3	4	5	6	7	8	9
Age in years	25	30	41	24	36	28	23	20	26
Residence	Rural	Rural	Rural	Rural	Urban	Rural	Rural	Rural	Rural
Socio-economic status	Middle	Lower	Lower	Lower	Lower	Lower	Lower	Middle	Lower
Complain Duration	2.5 months	6 months	9 months	18 months	8 months	2 months	4 months	12 months	2 months
Complain of Pain	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Complain of Fever	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes
Lump discovery	Self accidentally	Husband	Pain	Self accidentally	Self accidentally	Pain	Pain	Self accidentally	Pain
Lactating	Yes	Yes	No	No	Yes	Yes	No	No	No
Past Medical H/O Tb	No	No	Yes	No	No	No	No	No	No
Family H/O Tb	No	No	No	Yes	No	No	No	Yes	Yes
USG/ Mammography	Not done	inconclusive	Not done	Not done	Not done	Not done	Not done	Not done	Not done
X-Ray Chest	Not done	inconclusive	conclusive	inconclusive	Not done	Not done	Not done	inconclusive	inconclusive
Side	Left	Left	Right	Both	Left	Right	Left	Both	Left
Site	Lower Outer	Upper outer	Lower outer	Upper Outer	Central	Lower Outer	Upper inner	Upper outer	Upper outer
Size in cm	3.1* 2	3.2 * 2.1	4 * 3	3.6 * 2.1	3 * 2	2.7 * 1.9	1.1 * 0.9	3.2 * 2.1	2.6 * 1.5
FNA aspiration	Cheese like blood mix material aspirated	Pus aspirated	Cheese like blood mix material aspirated	Pus aspirated	Pus aspirated	Blood mix pus material aspirated	Pus aspirated	Pus aspirated	Pus aspirated

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