



TUBERCULOSIS OF BREAST, A DIAGNOSTIC DILEMMA - CASE SERIES

Radiodiagnosis

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ABSTRACT

BACKGROUND: - Tuberculosis of breast is rare manifestation of extra-pulmonary tuberculosis. It poses diagnostic problem both radiological imaging as well as clinically as it is mistaken for carcinoma breast and pyogenic abscess. Diagnostic criteria is presence of granulomatous infiltrates with central caseation on histology and/or Mycobacterium tuberculosis bacteria on culture of aspirates and by Genexpert. We presented case of seven patients who clinically and radiologically resembled as carcinoma breast and pyogenic infection.

METHOD: - Seven cases were diagnosed between July 2018 and July 2019 and confirmed by histology and microbiology and treated by antitubercular treatment.

RESULT :- all patients were female with age group between 17 to 40 years. All patients were presented with breast lump (100%) and axillary lymphadenopathy in 06(85.7%) except one(14.2%, with no axillary LN). Two (28.5%) patients were diagnosed with secondary breast TB. Three (42.8%) were diagnosed as inflammatory disease of breast (abscess). One (14.2%) patient had h/o surgical drainage of abscess with subsequent fistula and scar formation. One patient (14.2%) had features malignancy in USG but diagnosed as tuberculosis on biopsy.

CONCLUSION :- Tuberculosis of breast is rare but potentially curable disease. Diagnosis of tuberculosis is usually delayed due to variable presentation. It is usually diagnosed on high index of suspicion, pathological and microbiological examinations. Early diagnosis and treatment can prevent the patient from mental trauma.

KEYWORDS

Breast tuberculosis, Granulomatous inflammation, malignancy

INTRODUCTION

Tuberculosis has been gaining renewed interest for several years, mainly because of the resurgence of extrapulmonary forms in western and tropical countries. This could be explained by the increasing of the prevalence of HIV infection, the emergence of strains of mycobacteria that are resistant to usual treatments, the immigration of populations from high rate of tuberculosis and the release of anti-tuberculosis campaigns(1).

Tuberculosis of breast is rare infection even in countries where incidence of pulmonary and extrapulmonary TB is high like Indian subcontinent. Tuberculosis of breast poses diagnostic problem as it has no definitive clinical and radiological feature. Tuberculosis of the breast has been labeled a "great masquerade" in recognition of its

multifaceted presentation (2). It simulate with malignancy and pyogenic infection of breast. Its definitive diagnosis is bacteriological culture of aspirates and demonstration of granuloma with central caseous necrosis. We presented here cases series of seven patients with features of malignancy or inflammatory diseases of breast.

MATERIAL AND METHOD :-

Seven cases were diagnosed between July 2018 and July 2019 and treated by antitubercular treatment. FNAC was performed in all cases using 22 gauge disposable needles attached with 10ml plastic syringe. Biopsy and excision biopsy was done in one patient. Pus aspirated sent for microbiological examination, culture for M. tuberculosis and Gene Expert.

Table 1:

Serial no.	Sex and marital status	age	Clinical feature	USG Findings	FNAC, Biopsy and/or Microbiological Examination, GeneXpert.	Final Diagnosis
1	F Unmarried	17	Lumps in left breast and axilla	Multiple hypoechoic lesions in breast and axilla.	Granulomatous mastitis suggestive of tuberculosis	Primary tuberculosis.
2	F Married	30	Lumps in right breast and axilla	Multiple hypoechoic lesions in breast and axilla.	Granulomatous mastitis suggestive of tuberculosis	Primary tuberculosis
3	F Unmarried	22	H/O pulmonary tuberculosis with complete treatment. Lumps in B/L neck and right breast and constitutional symptoms.	Multilocular cystic lesions with dense internal echoes replacing almost right breast.	Positive for Micobacterial tuberculosis	Secondary tuberculosis
4	F Married	40	A lump in right breast and axillary lymphadenopathy	Multilobulated heterogeneous soft tissue, without calcification and posterior feature with overlying skin thickening and edema.	Granulomatous mastitis suggestive of tuberculosis.	Primary tuberculosis
5	F Unmarried	25	H/O pott's spine with complete treatment. Lump in left breast and axilla five years after completion of antituberculat treatment.	Dilated mammary ducts with dense internal echoes connected with small hypoechoic pockets with dense echoes consistent with abscess in upper and outer quadrant of left breast.	Positive for mycobacterial tuberculosis.	Secondry tuberculosis.

