

Case report

Tuberculous Cold Abscess in the Breast: A Rare Entity

ABSTRACT

Aim: Tuberculosis (TB) of the breast presenting as a cold abscess is a rare condition. We present here such a case of a young female patient with a left breast lump and a history of pulmonary tuberculosis on Antitubercular therapy (ATT) treatment. The presence of a cold abscess was confirmed by ultrasound and CT scan, surgical drainage of the abscess was done and ATT was continued. The patient showed satisfactory recovery and had been doing well by one month.

Presentation of Case: A 25 year old female presented with a painless left breast lump for eight months. She was diagnosed with pulmonary tuberculosis four months back and was on Antitubercular therapy since then. Ultrasound of breast revealed abscess collection. Surgical drainage for the cold abscess was done and a biopsy sample from the abscess wall revealed the presence of epitheloid granuloma and giant cells. The patient recovered well with ATT continued.

Discussion: Being a rare entity, cold abscess of breast secondary to Koch's etiology may often get misdiagnosed as other benign breast lesions such as fibroadenoma. However judicious radiological and pathological workup may help in timely diagnosis and treatment for the same. ATT treatment holds a key for early recovery. Surgical drainage for a cold abscess may be required on case to case basis.

Conclusion: This case report demonstrates the importance of timely clinical diagnosis in cases with tuberculous cold abscess of the breast.

Keywords: Breast cold abscess, Breast tuberculosis, Mammary TB, Breast lump

1. INTRODUCTION

Tuberculosis of the Breast, also called Mammary TB, is a rare entity with incidence up to 3%. It is reported to be more common in the young age group and lactating females [1]. Origin can be *primary* with no identifiable focus anywhere in the body or *secondary* spread from lung or lymph nodes including axillary and internal mammary group [2]. Another mode of spread could be direct entry via skin abrasion or contiguous spread from an infected rib, and sternum [3]. Retrograde lymphatic extension from axillary lymph nodes is a widely

accepted theory which is further supported by studies reporting axillary lymph node enlargement in 50%–70% cases of mammary tuberculosis [4].

2. PRESENTATION OF CASE

A 25 year old female presented with a painless lump in the left breast for eight months. The onset of lump was insidious, gradually increasing in size, and not associated with pain. The patient had a history of cough and fever four months back, for which she was taken to a primary health center near her residence. She was diagnosed with microbiologically confirmed pulmonary tuberculosis after a positive sputum smear and a normal chest X-ray finding. She was prescribed ATT treatment (Tablet Isoniazid, Rifampicin, Pyrazinamide and Ethambutol all thrice weekly for the first two months followed by tablet Isoniazid and Rifampicin thrice weekly for the next four months) as per Category 1 of the National Treatment Elimination Programme (NTEP) in India. There was a complaint of occasional cough and intermittent fever episodes at the time of presentation. On examination, she was afebrile and asthenic. Pulse rate was 88/min and blood pressure was 110/80 mmHg. A tense, spherical swelling of size 10 x 8 cm approximately was noted in the left mammary region at the level of the left 3rd intercostal space [Figure 1]. On palpation, the swelling was non-tender, fluctuant, and non-transilluminant. There was no associated lymphadenopathy. Chest examination was clear with air entry equal on both sides. A provisional diagnosis of breast cold abscess was considered, and the patient was admitted for further management. On investigation, hemoglobin was 11.2 gm%, white blood cell counts 12,400/cu mm, random blood sugar 82.40gm%, serum creatinine 0.43 mg%, serum urea 10.60mg%, serum bilirubin 0.30. The rest of the examination was within normal limits. Chest X-ray revealed clear lung margins with no obvious abnormality probably due to ongoing treatment [Figure 2]. Ultrasonography of the swelling revealed a well-defined hypoechoic collection with dense internal echoes suggestive of a cold abscess [Figure 3]. CT Thorax was suggestive of a well-demarcated collection in the upper inner quadrant of the left breast with subcostal extension suggestive of an abscess. A diagnosis of Tuberculous cold abscess of the breast was considered and surgical drainage of the abscess was done under local anesthesia. A biopsy sample was taken from the abscess wall for histopathological examination which showed the presence of epithelioid granuloma with caseous necrosis and Langhan's giant cells [Figure 4]. The staining and culture of the abscess for AFB were negative. The ongoing continuation phase of ATT treatment with tablet Isoniazid and Rifampicin thrice-weekly was continued as per the physician's opinion for the remaining two months and the patient recovered well. The surgical drainage site healed well within a period of one month without any complications.



