

Diagnosing Tuberculosis of Breast: A “Pendular” Experience

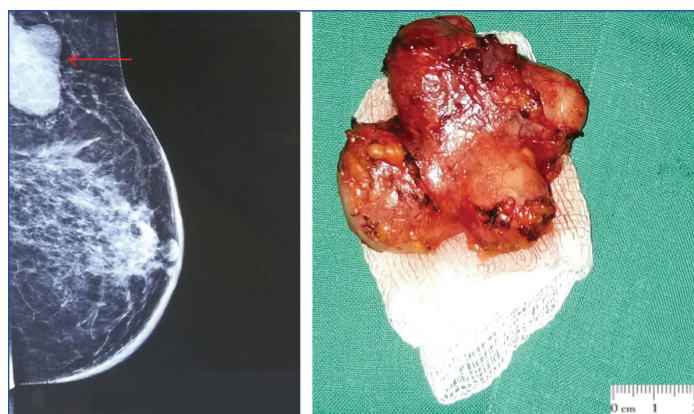
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The authors want to apprise the readers of an interesting case of tuberculosis of the breast where clinical features, radiology and even fine needle aspiration cytology indicated that it might be a malignancy thereby causing diagnostic dilemma. A 32-year-old multiparous non-lactating female patient presented with a lump in the left breast since six months duration with gradual increase in size. There were no risk factors for carcinoma. On examination there was a 5.5×3 cm mass in the axillary tail region of the left breast. The lump was non tender, firm in consistency, relatively mobile with regular margins. Multiple mobile axillary lymph nodes were palpable on the affected side. The nipple on the affected side was retracted. Sonography of the breast showed multiple microcalcifications within the mass with increased vascularity. It also showed multiple enlarged axillary nodes with loss of hilum and increased vascularity. The mammography of the breast showed Breast Imaging-Reporting And Data System (BI-RADS)- IVb grading indicating suspicion for malignancy [Table/Fig-1]. Fine Needle Aspiration Cytology (FNAC) found focal atypia, classifying it provisionally as a dysplastic lesion. Therefore, supported by the “trifecta” of diagnosis of breast lumps namely clinical, radiology and pathology, the pendulum of the diagnostic clock swung in the direction of a malignancy. However, the pendulum swung in the opposite side when subsequently a tru-cut biopsy of the lump was performed and showed granulomatous inflammation but did not find any evidence of caseous necrosis or acid fast bacilli on Ziehl-Neelsen (ZN) staining.

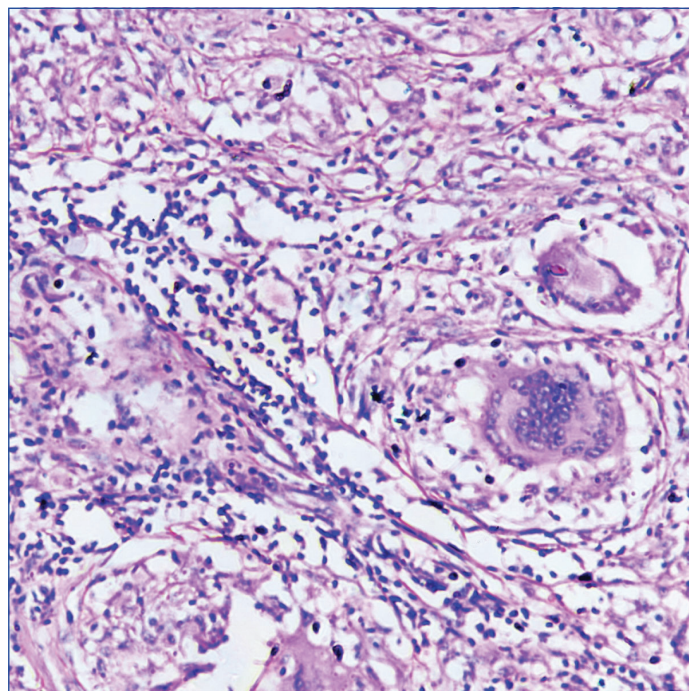
A decision to perform a wide local excision of the lump was taken for proper histologic confirmation after properly counselling the patient on the possible future requirement of a formal mastectomy and axillary clearance, should malignancy be identified. At the time of surgical excision a 4×5 cm lobulated, well-encapsulated mass was found [Table/Fig-2]. There was desmoplastic change in the axilla and multiple enlarged lymph nodes in anterior, posterior, lateral and central groups were present. A single lymph node was also sampled during the operation. Facility for cryo-sectioning was not available.



[Table/Fig-1]: Mammogram of Left Breast showing mass (BI-RADS IVb) (red arrow).
[Table/Fig-2]: Firm lobulated well-defined mass. (Images from left to right)

Subsequently, histopathology showed that both the lump as well as the lymph node were containing multiple granulomas and areas of caseous necrosis compatible with tuberculosis [Table/Fig-3]. The

patient was started on antitubercular drugs and had responded well to treatment.



[Table/Fig-3]: Microscopic image showing confluent granulomas comprised of epithelioid cells, lymphocytes and Langerhan's type multinucleated giant cells with areas of caseous necrosis (x100, H&E).

