

Letters to the Editor

Fine Needle Aspiration Cytology in the Diagnosis of Inflammatory Lesions of the Breast with Emphasis on Tuberculous Mastitis

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To the Editor,

Fine needle aspiration cytology (FNAC) has become the first choice as a diagnostic procedure in variety of breast diseases. The technique can be successfully used to diagnose granulomas in breast aspirates and to demonstrate the presence of acid-fast bacilli. Endemicity of tuberculosis in India, calls for a high incidence of tuberculous mastitis. However the disease is often overlooked and misdiagnosed as carcinoma or pyogenic abscess. The importance of screening nipple discharge smears in suspected cases for tubercle bacilli is highlighted in this report.

During a period of two years (2005- 2006), out of a total of 471 breast lesions referred to the Department of cytology for fine needle aspiration, inflammatory lesion of breast was detected in 21 cases. FNAC was performed on all patients using a 23 gauge disposable needle and the smears prepared were air dried and fixed in methanol. One slide per case was kept unstained in all cases. Following the screening of Giemsa stained smears; the Zeihl- Nielsen stain (ZN stain) for acid-fast bacilli was done in suspected cases.

All the patients were women with an age incidence varying from 20 to 38 years. The duration of symptoms varied from one month to five years. They presented as painless lump in breast. The aspirate was blood mixed purulent material in most of the cases. One patient presented with nipple discharge along with a subareolar lump and one patient had a periareolar lump with a discharging sinus. The findings of breast aspirates are summarized in Table 1.

Epithelioid cell granulomas were seen in nine cases. The background was inflammatory (both lymphocytes and polymorphs) in most cases. Five cases showed large number of polymorphs with necrotic material in the background, while five cases had cytological features suggestive of acute over chronic inflammatory reaction. One case showed only caseous necrosis.

In the patient with nipple discharge, only clumps of benign ductal cells were seen in FNA smears of the breast lump, while the smears prepared from nipple discharge showed acute over chronic inflammation and were positive for acid-fast bacilli

(Fig.1). The smears from the patient with periareolar lump with discharging sinus showed epithelioid cell granulomas and giant cells without necrosis. The smears both from the lump and discharging sinus were negative for acid-fast bacilli.

Out of all twenty-one cases of inflammatory breast lesions, four cases were positive for acid-fast bacilli (19%), which were given a definitive diagnosis of tuberculous mastitis. Out of these four cases, three showed epithelioid cell granulomas in Giemsa smears, while one case was of nipple discharge. In the remaining cases AFB negativity was mentioned in the

Table 1 : Aspirate findings in patients with inflammatory breast disease

Smear pattern of breast lesion	No. of cases	AFB positive
Epithelioid cells, ± giant cells with necrosis	3	2
Epithelioid cells, ± giant cells without necrosis	6	1
Only caseous necrosis	1	0
Viable and degenerated polymorphs, necrotic material (breast abscess)	5	0
Acute over chronic (non specific inflammation)	5	0
Only clumps of benign ductal cells	1	1*
Total	21	4

* AFB positivity seen in nipple discharge smears

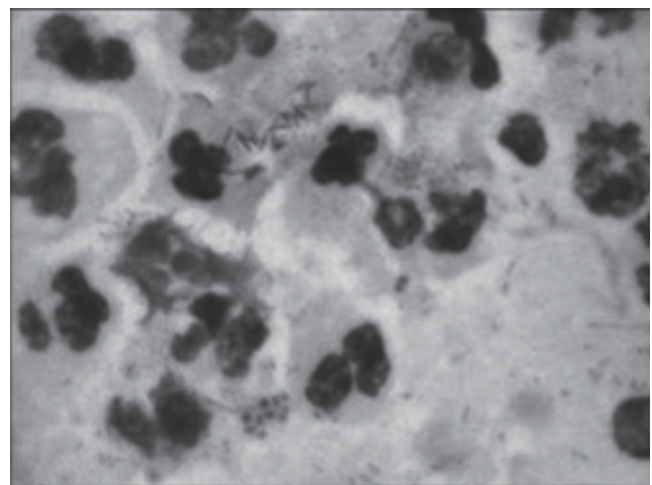


Fig. 1 : Microphotograph showing acid-fast bacilli in an inflammatory background in nipple discharge smears (ZN stain, x 1000).

report and a suspicion of tuberculosis was given. Plasma cells were not prominent in any of the cases.