6	F Married	31	H/O abscess drainage. Firm to hard lump with tethering and discoloration of skin and a discharging sinus.	Multiple small hypoechoic lesions with internal echoes connected with prominent mammary duct with internal echoes, overlying thickened and edematous skin and subcutaneous tissue.	Culture was negative for mycobacterial tuberculosis but FNAC show granulomatous mastitis suggestive of tuberculosis.	Primary tuberculosis.
7	F Married	30	Lump in lower and medial quadrant of right breast since 2-3 months.	Multiple small hypoechoic lesions with internal echoes connected with prominent mammary duct with internal echoes associated with intense echogenic background, noted in lower –inner quadrant of right breast.	Granulomatous mastitis suggestive of tuberculosis.	Primary tuberculosis

Result :-

In duration of one year, all seven cases diagnosed with breast tuberculosis were female patients, with age group between 17 to 40 years. All patients were presented with breast lump (100%) and axillary lymphadenopathy in 06(85.7%) except one(14.2%, with no axillary LN). Two (28.5%) patients were diagnosed with secondary breast TB with primary was in spine and chest. FNAC was positive in all cases (100%). Out of seven patients, three (42.8%) were diagnosed as inflammatory disease of breast (abscess), were positive in microbiological examination and culture for AFB except one (14.2%) (Negative for Culture for AFB). Two (28.5%) patient had constitutional symptoms and previous history of ATT intake. Three (42.8%) patient were unmarried. In our study there were no any lactating and pregnant patients. One (14.2%) patient had h/o surgical drainage of abscess with subsequent fistula and scar formation. Two (28.5%) presented with multiple hypoechoic lump in breast. One patient (14.2%) with features malignancy on sonomammography given BIRADS V.

Treatment Summary:-

Table : 2

Breast lump 01	FNAC, excision biopsy and ATT
Frank breast abscess 01	Incision and drainage and ATT
Breast lump with scar and sinus formation 01	Excision biopsy and ATT
Breast lump 02	FNAC, Biopsy and ATT
Breast lump 02	ATT (after confirmation of tuberculosis)

DISCUSSION:-

Tuberculosis of breast is rare disease because breast tissue is unsuitable site for survival of Mycobacterium tuberculosis, secondary to low tension of oxygen that prohibits the growth of the mycobacterium (3).

Tuberculosis of breast occurs in women of age between 20-50 years however more common in reproductive age group, as in our case series most of patients were between 20-35 years of age.

Pregnancy, lactation and multiparity are risk factor (1). Women in the reproductive age are at risk due to periodic changes with menstruation are more liable to trauma and infection (4). Lactating women are at higher risk, probably due to the increased blood supply to the breasts and to dilated ducts, making them more vulnerable to lacerations and infection. Tuberculosis mastitis is usually unilateral, seldom infects male patients and should be considered in immunodeficiency states like HIV infection(5).It usually has unilateral involvement only 3% of patients are affected bilaterally (6).

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 (7).

Tubercular infection can reach through – lymphatic route (most common), hematogenous (in context of miliary tuberculosis), by direct extension (from thoracic wall, axillary lymph nodes), by inoculation through traumatized wall skin or duct (1,6).

Commonest clinical presentation is lump, with or without pain, commonly located in upper and outer quadrant of breast, probably as a result of tubercular bacilli spreading from axillary lymph nodes to breast (8). Lump may be followed by inflammation and abscess formation, skin ulceration and diffuse mastitis. Fistula formation may

occur, much as nipple and skin retraction but nipple discharge is uncommon. Recurrent inflammation and abscess of the breast that do not respond to surgical drainage and standard antibiotic therapy in young women should raise suspicion. Constitutional symptoms are present in less than 20% of the cases. Lump may mimic carcinoma, being hard and fixed to either skin or muscle or even to chest wall (5).

The disease presents in three forms: nodular, diffuse and sclerosing. The nodular form is characterised by a slow growing caseating lesion and often mistaken for fibroadenoma and carcinoma. The diffuse form consists of multiple, intercommunicating foci of tuberculosis within the breast, which may caseate leading to ulceration and numerous discharging sinuses. The skin may be thickened, with a tense, tender breast and axillary lymph nodes are frequently affected. In the sclerosing form, excessive fibrosis rather than caseation is the dominating feature. Progress is slow and suppuration is rarely seen. The entire breast becomes hard because of the dense fibrous tissue and the nipple gets retracted. All the three forms of the disease are indistinguishable from breast cancer clinically as well as on mammography (9,1,5,6).