Tuberculosis of the breast is very rare and generally occurs in reproductive age group [1] with an incidence of 3-4% in highly endemic areas. Over the years few small and moderate size series of breast tuberculosis has been reported in Indian literature [Table/Fig-4] [2-9]. As sporadic cases of tuberculosis breast continue to be reported occasionally, therefore it should always be considered as a differential diagnosis of breast lump in Indian population. Tubercular mastitis can present as a solitary unilateral lump with ill-defined margins in the upper outer quadrant and can resemble breast malignancy. It might even be fixed to skin or chest wall. Other presentations like ulcer and discharging sinuses are less common [10, 11]. Present patient neither had risk factors of breast carcinoma

Serial	Author and article	No. of cases	Year
1	Chitrambalam TG et al., [2]	10	2020
2	Chandanwale S et al., [3]	27/33*	2020
3	Tandon M et al., [4]	22	2014
4	Mehta G et al., [5]	63	2010
5	Harris SH et al., [6]	38	5 year period
6	Shinde SR et al., [7]	100	1995
7	Khanna R et al., [8]	52	1986-2000
8	Kakkar S et al., [9]	160	1980-1998

[Table/Fig-4]: Series reporting tuberculosis of breast from India [2-9].
 *27 out of 33 had tubercular aetiology

like family history, nulliparity, higher age or oral contraceptive use nor had history of pulmonary or extra-pulmonary tuberculosis. All components of the “triple assessment” like clinical characteristics of the lump, nipple retraction and presence of multiple axillary nodes on the affected side, BI-RADS IVb grade on mammography, micro-calcifications along with axillary lymphadenopathy on Ultrasonography (USG) and finding of atypia on FNAC, supported a malignant aetiology. However, the finding of granulomatous inflammation on core biopsy raised doubts about the diagnosis. In tuberculous disease of the breast, findings of needle biopsy and imaging are often conflicting and confounding and cause diagnostic dilemma [12,13]. Clinicians must exercise a high index of suspicion, particularly in endemic areas. Excision biopsy remains the only confirmatory option. Four-drug regimen consisting of isoniazid, rifampin, pyrazinamide, and either ethambutol or streptomycin is treatment of choice [1].

CONCLUSION(S)

Tuberculosis of the breast has an incidence of 3-4% in endemic areas and should always be excluded in case of breast lumps, particularly in patients in reproductive age group with no risk factors for carcinoma. It can present as an ill-defined lump which might be fixed to skin or chest wall along with axillary lymphadenopathy and nipple retraction clinically resembling a malignant lesion. Findings of fine needle cytology and imaging may confound the diagnosis in these cases. Presence of granuloma on core needle biopsy or on definitive histopathology of the excised lump, is the key to clinch the diagnosis.

REFERENCES

- [1] Marinopoulos S, Lountou D, Gatzionis T, Dimitrakakis C, Pappaspyrou I, Antsaklis A. Breast tuberculosis: Diagnosis, management and treatment Int J Surg Case Rep. 2012;3(11):548-50.
- [2] Chitrabalam TG, Sundaraj J, Christopher PJ, Paladugu R. Case series on variable presentations of tuberculosis of the breast. BMJ Case Rep. 2020;13(12):e236019. Doi: 10.1136/bcr-2020-236019.
- [3] Chandanwale S, Naragude P, Shetty A, Sawadkar M, Raj A, Bhide A, et al. Cytomorphological spectrum of granulomatous mastitis: A study of 33 cases. Eur J Breast Health. 2020;16(2):146-51. Doi: 10.5152/ejbh.2020.5185.
- [4] Tandon M, Chintamani, Panwar P. Breast tuberculosis at a tertiary care centre: A retrospective analysis of 22 cases. Breast Dis. 2014;34(3):127-30. Doi: 10.3233/BD-130362.
- [5] Mehta G, Mittal A, Verma S. Breast tuberculosis-Clinical spectrum and management. Indian J Surg. 2010;72(6):433-37. Doi: 10.1007/s12262-010-0166-5. Epub 2010 Nov 18.
- [6] Harris SH, Khan MA, Khan R, Haque F, Syed A, Ansari MM. Mammary tuberculosis: Analysis of thirty-eight patients. ANZ J Surg. 2006;76(4):234-37. Doi: 10.1111/j.1445-2197.2006.03692.x.
- [7] Shinde SR, Chandawarkar RY, Deshmukh SP. Tuberculosis of the breast masquerading as carcinoma: A study of 100 patients. World J Surg. 1995;19(3):379-81. Doi: 10.1007/BF00299163.
- [8] Khanna R, Prasanna GV, Gupta P, Kumar M, Khanna S, Khanna AK. Mammary tuberculosis: Report on 52 cases. Postgrad Med J. 2002;78(921):422-24. Doi: 10.1136/pmj.78.921.422.
- [9] Kakkar S, Kapila K, Singh MK, Verma K. Tuberculosis of the breast. A cytomorphologic study. Acta Cytol. 2000;44(3):292-96. Doi: 10.1159/000328467.
- [10] Baharoon S. Tuberculosis of the breast. Ann Thorac Med. 2008;3(3):110-14.
- [11] Jetley S, Rana S, Khetrapal S, Khan S, Hassan MJ, Jairajpuri ZS. Diagnostic challenges of tubercular lesions of breast. J Lab Physicians. 2018;10(2):179-84.
- [12] Efareed B, Sidibé IS, Erregad F, Hammas N, Chbani L, El Fatemi H. Breast tuberculosis: A report of five cases. Trop Med Health. 2017;45:40.
- [13] Thimmappa D, Mallikarjuna MN, Vijayakumar A. Breast Tuberculosis. Indian J Surg. 2015;77(Suppl 3):1378-84.

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