[Figure 1: Left breast lump on inspection]



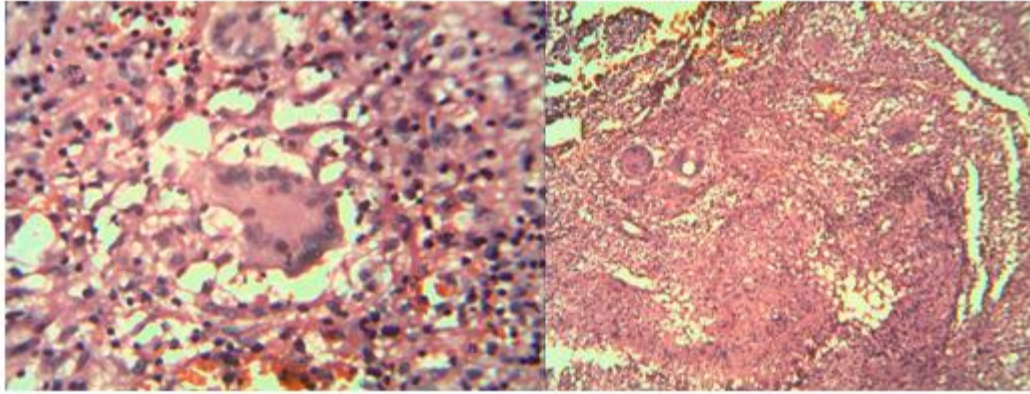
[Figure 2: Chest X-ray revealed no significant abnormality]

REVIEW



[Figure 3: USG left breast showing fluid collection in upper inner quadrant]

UNDF



[Figure 4: Histopathological evidence of epithelioid granuloma]

3. DISCUSSION

Rare incidences of Breast tuberculosis have been attributed to the presence of infertile niche for the survival of tubercle bacilli in breast tissue [4,5]. Lactating females are found to be more susceptible due to dilated ducts and increased vascularity of breast tissue facilitating the dissemination of bacilli [6]. Development of a cold abscess has been reported in many patients of pulmonary tuberculosis with ongoing antitubercular treatment and its presence should not be considered as a treatment failure. Moreover, the cold abscess tends to subside on continuing treatment to full term [7].

A painless palpable lump, more commonly in the upper outer quadrant is the most common presentation. Nipple discharge or retraction, inflammatory changes, and bilaterality may be seen in a few cases. Multicentric lesions, though uncommon, pose a challenge to be distinguished from malignancy. Another important differential to be considered is granulomatous mastitis [8].

Classification of Mammary tuberculosis can be explained under three varieties namely nodulocaseous tubercular mastitis, disseminated TB, and tubercular breast abscess. Nodulocaseous form presents as a slowly growing painless lump mimicking a fibroadenoma whereas the disseminated form is characterized by the formation of multiple sinuses [4].

Radiological workups like chest x-ray, ultrasound, mammography, CT scan, and MRI can assist in the diagnosis and assessment of the extent of disease. Three types of radiological appearances of breast tuberculosis have been documented in the literature- nodular, diffuse, and sclerosing. CT and MRI scans are particularly helpful in localizing deep-seated abscesses and demarcating a fistula tract [9]. Investigations like Fine needle aspiration cytology (FNAC), ZN staining or culture for AFB, Nucleic acid amplification tests such as PCR are all helpful in the diagnosis of breast TB but with variable sensitivity and specificity. Culture for AFB still remains the gold standard test [10]. On histology, a tuberculous cold abscess exhibits epithelioid cells and Langhans' giant cells with caseous necrosis whereas idiopathic granulomatous mastitis lacks the presence of caseous necrosis [8].

