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Case Report

Tuberculous Mastitis and Axillary Lymphadenitis Coexisting with Invasive Ductal Carcinoma Breast

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Abstract

The simultaneous occurrence of tuberculosis in lymph nodes with invasive breast carcinoma is rare, classical tuberculosis manifesting in the breast along with carcinoma and involving the axillary lymph nodes particularly is exceedingly rare, even in developing countries like India where it is an endemic disease. Careful sampling is essential for accurate diagnosis; particularly the areas of extensive necrosis and the therapy regimens for these cases need to be evaluated. Further, axillary lymph nodal status upstaging the clinical diagnosis may prove to be granulomatous lymphadenitis histopathologically. Our case presented with infiltrating ductal breast carcinoma, with tuberculous mastitis and axillary lymphadenitis observed on the histopathological study with no evidence of tuberculosis elsewhere, a possibility to be kept in mind by all clinicians. Maintaining a high index of suspicion remains key to the correct diagnosis and therapeutic regimes, particularly in persons hailing from lower socioeconomic strata and having the known risk factors when presenting with invasive carcinoma breast, considering that there are no pathognomic clinical signs or symptoms. Chemotherapy, along with antituberculous therapy, however, remains a challenge in these cases.

Keywords: Neoplasms, Mastectomy, Anorexia, Ulcer, Cutaneous Fistula, Endemic Diseases.

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1. Introduction

Even in developing countries, where tuberculosis is relatively more common, tuberculous mastitis is relatively rare, accounting for only 0.1% of cases, and co-existence of disease and malignancy has been reported in some organs. [3-5]

Increased breast tissue resistance to the multiplication of tubercle bacilli and at tuberculous therapy has been suggested. [8]

Activation of a silent infection by immune-suppression or a concurrent acquired infection could be the possible mechanisms,[3] as there no casual links between tuberculous mastitis and breast carcinoma and no evidence of carcinogenicity of the Mycobacterium tubercle bacilli at any site.[9]

The study by Kaplan et al found that in cancer patients, tuberculosis was most prevalent in Hodgkin's disease, lung carcinoma, lymphosarcoma, reticulum cell sarcoma and least prevalent in carcinoma colon, bladder, uterus, breast, prostate and kidney. [10]

Further, breast cancer patients may suffer reactivation of tuberculosis during treatment, disturbing treatment protocol and creating clinical and radiologic findings that confuse the follow-up process as malignant and tuberculous lesions may be indistinguishable. [11]

Particularly on observing extensive areas of necrosis, as in our case, careful observation detects the classical features of epitheloid granulomas; eliminating tumor necrosis.

The most frequent site of tuberculous lymph node involvement is cervical nodes; followed by supraclavicular, inguinal and mediastinal nodes; axillary lymph nodal involvement is uncommon; as in our case. [12]

We present a case of infiltrating ductal carcinoma with simultaneous tuberculous mastitis and tuberculous axillary lymphadenitis.

2. Case report

A 36 year old lady hailing from the upper mountainous highlands of Himachal Pradesh, India

presented with complaints of awareness of a lump in her right breast since three months, of gradually increasing size and hardness to the present size of approximately 3x3cm. No history of swellings elsewhere, weight loss or other systemic complaints was present.

She has been married for 18 years, with parity of two; both were breastfed. Her menarche was attained at 13 years with regular menstrual cycles. She was a laborer by profession, with a smoking history of 10 bidis (local tobacco) per day since the last 20 years and daily consumption of alcohol (2-4 pegs) since the last 20 years. There was no significant family history.

On examination, her general examination was within normal limits.

Local examination revealed a right breast lump of size 2.5x2.5cm, in the retroareolar region, which was immobile, non-tender, hard, fixed to the overlying skin with irregular outlines, associated with nipple retraction and puckering.

Two lymph nodes were also palpated in the right axilla of approximate size 2.5x2.5cm each; both were non-tender, firm to hard, and mobile. The left breast and axilla were normal. **Systemic examination** was within normal limits.