The radiological investigations are not diagnostic of TB breast but they are mainly used to assess the breast lesions for the full extent (3).

Various tests are useful in the diagnosis of patients with breast tuberculosis. Mantoux testing does not offer definitive diagnosis, but confirms exposure of the patient to tubercle bacilli (5). The gold standard for the diagnosis of breast tuberculosis is detection of M. tuberculosis by Ziehl Neelsen staining or by culture. FNAC may not be able to detect the responsible pathogen itself, but is detecting the presence of epithelioid cell granulomas and necrosis, leading to definitive diagnosis in up to 73% of cases. Polymerase chain reaction (PCR) is highly sensitive for the diagnosis of breast tuberculosis. Although seldom used, it is recommended in cases with negative culture results or for differential diagnosis between other forms of granulomatous mastitis. GENE-XPRT, a CBNAAT (cartridge based nucleic acid amplification test), is a rapid diagnostic test for Tuberculosis detection as well as rifampicine resistance in direct smear negative cases (10).

Treatment of breast tuberculosis is anti-tubercular treatment and surgery is reserved for special conditions. Surgical intervention in the form of an excisional biopsy, drainage of breast abscesses, excision of residual sinus tracts or lumps after poor response to anti-tuberculosis therapy. Simple mastectomy, most often without axillary lymph node dissection, is reserved for cases with extensive disease, causing a large painful ulcerated mass involving the entire breast (5,7).

The principal differential diagnosis is that of breast carcinoma. Other diseases of the breast such as fatty necrosis, plasma cell mastitis, periareolar abscess, idiopathic granulomatous mastitis and infections like actinomycosis and blastomycosis are to be considered(5).

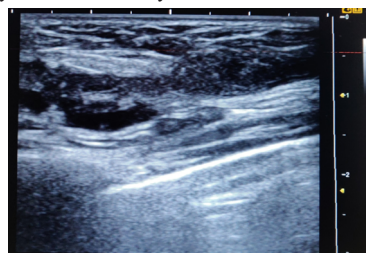


Figure -1. Axial image of breast show dilated duct with internal echoes consistent with breast abscess.

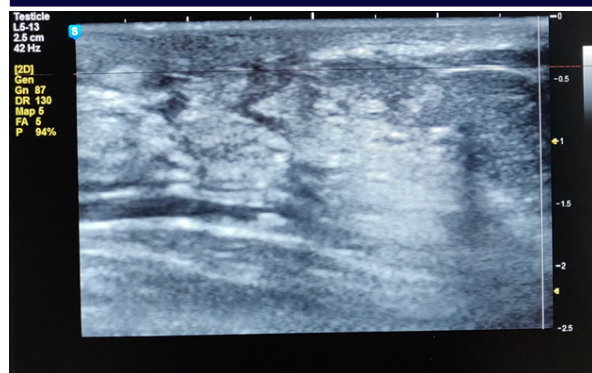


Figure -2. Axial image of breast show intense echogenic area proved tubercular mastitis.

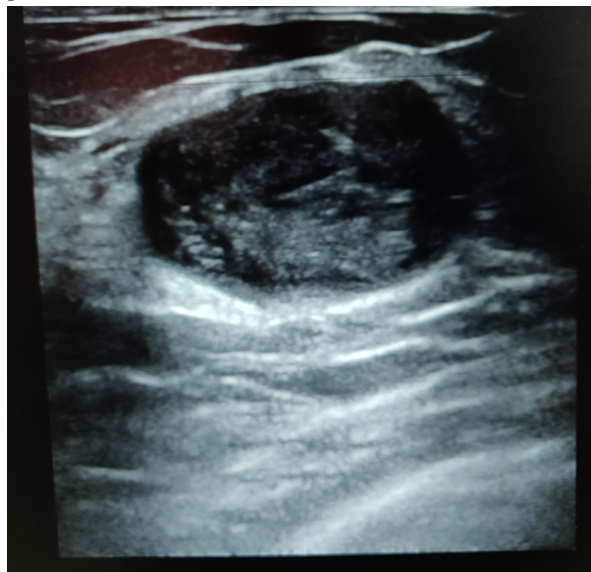


Figure-3. Axial image of breast show well defined soft lesion simulating fibroadenoma but proved as tuberculosis of breast.

