

# Incidence of Tubercular Breast Abscess in a Tertiary Care Hospital in Kolkata: A Prospective Study

Rajdeep Saha<sup>1</sup>, Paramita Das<sup>2</sup>, Kalidas Rit<sup>3</sup>, Sharmistha Datta Basu<sup>2</sup>

<sup>1</sup>Assistant Professor, Department of Microbiology, Calcutta National Medical College, Kolkata, West Bengal, India, <sup>2</sup>Postgraduate, Department of Microbiology, Calcutta National Medical College, Kolkata, West Bengal, India, <sup>3</sup>Associate Professor, Department of Microbiology, Institute of Post Graduate Medical Education & Research, Kolkata, West Bengal, India

## Abstract

**Introduction:** Tubercular breast abscess is one of rare tuberculosis affecting women. Breast tuberculosis most commonly presents as a lump in the central or upper outer quadrant of the breast and discharge from nipple.

**Materials and Methods:** This hospital-based prospective study was carried out at our tertiary care hospital from March 2013 to February 2015 on 197 female patients presenting with clinical features of a breast abscess.

**Results:** Out of 197 cases, 59 (29.9%) cases were routine, ordinary culture negative. Out of which 9 cases were diagnosed as a tubercular breast abscess.

**Conclusion:** From our study it appears that 4.8% cases (9,  $n = 197$ ) are suffering from tubercular breast abscess, adequate treatment with anti-tubercular drug is essential to cure these patients.

**Key words:** Breast abscess, *Mycobacterium tuberculosis*, Nipple discharge

## INTRODUCTION

Breast abscess is a common condition in female patients affecting 4.6-11% of the female population in both developed and developing countries.<sup>1</sup> It is broadly of two types-lactational and non-lactational. Lactational breast abscesses are encountered mostly in the post-puerperal period with *Staphylococcus aureus* as the most common causative agent.<sup>2</sup> On the contrary, the exact etiology of non-lactational breast abscess, which is more common in perimenopausal age group, remains largely unknown.<sup>3</sup>

Tuberculosis of the breast is a rare occurrence accounting for <1% of all the breast diseases in developed countries and about 4% of all the breast diseases in endemic

areas.<sup>4</sup> Although *Mycobacterium tuberculosis* primarily causes disease of the lung, it can affect any organ of the body and resemble other diseases. Some organs like spleen and breast show considerable resistance to this disease as they do not provide a suitable environment for the survival and multiplication of tubercle bacilli.<sup>5</sup> The incidence of tuberculosis is still quite high in India and so is expected of the breast tuberculosis. Breast tuberculosis most commonly presents as a lump in the central or upper outer quadrant of the breast.<sup>6-8</sup> Other common forms of clinical presentation include tubercular ulcer over the breast skin and tubercular breast abscess with or without discharging sinuses.<sup>8</sup> Purulent nipple discharge or persistent discharging sinus may be rare presenting features. Tuberculosis of breast disease is often misdiagnosed as carcinoma or pyogenic abscess.<sup>9</sup> Hence, a high level of suspicion is required to make the diagnosis of tubercular breast abscess.

## MATERIALS AND METHODS

After taking consent from patient and ethical clearance from our college, this study was started from March 2013

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Month of Submission : 04-2015  
 Month of Peer Review : 05-2015  
 Month of Acceptance : 05-2015  
 Month of Publishing : 06-2015

**Corresponding Author:** Dr. Rajdeep Saha, Calcutta National Medical College, 32, Gorachand Road, Kolkata - 700 014, West Bengal, India. Phone: +91-9477266763. E-mail: rajdeep9433@gmail.com

to February 2015 on 197 female patients presenting with clinical features of breast abscess. Majority of the patients were presented with lump in the central or upper outer quadrant of the breast. The lump was hard, painful and at times, fixed to either skin or muscle or even chest wall and there was ulcer over the breast skin. Few patients were visited with features of tubercular breast abscess with or without discharging sinuses. On examination there were localized breast erythema, warmth, induration, edema, tenderness, fluctuant swelling, nipple discharge or inversion, with or without associated fever or axillary lymphadenopathy (Figure 1). After obtaining a detailed history from each patient, they were subjected to laboratory workup for hemoglobin, total white blood cell count, C-reactive protein, erythrocyte sedimentation rate, fasting, and postprandial blood glucose.