A clinical diagnosis of carcinoma right breast, T4bN1Mx was made. Blood parameters showed a markedly elevated ESR (80 mm at the end of 1st hour); chest X-ray was normal.

Ultrasound breast: revealed a 1.8x1.8cm solid hypoechoic lesion in the right retroareolar region with nipple retraction. A few enlarged lymph nodes were also seen in the right axilla, the largest measuring 17x3mm.

Mammography was also corroborative, with a BIRADS-4 grade assigned. **An FNAC** was suggestive of Ductal Carcinoma right breast.

She underwent a modified right mastectomy.

On gross examination, a right mastectomy specimen with the attached axillary tail was received, revealing the growth of size 1.5x0.5cm in the retroareolar region reaching unto the distal resection margin. Sixteen lymph nodes were identified in the axillary tail, ranging from 5mm to 1.5cm.

Figure 1: 1.5x0.5cm solid grey-white growth in the mastectomy specimen

Microscopic examination: revealed tumor cells arranged in small groups, clusters with the focal tendency to a glandular arrangement with moderate pleomorphism, increased N:C ratio, round to irregular nuclei with occasional nucleoli, vesicular to reticular chromatin, and light eosinophilic cytoplasm. Mitotic activity was 7 per 10 high power field, with few areas of mucin lakes. The growth was reaching unto the deep resection margin and involving the skin, nipple and areola with lymphovascular invasion. Resection margins were free.

Areas of caseous necrosis with epitheloid cell granulomas rimmed by Langhan's giant cells were also noted.

A Ziehl Neelson stain for acid-fast bacilli, however, was non-contributory.

Examination of the lymph nodes revealed granulomatous lymphadenitis with caseous necrosis and epithelia granulomas in 8, sinus histiocytosis in 7 nodes and one node with metastatic tumor deposit.

The tumor cells were positive for ER and PR by immunohistochemistry.

A diagnosis of Infiltrating Ductal Carcinoma, NOS (Modified Bloom Richardson Grade 2 with Necrotizing Granulomatous lesion, along with lymph node features as described above was given, and the patient worked-up post-diagnosis for evidence of tuberculosis elsewhere along with planning of antituberculous therapy and chemotherapeutic regimen.

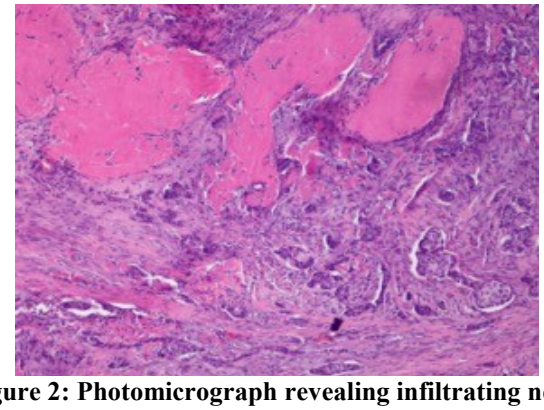

Figure 2: Photomicrograph revealing infiltrating nests and cords of tumor cells with extensive areas of necrosis (H&E, 100X)

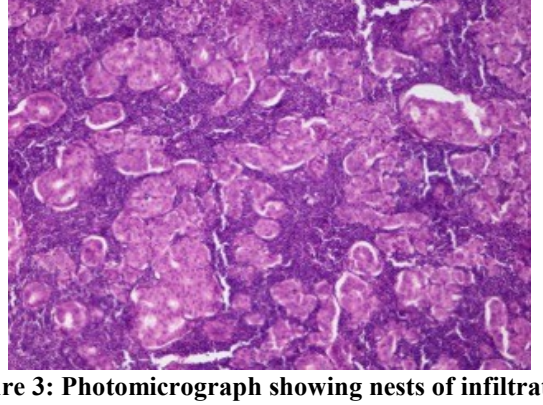

Figure 3: Photomicrograph showing nests of infiltrating tumor cells (H&E, 100X)

