

## Case Report

# Synchronous breast cancer and ipsilateral primary tuberculous lymphadenitis in axillary node

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## ABSTRACT

Tuberculous lymphadenitis is the commonest form of extrapulmonary tuberculosis with special affinity for cervical, mediastinal, and axillary lymph-nodes. Whilst both carcinoma of the breast and tuberculosis are common in countries with limited resources, the synchronous presence of breast cancer and ipsilateral tuberculous lymphadenitis, can lead to the overstaging of nodes leading to loss of opportunity for breast conservation. We present a case report in which a young woman presented with breast lump along with axillary nodes. However, after surgical resection, it was found that axillary nodal involvement was solely by tuberculosis.

**Keywords:** Tuberculous lymphadenitis, Carcinoma breast, Overstaging, Axillary node

## INTRODUCTION

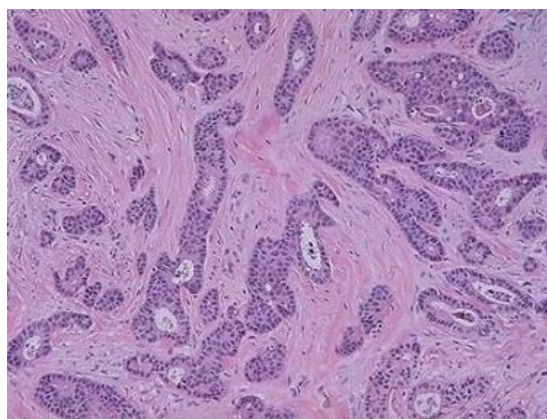
Breast Conserving Surgery (BCS) is a valid option for women presenting with early disease and willing to undergo radiotherapy. This approach has significantly reduced the psychological morbidity associated with the loss of breast especially in young woman. However, BCS is not advocated in cases with gross axillary nodal metastasis. In such cases, the only surgical option is modified radical mastectomy. Tuberculous lymphadenitis is the commonest form of extrapulmonary tuberculosis with special affinity for cervical, mediastinal, and axillary lymph-nodes.<sup>2</sup> Primary or isolated axillary lymph node involvement in adults without clinical evidence of any other organ or systemic involvement is extremely rare. The coexistence of TB and cancer has been described in many literatures.<sup>1-5</sup> Malnutrition, deterioration of immunity resulting from local or systemic effects of cancer, and the administration of chemotherapy or radiotherapy are all likely to have a role in TB infection

or re-activation.<sup>4,5</sup> Such cases are possible in countries with high incidence of tuberculosis. We present a case report in which a young woman presented with breast lump along with axillary nodes. However, after surgical resection, it was found that axillary nodal involvement was solely by tuberculosis. In this case, the axillary nodal tuberculosis masqueraded as metastatic breast cancer leading to loss of opportunity of breast conservation surgery.

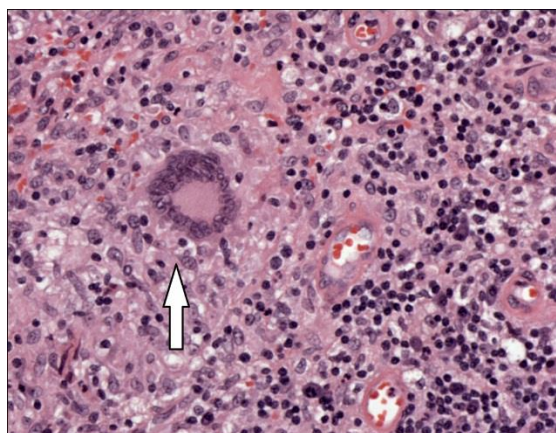
## CASE REPORT

A 38-year-old Asian Indian woman presented to our hospital with a two months history of right breast pain lump. The patient was the mother of two children whom she had breast fed for about two years each. The patient had menarche at the age of about 14 years with normal menstrual history with no use of oral contraceptives. The family history was also not significant. No history of contact with tuberculosis was elicited. On examination, a

4x3 cm lump was palpable in the right upper outer quadrant which was firm in consistency, smooth surfaced, mobile, ill-defined margins with normal overlying skin. Multiple, firm, matted, non-tender lymph nodes were palpable in the right axilla. Contralateral breast and axilla were normal which was further confirmed by normal mammogram. A core biopsy was then performed from the breast lump that was suggestive of infiltrating ductal carcinoma (IDC) of breast. Chest X-ray and abdominal ultrasound were normal. She was clinically staged as T2N2M0. She underwent modified radical mastectomy (MRM) with axillary nodal dissection. The histopathological examination of the MRM specimen revealed a tumour of size 4.5x3x2.5 cm showing features of IDC (Figure 1). From the 26 axillary lymph nodes dissected, eight showed features of tuberculosis with caseating epithelioid-cell granuloma with Langhans' giant cells (Figure 2), rest showing reactive hyperplasia and none showed any evidence of metastasis. The pathological staging finally reported was T2N0. Ziehl-Nelsen Stain for Acid-Fast Bacilli (AFB) was positive. The tumor was negative for estrogen and progesterone receptors.