Pus sample collected in or sent to our laboratory after surgical procedures were subjected to analysis for a bacteriological profile by Gram-stain, Zeihl-Neelsen (Z-N) staining and culture. Histopathology of breast tissue was performed to detect chronic granulomatous changes.

Breast abscess in malignant cases was not included in the study.

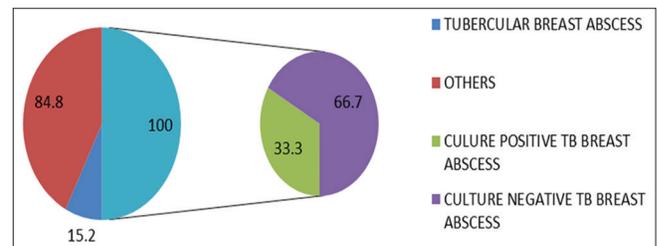
## RESULTS

Out of the total 197 cases, there were 59 cases routine culture negative. Among these 9 cases were diagnosed as tubercular breast abscess. All of them had a prior history of contact with cases of tuberculosis and duration of symptoms for more than 6 months. 7 of these cases were identified as primary tubercular breast abscess as no other foci could be detected elsewhere. Of the other two

cases, one had primary pulmonary tuberculosis and the other, tuberculosis of axillary lymph nodes. Out of the 9 patients, 2 patients had recent lactation history at the time of presentation. One of the patients with primary breast tuberculosis had presented with nipple discharge and enlargement of ipsilateral axillary lymph nodes. Z-N stain of the nipple discharge showed the presence of acid-fast bacilli. Culture for *M. tuberculosis* after 4 weeks of incubation at 37°C was positive for 3 cases of breast tuberculosis - two primaries and the other secondary (Graph 1).

All these 9 cases were confirmed to be tuberculosis by histological examination of the breast tissues. Histologic examinations in all these cases revealed the presence of degenerated neutrophils, lymphocytes, plasma cells, histiocytes, cyst macrophages, epithelioid granuloma in a caseous necrotic background suggesting the tubercular origin of the breast abscesses (Figure 2).

Apart from *M. tuberculosis* breast abscess, 70.1% i.e. 138 cases were diagnosed as non-tubercular breast abscess. *Staphylococcus aureus* was found to be the predominant organism accounting for 45.2% ( $n = 89$ ) of all culture positive cases. Other organisms included *Streptococcus pyogenes*



Graph 1: Percentage of tubercular breast abscess out of the total number of routine culture negative cases

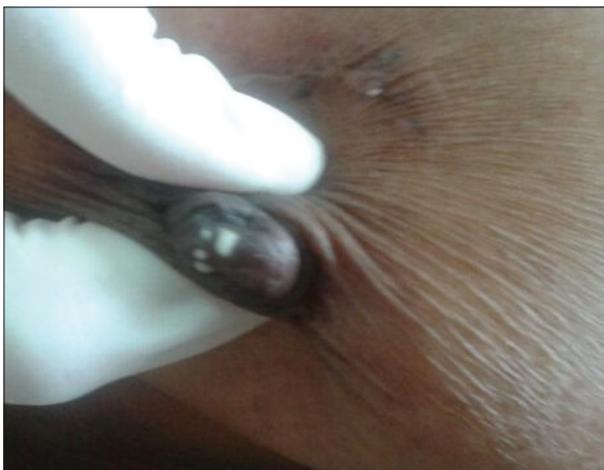


Figure 1: Nipple discharge in a case of tubercular breast abscess with ulcer over areola

