

## Case Report:

### CASEATING GRANULOMATOUS MASTITIS: CASE REPORT OF 2 CASES

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#### ABSTRACT:

Tuberculosis is a major health problem and it is an important cause of mortality and morbidity in all age groups. Extra-pulmonary TB involving the breast is extremely rare. Clinical examination usually fails to differentiate breast TB from fibro adenoma. Fine needle aspiration cytology (FNAC) and histopathological examination may reveal caseating epithelioid cell granulomas and acid-fast bacilli (AFB). Tuberculosis of the breast constitutes 3.0-4.5% of all breast lesions, as reported by various studies done in the endemic areas of tuberculosis. Although, tuberculosis of the breast is considered a disease of the developing world, increasing cases of tuberculosis in developed countries also prevalent because of the migration of infected population from endemic zones and increasing number of immunocompromised patients. Anti-tuberculosis therapy is the main treatment, and surgery is used only in patients who fail to respond to medical treatment and or involve extensive tissue damage. Fine needle aspiration cytology (FNAC) from the breast lesion is an important diagnostic tool of breast tuberculosis.

**Keywords:** Caseating granulomatous mastitis , Tuberculous mastitis , secondary tuberculosis

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#### INTRODUCTION

Tuberculosis (TB) is an ancient disease, and tuberculosis bacilli have co-existed with humans since 5000 BC. Tuberculosis is a major health problem and it is an important cause of mortality and morbidity in all age groups<sup>(1)</sup>. TB is a communicable disease and second most leading cause of death worldwide<sup>(2)</sup>. Sir Ashley Cooper described the first case of tuberculosis of the breast. Extra-pulmonary TB involving the breast is extremely rare. Clinical examination usually fails to differentiate breast TB from fibro adenoma. Fine needle aspiration cytology (FNAC) and histopathological examination may

reveal caseating epithelioid cell granulomas and acid-fast bacilli (AFB). Although the presence of an acid-fast stain or culture is essential to confirm diagnosis, it does not give a positive result in most patients<sup>(3,4)</sup>. Although, tuberculosis of the breast is considered a disease of the developing world, increase is also seen in the developed countries probably because of the migration of infected population from endemic zones and increasing number of immunocompromised patients. Anti-tuberculosis therapy is the main treatment, and surgery is used only in patients who fail to respond to medical treatment and or involve extensive tissue damage<sup>(5,6)</sup>. Timely and appropriate

use of basic diagnostic techniques such as FNAC proves valuable in early diagnosis.

#### **CASE REPORT**

**Case 1 -** A 16 year old girl presented to the surgical out- patient department with complaints of swelling in the right breast since 8 months. Patient's laboratory routine investigations were within normal limits except for the raised Erythrocyte sedimentation rate 76 mm / hour. There was history of loss of appetite, weight loss, but no history of evening rise of temperature and cough. On examination the swelling was of size 3 x 2 cm, mobile, non-tender, firm in consistency. Nipple, areola and other breast appeared normal. A provisional clinical diagnosis of fibro adenoma was made and patient advised to undergo FNAC and Ultrasound breast.

Ultrasound diagnosis - Fibro adenoma right breast.

FNAC - The aspiration yielded pus like cheesy material. The cytosmears showed sheets and clusters of epithelioid cells admixed with fibrotic strands, lymphocytes, plasma cells, transforming histiocytes and acellular eosinophilic granular material- Features suggestive of Tuberculosis of Right breast (**Figure 1 & 2**)

**Case 2 -** A 42 year old lady came to the surgical outpatient department with complaints of swelling in the left breast since 10 months. Patient's husband was a known case of tuberculosis, took complete treatment 2 years ago. Patient never had history of cough, fever , weight loss , loss of appetite in the last few years. Patient general physical condition was

good. Erythrocyte sedimentation rate was slightly high 28 mm /hr. Other hematological investigations were within normal limits. On examination, a swelling of size 4 x 3.5 cm noted in the left upper outer quadrant of the breast , nodular , freely mobile , non-tender, firm to hard in consistency. Patient advised to undergo ultrasound of the left breast and FNAC. Clinical diagnosis of fibro adenoma was made .

Ultrasound diagnosis - Fibro adenoma left breast

FNAC – Aspirate was blood mixed. Cytosmears showed tiny sheets and clusters of benign ductal epithelial cells, elongated myo-epithelial cells, bare bipolar nuclei in the hemorrhagic background. Impression – Fibro adenoma left breast.

Patient was posted for surgery and the surgically excised specimen was sent for histopathological examination.

**GROSS FINDINGS:** Received a nodular soft tissue mass measuring 3.5 x 3 cm with well defined borders. Cut section shows homogenous grey white areas with slit like spaces and at few foci there are white necrotic areas.

