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Case series

Role of FNA in diagnosing tubercular breast lesions: Case series from an institute located in tribal area of Madhya Pradesh, India.

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Abstract:
To diagnose extrapulmonary tuberculosis is often an exhausting task; that's true for tuberculous mastitis as well. Lack of clinical suspicion, diverse cytological presentation, mostly paucibacillary lesions and limitations of nucleic acid amplification tests are the obstacles to accurate management. Careful FNA cytology and dedicated AFB search may prove conclusive in resource limited set ups as well. Three cases in our institute were diagnosed by good level of commitment and this simple work up.

1. Introduction:

Detection of extrapulmonary tuberculosis is a well-known diagnostic challange due firstly to lack of suspicion, secondaly to difficulty in proving microbiologically confirmed case. So is with tuberculous breast lesions.
Due to the reason breast tissue resist to survival and multiplication of tuberculous bacilli, breast involvement by tuberculosis is rare. [1, 2, 3]
Incidence is usually less than 1% of all diseases of the breast but may range upto 4%. [1, 4]
As per various patterns reported for clinical and cytological spectrums of breast tuberculosis, it is becoming obvious that it is not abound to the few set of characteristics but has diverse presentations. For example vague to discrete to no palpable lump, no fever to mild evening rise of temp to mere feeling of weakness, sometimes associated with lactation, nipple discharge, skin changes to no such features, well-formed granuloma to ill formed granuloma to no granuloma to only cheese like necrosis to pus aspirates dominated by polymorphs in fine needle aspiration (FNA). Likewise microbiological confirmation in extrapulmonary samples is not easily attainable job due to poor material yield and in cases of low bacillary load.
Trying to probe the practice of suspicion for tuberculous breast lesions and to incite the discussion about appropriateness of addressing a case as tubercular based on acid fast bacilli (AFB) noted in FNA sample, we are presenting a series of 3 cases of tuberculous breast lesions, reported during span of a year (January 2022 to December 2022).

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2. **Case presentation**:

Over a span of one year we reported three cases of tubercular mastitis. All were from females. Major details are presented in table 1. Clinical complaint was the lump only in all three cases; weight loss history came up for one case when asked specifically. Axillary lymphadenopathy was not found in any of the case. All the three were later assessed for pulmonary tuberculosis and the same was ruled out. HIV, diabetes or any other significant comorbididty was not evident during work up.

Giemsa, PAP and then AFB stained smears were prepared and analysed after fine needle aspiration. All cases were paucibacillary. Although acid fast bacilli (AFB) noted in all three cases, but it should be highlighted that extensive dedicated search for bacilli was performed and opinions were based on only very few bacilli noted. And it was quite possible to miss out the bacilli and instead of definite report we would have been landed as 'granulomatous' or 'non specific' or even 'possible malignancy'. Group of AFB shown in figure 1 was the single cause to assign case-1 as positive for AFB; no other bacilli group or even single bacilli crossed our gaze even after extensive search.

Antitubercular treatment (ATT) was the initial management modality; for residual lump after ATT, surgical management plans were offered accordingly.

Table 1. Various characteristics of cases.

Case S.N.	Case 1	Case 2	Case 3
Age	32	26	24
Clinical diagnosis	Lump – right breast	Fibroadenoma – left breast	Fibroadenoma – left breast
Radiological diagnosis	Not available	Not available	Possibility of fibroadenoma
FNA aspirate	Turbid, blood tinged	Blood mixed	Cheese like material
FNAC findings	Extensive necrosis, polymorphs, lymphocyte, plasma cells, macrophages, benign epithelial cell, epithelioid cells, giant cells, ill formed granuloma	Benign epithelial cells, foamy macrophages, few giant cells and epithelioid cells along with mixed inflammatory cells	Necrosis, macrophages, few multinucleated cells, few small clusters of ductal epithelial cells
AFB	Seen	Seen	Seen
TrueNAT report	Not available	Analyser displayed 'invalid'	Analyser displayed 'invalid'
Treatment	ATT	ATT	ATT
Response with ATT	Responded well with complete disappearance of lump	Reduction in lump size	Reduction in lump size noted initially