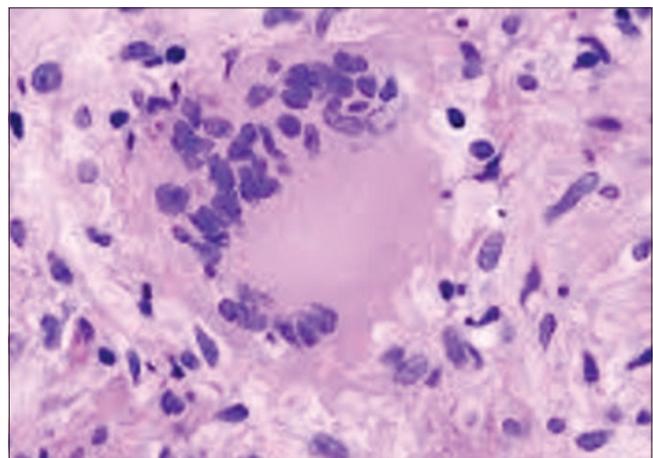
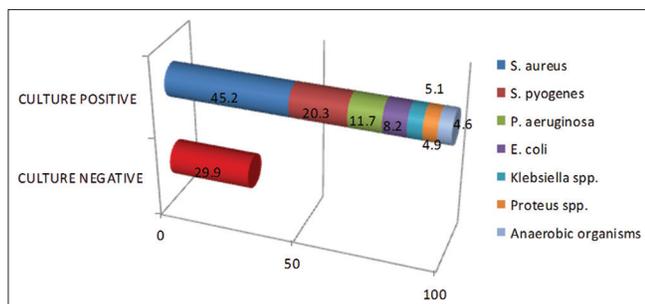


Figure 2: Histopathology of tubercular breast tissue characterized by granuloma formation



**Graph 2: Percentage of culture positive and culture negative breast tuberculosis (%)**

(20.3%), *Pseudomonas aeruginosa* (11.7%), *Escherichia coli* (8.2%), *Klebsiella spp.* (5.1%), *Proteus spp.* (4.9%) and anaerobic organisms (4.6%) (Graph 2).

## DISCUSSION

In our study, tubercular breast abscess accounts for 15.2% of total routine culture negative breast abscess. Among these 22.2% of our cases had recent lactation history whereas Shinde *et al.* and Banerjee *et al.* respectively reported that 7% and 33% of their patients were lactating at the time of presentation with breast tuberculosis.<sup>5,10</sup> Mycobacterial culture remains the gold standard for diagnosis of tuberculosis. However, the time required and frequent negative results in pauci-bacillary specimens are important limitations.<sup>11</sup> However in our study, 33.3% cases of tubercular breast abscess were positive for culture. Similar to the observations made by Khanna, who found fine needle aspiration cytology to be 100% reliable for diagnosis of breast tuberculosis, all our patients showed features of tuberculosis on histopathological examination of breast tissue.<sup>12</sup>

Among non-tubercular pathogen, *S. aureus* have been found to be the commonest pathogen for breast abscess accounting for 72.1% of all culture positive cases. This finding fairly coincided with other studies done on breast abscesses.<sup>13,14</sup> Other organisms isolated in order of frequency are *S. pyogenes* (20.3%), *P. aeruginosa* (11.7%), *E. coli* (8.2%), *Klebsiella spp.* (5.1%), *Proteus spp.* (4.9%) and anaerobic organisms (4.6%). These observations were similar to those of Sandhu *et al.* in 2014.<sup>15</sup>

## CONCLUSION

From the above study, we can conclude that tubercular breast abscess still remains a problem in developing country like India. Inadequate intake of anti-tubercular drug and delays in treatment are most common causes of the persistence of tubercle bacilli in breast tissue. Proper knowledge about the importance of anti-tubercular drug use is needed to control tuberculosis infection.

## ACKNOWLEDGMENT

We are extremely thankful to all the medical and non-medical staffs of the Department of Microbiology of Calcutta National Medical College for their constant support and help to complete this study.

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**How to cite this article:** Saha R, Das P, Rit K, Basu SD. Incidence of Tubercular Breast Abscess in a Tertiary Care Hospital in Kolkata: A Prospective Study. *Int J Sci Stud* 2015;3(3):78-80.

**Source of Support:** Nil, **Conflict of Interest:** None declared.