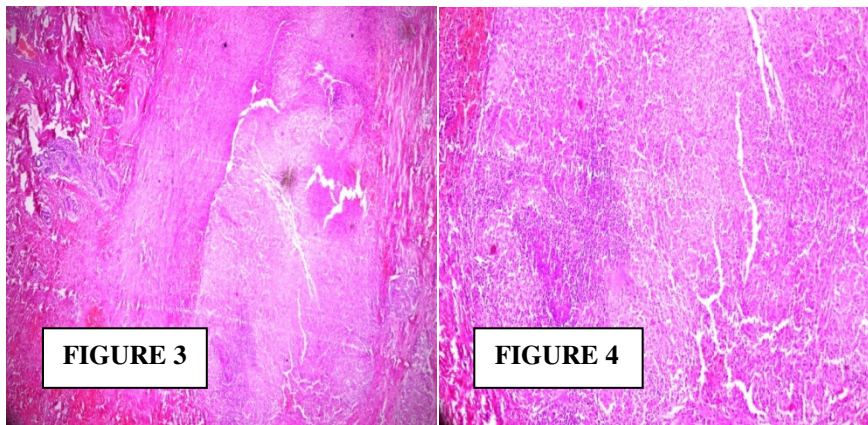
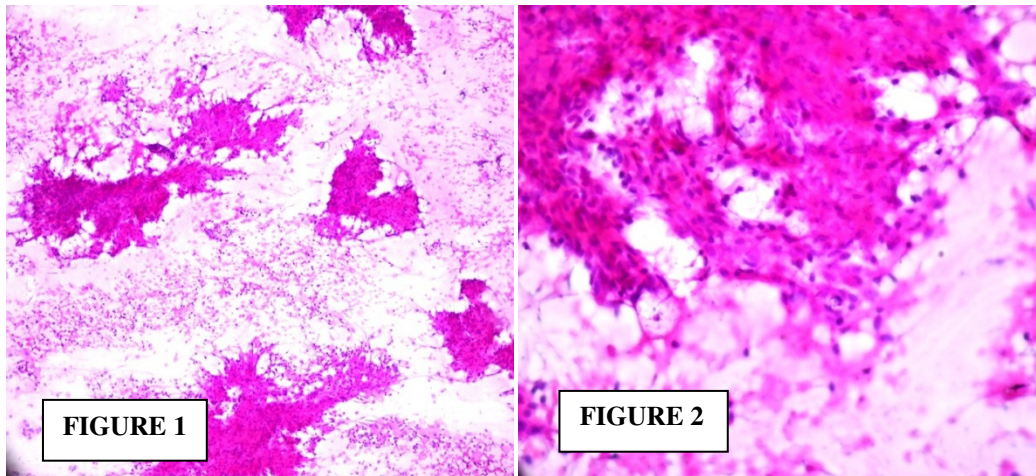
**MICROSCOPY:** Multiple sections studied show very few ducts and glands lined by inner epithelial cell layer and outer myo-epithelial cell layer in a fibromyxoid stroma. Few foci showed granulomas with central necrotic material surrounded by epithelioid cells , lymphocytes, plasma cells, langhan's type of giant cells.(**FIGURE 3 &4** )

**IMPRESSION:** Tuberculous mastitis

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**FIGURE 1 & 2** – Showing sheets and clusters of epithelioid cells, plasma cells, lymphocytes , histiocytes in a caseous necrotic background.

**FIGURE 3 & 4** – Showing few benign ducts and glands lined by inner epithelial cells and outer myoepithelial cells in a fibromyxoid stroma. There are areas showing granulomas comprising of epithelioid cells, plasma cells, lymphocytes, occasional langhan’s giant cells.

## DISCUSSION

The incidence of tuberculosis is rising worldwide. Many factors have contributed to this rise, including an increased number of immunocompromised patients particularly after the human immunodeficiency virus prevalence, emergence of drug-resistant mycobacterial strains. Nearly 18% of tuberculosis cases have only extra-pulmonary presentations <sup>(7)</sup>. The breast and skin are considered to be rare sites of extra-pulmonary mycobacterial infection, comprising

of 0.1-0.5% of all tuberculosis cases. Sir Ashley Cooper was first to report a case of breast tuberculosis. McKeown and Wilkinson classified breast tuberculosis as primary when the breast lesion was the only manifestation of tuberculosis, and secondary when there was a demonstrable focus of tuberculosis elsewhere in the body <sup>(8)</sup>. However, Vassilakos <sup>(9)</sup> stated that primary breast tuberculosis was probably quite rare and was diagnosed because the clinician was unable to detect the true focus of the

disease. Tuberculosis of the breast is a rare infection, as mammary tissue appears to be an inhospitable site for the survival and multiplication of tubercle bacilli. Infection of breast is usually secondary by lymphatic, contagious spread from the chest wall and pleura, or more rarely haematogenous spread. Predisposing factors for mammary tuberculosis are considered as young age, multiparity, lactation, poor general health, stress of childbearing and trauma to the breast. According to the Cooper's theory, communication between the axillary glands and the breast results in secondary involvement of the breast by retrograde lymphatic extension<sup>(10)</sup>. Supporting this hypothesis was the fact that axillary node involvement was shown to occur in 50 to 75 per cent of cases of tubercular mastitis<sup>(11)</sup>.