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3. Discussion:

Tuberculous mastitis is granulomatous lesion, it can be due to direct inoculation of bacilli through lactiferous ducts or secondary to primary infection elsewhere in the body, and rarely due to direct extension from the chest wall.[5, 6]
Tuberculous mastitis usually involve reproductive age women, and is uncommon in prepubescent and elderly women.[7] In one study from India, all cases were of females and mean age was 28.2 years. [8]

Where clinical details are not much helpful in suspecting tubercular breast lesion and mammography or ultrasonography is unreliable in distinguishing breast tuberculosis from carcinoma or other pathologies [9], also polymerase chain reaction (PCR) cannot be relied upon as absolute choice for diagnosing tubercular infections due to possibility of invalid/ false negative reports and other limitations [10], FNA cytology (FNAC) solve the purpose till appreciable extent there. FNAC is the most widely used investigation of choice [5] and its accuracy varies from 73% to 100% [9, 11].

4. Conclusion:

Tuberculous mastitis is rare entity but does exist. That's why need not to stop suspecting it as one of the differential diagnosis, where appropriate. Thorough search for AFB after attaining hints from FNAC findings can lead to definite opinion in resource limited set ups as well.

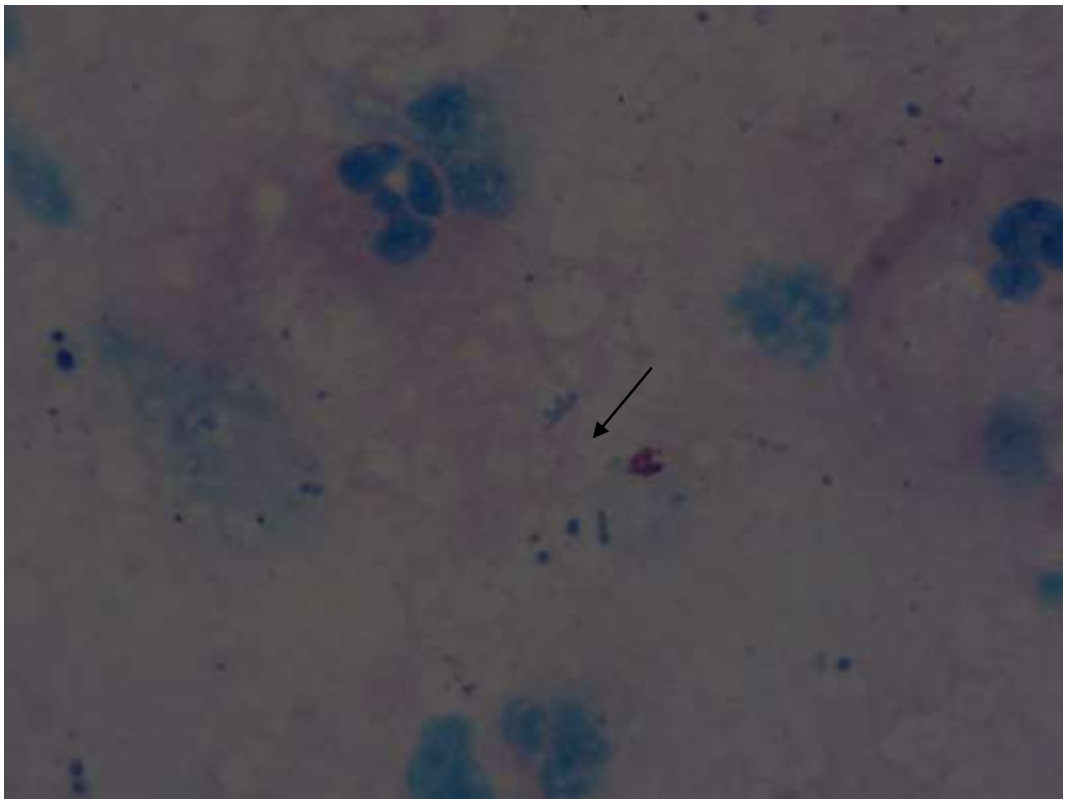

Figure1. Group of bacilli (arrow), AFB stain.

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