**Figure 1: Photomicrograph of breast lump showing features of Invasive ductal carcinoma (Not otherwise specified, H & E stain).**



**Figure 2: Photomicrograph of axillary lymph nodes showing epithelioid-cell granuloma with Langhans' giant cells (H & E stain).**

As previously there was no suspicion of tuberculosis, Mantoux test, erythrocyte sedimentation rate ESR or Polymerase Chain Reaction (PCR) were not performed in the preoperative period. With consultation of chest physician, the patient was prescribed antitubercular therapy (rifampicin and isoniazid combination, ethambutol, pyrazinamide) along with eight cycles of adjuvant chemotherapy consisting of four cycles of cyclophosphamide and doxorubicin followed by four cycles of paclitaxel which was further followed by adjuvant radiotherapy to chest wall. The patient is free from disease after one year of follow-up.

## DISCUSSION

The first ever case of association of carcinoma and tuberculosis was reported by Bayle in 1810.<sup>7</sup> Kaplan et al. reviewed 58245 patients with cancer and identified 201 cases of coexisting tuberculosis.<sup>8</sup> Among 14,742 cases of breast diseases reviewed, only 28 had coexistence of tuberculosis in breast, a prevalence of 19/10,000. No case of axillary nodal coexistence was identified in their series.<sup>8</sup> Coexistence of tuberculosis and breast cancer in same patient was first described in 1899 by Warthin<sup>4</sup> and later by other authors.<sup>8,11</sup>

The commonest site of tuberculous lymph node involvement is the cervical nodes. Other frequent sites include supraclavicular, inguinal and mediastinal nodes; axillary lymph node TB is not common.<sup>9,12</sup> Tubercle bacillus can exist in a state of microbial persistence within the macrophage of the granulomas for the lifetime of the individual and leave the host with persistent immunity in the form of cell-mediated tuberculin sensitivity. Factors that disturb host immunity can allow the tubercle to cause endogenous reinfection.<sup>13</sup>

Certain types of tumors are associated with granulomatous responses in primary tumor parenchyma or in lymph nodes draining the region.<sup>14</sup> Reported incidence of granulomatous response is 13.8% of patients with Hodgkin's disease, 7.3% of non-Hodgkin's lymphomas, and 4.4% of carcinomas.<sup>15-17</sup> Epithelioid cell and sarcoid-like granulomas have been observed in regional lymph nodes and tumor stroma in a few cases of breast cancer and the incidence is 0.7% for regional lymph nodes and 0.3% for tissue stroma.<sup>18,19</sup>

In the case under discussion, if the clinical staging would have been T2N0M0 preoperatively, the patient would have been offered the BCS considering her younger age and suitability with other parameters for BCS; however, the clinical over staging led to the loss of opportunity for such an offer. Vento and Lanzafame recommended prophylactic anti TB treatment for patients with hematological malignancies or head and neck cancer and positive tuberculin skin test.<sup>5</sup> However, tuberculin skin test needs to be interpreted with caution in countries with high incidence of TB like India where tuberculin skin test positivity may be secondary to the mandatory TB

vaccination. Center for Diseases Control, United States has recommended the use of Interferon gamma release assays as the preferred method of TB infection testing in such cases.<sup>20</sup> In similar situations, anti TB treatment may be considered if the patient is planned to receive chemotherapy, if there is contact with a case of open TB or if a chest X-ray showed suspicious TB changes. Thus, we prescribed treatment for TB in our case as the patient had to receive anti neoplastic treatment in the form of chemotherapy and radiotherapy which could have led to flare up of TB. Treatment compliance, which is a major problem in developing countries, may be a problem when two major diseases are being treated together.

## CONCLUSIONS

Whilst both carcinoma of the breast and tuberculosis are common in countries with limited resources, the synchronous presence of breast cancer and ipsilateral tuberculous lymphadenitis, can lead to the overstaging of nodes leading to loss of opportunity for breast conservation.

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