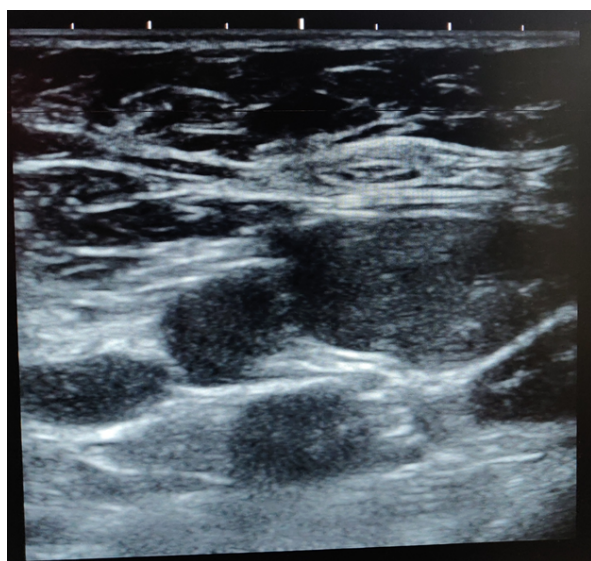


Figure -4. Axial image of breast show necrotic lymph node of axilla proved as tubercular lymph nodes.

CONCLUSION :-

Tuberculosis of breast is rare disease but potentially curable disease and mostly present as breast lump and is often misdiagnosed because it simulates with malignancy and pyogenic abscess. Radiological investigation is not diagnostic but is important in detecting extent of disease. Its diagnosis depend on high index of clinical suspicion,

proper history, and various tests including microbiological examination, culture, FNAC and biopsy. Early diagnosis and treatment can prevent the patient from mental trauma.

REFERENCES:-

- 1:- Ragmoun Houssein , Ajili Abir , Daadoucha Abdrahmen and Benhlila Najeh Journal of Tuberculosis and Therapeutics Case Report J Tuberc Ther 2017, Vol2(1): 109.
- 2:- Mmanju Bala Popli. Pictorial Assay : Tuberculosis of Breast. IJRI Year : 1999 | Volume : 9 | Issue : 3.
- 3:- Ravish M Kumar, Santosh Laxman Prashant Parandekar .Breast lump: A rare presentation of tuberculosis. (international Journal of applied basic medical research) . issn=2229-516X;year=2018;volume=8;issue=3;
- 4:- Luvo Gaxa, Bafana Elliot Hlatshwayo. Primary tuberculosis of thebreast: A rare case. Case Rep Int 2015;4:34–37.
- 5:- Ragmoun Houssein , Ajili Abir , Daadoucha Abdrahmen and Benhlila Najeh. Breast Tuberculosis: A Diagnosis Often Unknown: A Case J Tuberc Ther 2017, Vol 2(1): 109.
- 6:- R De Sousa, R Patil. Breast tuberculosis or granulomatous mastitis: A diagnostic dilemma. Annals of tropical medicine and Public health. Year : 2011 | Volume : 4 | Issue : 2 | Page : 122-125.
- 7:- Spyridon Marinopoulos, Dionysia Lourantou, Thomas Gatzionis, Constantine Dimitrakakis, Irini Papaspyrou, and Aris Antsaklis health. Elsevier. Breast tuberculosis: Diagnosis, management and treatment. Int J Surg Case Rep. 2012; 3(11): 548–550
- 8:- Qiang Li , Yin-Xia Huang , Qing Yang , Yu-Jie Dong , Meng-Qiu Gao , Li-Ping Ma primary tuberculosis of breast in bilateral breast - American journal of tropical medicine and hygiene. The American Journal of Tropical Medicine and Hygiene, Volume 97, Issue 6, 6 Dec 2017.
- 9:- Manmeet Kaur, Saurabh Kumar, Alok V. Mathur, Rajnish Kumar. Breast tuberculosis: clinical spectrum, diagnostic dilemmas and management. International Surgery Journal | February 2018 | Vol 5 | Issue 2.
- 10:- Ved Prakash, Virendra Kumar, Ashwini Mishra, Ajay Kumar Verma, Ambrish Joshi, Surya Kant. A rare entity of tubercular mastitis with chest wall extension in a male. The Journal of association of Chest physician . Year : 2015 | Volume : 3 | Issue : 2 | Page : 57-59.
- 11:- Ashish Kumar Prakash, Bornali Dutta, Pinky Gyal, Poulomi Chatterjee, Gaurav Gupta. European respiratory Journal 2016