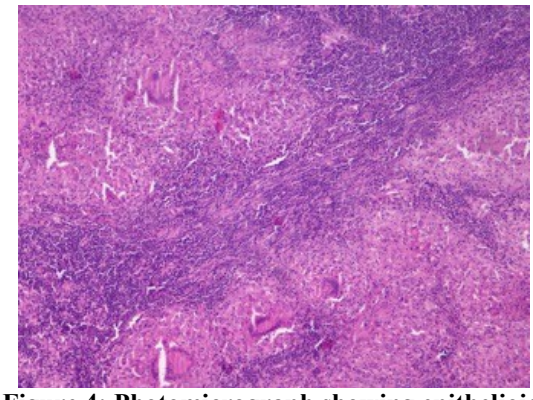

Figure 4: Photomicrograph showing epithelioid granulomas with Langhan's giant cells and caseating necrosis (H&E, 100X)

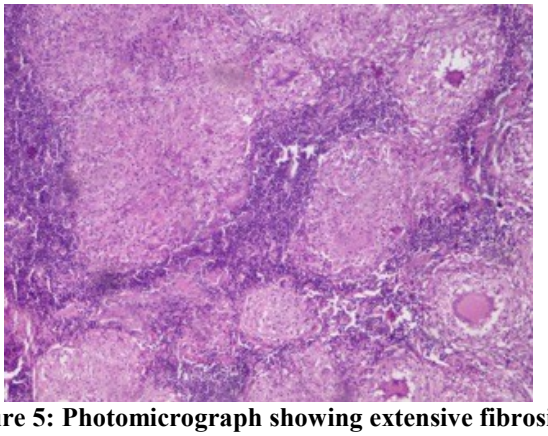

Figure 5: Photomicrograph showing extensive fibrosing granulomas (H&E, 100X)

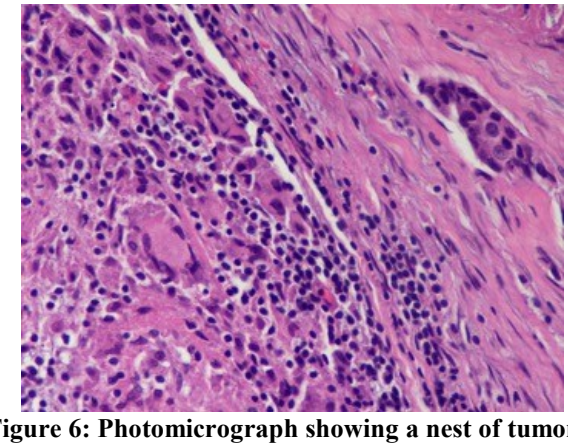

Figure 6: Photomicrograph showing a nest of tumor cell adjacent to Langhan's giant cell in a desmoplastic stroma with dense inflammatory infiltrate (H&E, 400X)

3. Discussion

Tuberculosis is a major public health problem affecting one-third of the world population; mostly in developing countries. The co-existence of breast carcinoma and tuberculosis is a rarely occurrence. [1]

Warthin AS first described the co-existence of carcinoma breast and tuberculosis of axillary lymph node in 1899. [2]

The presentation of tuberculous mastitis includes a well defined hard mass associated with diffuse nodularity, retraction of nipple, skin fistula and fixity to the skin and underlying tissues.

Clinically, it is often difficult to distinguish between diseases. [6]

In both cases, patients present with a breast lump, along with weight loss, anorexia, fever or axillary lymphadenitis; some even with sinues. [7]

Lymph nodal tuberculosis should be suspected in the presence of speckled clustered calcifications; [12] yet may create confusion with metastatic deposits.