ATT is the treatment of choice in the majority of cases with a success rate reported as high as 95% in previous studies [11]. Surgical intervention is done as and when indicated. Mehta et al, in their study, reported 75.43% of patients required surgical management. Similar data were reported by Afridi et al [1,12]. Non-dependent drainage is preferred to avoid the formation of the sinus.

4. CONCLUSION

Despite a significant disease burden of tuberculosis in developing nations, tuberculosis of the breast remains uncommon. It is important to diagnose a cold abscess of the breast and differentiate it from other causes of the breast lump. A complete course of ATT treatment is the mainstay of the treatment. Surgical intervention with appropriate drainage may be required in a few cases.

CONSENT

All authors declare that 'written informed consent was obtained from the patient (or other approved parties) for publication of this case report and accompanying images.

ETHICAL APPROVAL

As per international standard guidelines, written ethical approval has been collected and preserved by the author(s).

REFERENCES

1. Mehta G, Mittal A, Verma S. Breast tuberculosis- clinical spectrum and management. *Indian J Surg* 2010;72:433-7. 10.1007/s12262-010-0166-5 [PMC free article] [PubMed] [CrossRef] [Google Scholar]
2. Khanna R, Prasanna GV, Gupta P, Kumar M, Khanna S, Khanna AK. Mammary tuberculosis: report on 52 cases. *Post grad Med J*. 2002;78:422–424. doi: 10.1136/pmj.78.921.422. [PMC free article] [PubMed][Cross Ref]
3. McKeown KC, Wilkinson KW. Tuberculous disease of the breast. *Br J Surg* 1952;39:420. 10.1002/bjs.18003915705 [PubMed] [CrossRef] [Google Scholar]
4. Tewari M, Shukla HS. Breast tuberculosis: diagnosis, clinical features and management. *Indian J Med Res*. 2005;122:103–110. [PubMed]
5. Hamit HF, Ragsdale TH. Mammary tuberculosis. *J R Soc Med*. 1982;75:764. [PMC free article][PubMed]
6. Banerjee SN, Ananthkrishnan N, Mehta RB, et al. Tuberculous mastitis: a continuing problem. *World J Surg* 1987;11:105-9. 10.1007/BF01658471 [PubMed] [CrossRef] [Google Scholar]
7. Chen CH, Tsai JJ, et al. Tuberculous Subcutaneous Abscesses Developing during Chemotherapy for Pulmonary Tuberculosis. *Scan J Infect Dis* 1993;25:1,149-152, DOI: 10.1080/00365549309169685
8. Baykan, A.H., Sayiner, H.S., Inan, I. et al. Primary breast tuberculosis: imaging findings of a rare disease. *Insights Imaging* 12, 19 (2021). <https://doi.org/10.1186/s13244-021-00961-3>.

9. Sakr AA, Fawzy RK, Fadaly G, et al. Mammographic and sonographic features of tuberculous mastitis. *Eur J Radiol* 2004;51:54-60. 10.1016/S0720-048X(03)00230-4 [PubMed] [CrossRef] [Google Scholar]
10. Marinopoulos S, Lourantou D, Gatzionis T, Dimitrakakis C, Papaspyrou I, Antsaklis A. Breast tuberculosis: Diagnosis, management and treatment. *Int J Surg Case Rep*. 2012;3(11):548-550. doi:10.1016/j.ijscr.2012.07.003
11. Baharoon S. Tuberculosis of the breast. *Ann Thorac Med* 2008;3:110-4. doi:10.4103/1817-1737.41918
12. Afridi SP, Memon A, Rehman SU. Spectrum of breast tuberculosis. *J Coll Physicians Surg Pak*.2009;19:158–161. [PubMed]

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