Sir Astley Cooper recorded the first case of mammary tuberculosis in 1829, and called it 'Scrofulous swelling of the bosom'. Hamit and Ragsdale in 1982 documented only 500 cases of tuberculous mastitis, from world literature. Since then, case reports and reviews are being published to highlight the diagnostic dilemma of the disease. Several Indian series have reported the incidence of tuberculous mastitis amongst the total number of mammary conditions to vary between 0.64% and 3.59%.¹ Mammary tuberculosis is now also seen as an AIDS defining condition, however, none of our patients had HIV infection.

Approximately 73% of cases of breast tuberculosis can be diagnosed on fine needle aspiration, when both epithelioid cell granulomas and necrosis are present.² A cytological diagnosis of granulomatous lesion of breast (GLB) can be made when the smears show epithelioid histiocytes, either isolated or forming aggregates, along with multinucleated giant cells. This term encloses a variety of pathological entities: granulomatous lobular mastitis (GLM), specific infections (mycobacterium tuberculosis, fungus, and parasitic infections), duct ectasia / periductal mastitis, plasma cell mastitis, sarcoidosis, vasculitis and fat necrosis. Pathological diagnosis of GLB variants is based more on histopathology, which cannot be evaluated in cytological smears. A noncommittal term like granulomatous lesion of breast is more suitable in cytological smears. In our study nine cases were initially cytologically diagnosed to be of GLB. Three of these were positive for acid-fast bacilli and were then reported as tuberculous mastitis.

Failure to demonstrate necrosis on aspiration cytology does not exclude tuberculosis in view of small quantity of sample harvested and examined. The detection of acid-fast bacilli on FNAC is not mandatory, since for AFB to be seen microscopically, their number must be 10,000 to 1,00,000 /ml of the material.³ In tuberculous breast abscess, cytological smears may be inconclusive and the FNA picture may be dominated by an acute inflammatory exudate. Breast abscess, that fail to heal despite adequate drainage

and antibiotic therapy, and those with persistent discharging sinuses in spite of being AFB negative, should raise the suspicion of underlying tuberculosis. Biopsy of the abscess wall and demonstration of characteristic histological features or cultures may then be essential to confirm the diagnosis of tuberculosis.² In this study, five cases showed acute suppurative process and were negative for acid-fast bacilli. A repeat FNAC was advised following a complete course of antibiotics.

In a country like India, where tuberculosis is endemic, the presence of necrosis even in absence of acid-fast bacilli should alert one to the diagnosis of tuberculosis. In our study one case showed caseous necrotic material and no epithelioid cell granulomas or acid-fast bacilli could be demonstrated. The findings were described in the report and the clinicians were cautioned towards a tuberculous pathology. Only after a sufficient trial of anti-tuberculous treatment is given and the patient fails to respond should an alternative diagnosis be suggested.⁴

The significance of breast tuberculosis is due to its mistaken identity with breast cancer and pyogenic breast abscess. As a result the patients are often subjected to numerous investigations before a definitive diagnosis is made. Fine needle aspiration cytology in such cases prevents delay in the institution of specific therapy and subsequent complications of the disease. The importance of doing acid-fast stain in nipple discharge smears of suspicious cases is highlighted by this study. This simple procedure may help in clinching the diagnosis. In AFB negative suspected cases, statements like possibility of tuberculosis / tuberculosis cannot be ruled out, will direct a clinician on the outline of the treatment planned.

References

1. Gupta R, Gupta AS, Duggal N. Tubercular mastitis. *Int Surg* 1982; 67: 422-4.
2. Kakker S, Kapila K, Singh MK, Verma K. Tuberculosis of the breast. A cytomorphological study. *Acta Cytol* 2000; 44: 292-6.
3. Pagel W, Simmonds F, Macdonald J, Nassan E. Pulmonary tuberculosis. 4th ed. London: Oxford University Press; 1964.
4. Gupta D, Rajwanshi A, Gupta SK, Nijhawan R, Saran RK, Singh R. Fine needle aspiration cytology in the diagnosis of tuberculous mastitis. *Acta Cytol* 1999;43:191-4.

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