However, mammogram in breast tuberculosis is of limited value as tit's often indistinguishable from breast carcinoma; further, in women in the 20-40 year age group in which breast tuberculosis may be found commonly, tissue density makes interpretation difficult.[13]

Diagnosis is hence made histopathologically by evidence of caseating epithelioid granulomas and Langhan's giant cells, with lymphohistiocytic aggregates and abundant necrosis additionally on cytology. Core needle biopsy or an open biopsy of a breast lump, ulcer, sinus or wall of a suspected abscess usually confirms the diagnosis. [13]

Positivity for acid-fast bacilli on Ziehl Neelsen stain has been proposed to be low; not essential to confirm the diagnosis, as seen in several reports in the literature, with fine-needle aspiration cytology (FNAC) remaining as a useful diagnostic tool. [13]

No clear guidelines exist on invitation and duration of antituberculous therapy (ATT) along with chemotherapy in such cases. One author recommends mastectomy for operable cases followed by 18 months of antituberculous therapy, with chemotherapy to be initiated after four weeks of ATT to avoid immunosuppression. [8]

4. Conclusion

The co-existence of tuberculous mastitis with ductal carcinoma breast and tuberculous lymphadenitis is a rare occurrence, even in endemic regions of the world. Although rare, both are disease states with significant medical and therapeutic implications; accurate diagnosis by histopathology is important to prevent upstaging of the disease, and chemotherapeutic regimens in these cases are a challenge.

References

[1]. Tulasi N, Raju P, Damodharan V, Radhika TS. A spectrum of co-existent tuberculosis and carcinoma of the breast and axillary lymph node: report of five cases. *The Breast*. 2006; 15:437-39.

[2]. Warthin AS. The co-existence of tuberculosis and carcinoma of the mammary gland. *Am J Med Sci*. 1899; 118:25.

[3]. Chottanapau S, Wongtawatchai P. Tuberculous axillary lymphadenitis co-existing in patient with

invasive carcinoma of breast- a case report. *Thai Journal of Surgery* 2004; 25:121-24.

[4]. Pandey M, Abraham EK, Chandramohan K, Rajan B. Tuberculosis and metastatic carcinoma co-existence in the axillary lymph node: a case report. *World J Surg.* 2003; 1:3.

[5]. Desai S, Jagtap S, Janugade H. Coexisting tuberculosis and mucinous adenocarcinoma caecum. *Med Jr Armed Force India.* 2005; 61:197-99.

[6]. Ballini A, Zaritzky A. Lupol: breast tuberculosis and carcinoma. *Isr Med Sci.* 1989; 25:339-40.

[7]. Khurram M, Tariq M, Shahid P. Breast cancer with associated granulomatous axillary lymphadenitis: a diagnostic and clinical dilemma in region with high prevalence of tuberculosis. *Pathology-Research and Practice.* 2007; 203:699-704.

[8]. Alzaraa A, Dalal N. Coexistence of carcinoma and tuberculosis in one breast. *World J Surg Oncol*. 2008; 6:29.

[9]. Robinson A, Home C, Weaver A. Coexistence of axillary tuberculous lymphadenitis with lymph node metastasis from a breast carcinoma. *Clin Oncol* 2001; 13: 144-7

[10]. Kaplan MH, Armstrong D, Rosen P. Tuberculosis complicating neoplastic disease. A review of 201 cases. *Cancer* 1974; 33: 850-858.

[11]. Baslaim MM, Al-Ghamdi MA, Al-Numani TS, Ashour AS, Al-Amoudi SA. Tuberculosis in 7 Breast Cancer Cases: Diagnostic and Therapeutic Challenges. *J Mycobac Dis* 2013; 3: 135

[12]. Fujii T, Kimura M, Yanagita Y, Koida T, Kuwano H. Tuberculosis of axillary lymph nodes with primary breast cancer. *Breast Cancer* 2003; 10: 175-178.

[13]. Farrokh D, Marashi M, Fallah Rastegar Y, Boloursaz Mashhadi S. The Coexistence of Carcinoma and Tuberculosis in One Breast: A Case Report and Literature Review, *Int J Cancer Man-ag*. 2017; 10(8): e6185.