Clinical abnormalities include a lump in the breast with or without ulceration, well defined nodule or diffuse vague nodularity, pain, erythema, swelling, skin thickening, or fixation. Breast deformity and multiple discharging sinuses may be present in some of the cases. Solitary lump and enlarged axillary lymph nodes are one of the commonest presentation of breast tuberculosis which mimics clinically as carcinoma breast. Breast tuberculosis can be suspected if the symptoms are long standing.

Tuberculosis of the breast is classified into nodular, sclerosing and disseminated types. Nodular group may be mistaken for fibro adenoma or breast carcinoma taking the age of the patient into consideration. Disseminated tuberculosis can be mistaken for inflammatory carcinoma and sclerosing types may cause diffuse fibrosis, nipple retraction and breast deformity, can be mistaken for carcinoma. The most frequent clinical form is nodular type. The diffuse form is the least common type and the

sclerosing form occurs usually in the elderly and is a great mimic of carcinoma.

Fine needle aspiration cytology (FNAC) from the breast lesion continues to remain an important diagnostic tool of breast tuberculosis<sup>(12)</sup>. Approximately 73 per cent cases of breast tuberculosis can be diagnosed on FNAC when both epithelioid cell granulomas and necrosis are present<sup>(12)</sup>. Failure to demonstrate necrosis on FNAC does not exclude tuberculosis in view of small quantity of the sample harvested and examined. The demonstration of acid-fast bacilli (AFB) on FNAC is not mandatory, since for AFB to be seen microscopically, their number must be 10,000-100,000/ml of material aspirated. In tubercular breast abscess, FNAC may be inconclusive and the FNA picture may be dominated by acute inflammatory exudates. 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. Biopsy of the abscess wall and demonstration of characteristic histological features or culture are essential to confirm the diagnosis of breast tuberculosis in such cases.

Ultrasonography usually shows a heterogeneous fluid containing lesion with or without internal septation as complicated cyst, breast abscess, caseation or necrotic tumors. In many patients with breast tuberculosis, the reticular scarring and interlobular edema may mask the mass. On ultrasonography the nodular form mimics fibro adenoma in its regular contour, hypo echoic pattern, and posterior enhancement. Ultrasonography is a more sensitive technique to detect the axillary lymph node, and may help suggest the benign nature of their enlargement by the presence of echogenic hilar fat and

preservation of oval shape. Ultrasonography remains as an essential complementary modality to Fine needle aspiration cytology and mammography. The added value of ultrasonography includes (1) it can better differentiate caseating from noncaseating granuloma (2) it can identify nodules masked by the coarse stroma (3) it is better in assessment of lymph nodes status (4) it can be an easy mean to attempt FNAC and percutaneous drainage (5) it may add confidence in ruling out malignancy.

Histologically, tubercular mastitis is a form of granulomatous inflammation. There are many other conditions that are characterized histologically by a tuberculoid type of tissue reaction. These conditions include sarcoidosis, various fungal infections, and granulomatous reactions to altered fatty material. Sometimes the microscopic picture is indistinguishable from that of tuberculosis. Breast tuberculosis versus carcinoma breast: Clinical examination often fails to differentiate carcinoma breast from tuberculosis and high index of suspicion is necessary. 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.

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**TREATMENT:** The treatment of breast tuberculosis consists of anti-tubercular chemotherapy (ATT) and surgery with specific indications. ATT is the backbone of treatment of breast tuberculosis. The regimen generally followed in the treatment of breast tuberculosis is similar to that used in pulmonary tuberculosis. Extra-pulmonary tuberculosis except for tubercular meningitis, can be treated with 6 months regimen comprising two months of intensive phase treatment (with 4-drug combination) followed by continuation phase of 4 months (with 2-drug combination) . The overall prognosis is good with adequate medical treatment<sup>(13)</sup>.

#### CONCLUSION

A painless lump or a non-healing ulcer in the breast accompanied by a history of generalized weakness, weight loss and low grade fever are the common presentations of tuberculous mastitis. Early diagnosis based on clinical features and supplemented by FNAC is suggested. Histopathology examination accompanied by AFB stain to demonstrate bacilli can be conclusive. Culture would take a long time. If the patient can afford the cost PCR would be the ultimate diagnostic aid.

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