

Endobronchial Metastases from Breast Carcinoma: A Rare Entity

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Abstract: Endobronchial metastases from extrathoracic malignancy are rare with an incidence of 2-5%. [1] The most common sites of primary malignancy are renal, breast and colorectal carcinoma and other sites being ovary, adrenal gland, thyroid gland, testes and malignant melanoma [1-3]. We present here a case of bronchial metastases from breast cancer in a female aged 65 yrs who was undergoing treatment for breast cancer.

Keywords: Endobronchial metastases, Breast cancer.

I. Introduction

The incidence of metastases to lung parenchyma from non-pulmonary malignancy is estimated to be about 20 – 50%. [1 - 4] However, endobronchial metastases from primary breast cancer are a rare finding. Unfortunately, most of the patients with such metastases have minimal or no clinical findings as opposed to parenchymal lung metastases. [3,4] The diagnosis is made by the presence of bronchoscopically visible tumour majorly confined to the bronchus and histological findings identical to primary tumours at another site [4-6]. The invasion of the endobronchial wall has been thought to be from parenchymal or mediastinal lymph node metastasis, and/or from both. [4-6] In general, radiographic examination of the chest or computed tomography (CT) reveals the abnormal findings, such as atelectasis, hilar or mediastinal lymphadenopathy, intraluminal tumour or pulmonary nodules [4-7]. We report here a case of a 65-year-old female breast cancer patient who developed bronchial metastases during the course of treatment.

II. Case Report

A 65-year-old postmenopausal female presented to us in September 2013 with a lump in the upper outer and lower quadrants of the right breast since last three months. An HRUSG of the breast showed a solid hypo-echoic mass 10cm X 6cm in the upper outer and lower quadrant of right breast along with multiple lymph nodes in the right axilla. The skin, chest wall or supraclavicular nodes were not involved. A trucut biopsy revealed the mass to be invasive ductal carcinoma of breast – Modified Scarff Bloom Richardson Grade III with receptor status being ER(+ve), PR (+ve) and HER 2 neu (-ve). Metastatic workup revealed no secondaries. She was clinically staged as cT3N2aM0, and after consultation with surgeons who deemed her inoperable, selected for Neoadjuvant Chemotherapy for tumour downstaging. She had no major comorbidities and her cardiac function was satisfactory.

She received three cycles of Neo-adjuvant chemotherapy with Inj Paclitaxel 175 mg/m² and Inj Doxorubicin 60 mg/m² repeated every 3 weeks with Filgrastim support. After completion of three cycles, a clinical and HRUSG assessment showed a reduction in size of the mass to 5cm X 3cm with a single right axillary node and staged ycT3N1M0. She subsequently underwent Modified Radical Mastectomy in January 2014. The histopathology report [Fig. 1] revealed a mass of 6cm X 4cm X 3cm with Invasive ductal carcinoma, Grade III along with metastases in 4/12 right axillary lymph nodes, Stage: ypT3N2cM0, Lympho vascular and perineural invasion were absent, all the cut margins, nipple areolar complex, skin were free of tumour.

She was planned to complete adjuvant chemotherapy with the same regime for a further 3 cycles. However, a week or so after her first post-operative review, she complained of sudden onset of bouts of cough and respiratory distress. A Chest x-ray [Fig. 2] revealed multiple nodular opacities in both hemithorax. CECT Scan of thorax [Fig. 3] showed central lung mass at left hilum with mediastinal lymphadenopathy along with opacities in bilateral lung parenchyma.

Fibre optic bronchoscopy performed on her revealed a mass in left upper lobe bronchus blocking the bronchial lumen. Bronchoscopic biopsy of the bronchial mass was of poorly differentiated carcinoma (Fig 4a and 4b) with immunohistochemistry (IHC) showing ER/PR (+ve) further confirming its origin from breast carcinoma. In addition, immunoreactivity for thyroid transcription factor-1 (TTF-1), a useful marker for distinguishing primary and metastatic lung tumour [5], was negative. Thus, diagnosis of metastatic breast cancer

was confirmed by the histological and immunohistochemical examination. As she did not have significant bronchial narrowing causing major obstruction or collapse of the lung, radiotherapy or stenting was deferred. She received 4 cycles of salvage chemotherapy with Inj Docetaxel 75mg/m² and Inj Doxorubicin 50mg/m² at 3weekly intervals. No significant adverse effects, including cardiotoxicity, neurotoxicity or hematotoxicities had been observed. After 4 cycles of chemotherapy, there was an improvement of obstructive air limitation. CECT Scan after salvage chemotherapy showed consolidation at left upper lobe but locoregionally and symptomatically she was doing well. She however refused further chemotherapy and was thus put on a drug holiday. At last follow up, she still had stable disease (as per RECIST version 1.1 [8]), remains without major symptoms and is able to do her daily activities.

III. Discussion

Breast carcinoma is likely to metastasize relatively early to the regional lymph nodes and thereafter primarily to the lungs, liver, bone and brain [9]. Although pulmonary metastasis with invasion of a bronchus is reported, primary metastasis to a bronchus is distinctly rare [1-4]. As endobronchial metastasis is rare, it is not usually a prime consideration when segmental or lobar abnormalities appear on chest radiographs. The diagnosis of metastatic disease may also be delayed by the lack of symptoms or evidence of metastatic disease elsewhere. The endobronchial appearance is generally one of mucosal oedema and thickening. The tumour usually involves the submucosal lymphatics rather than the surface of the mucosa. This probably explains the low incidence of positive bronchial cytology and emphasises the need for a deep mucosal biopsy [3-5]. Bronchoscopic and histological findings may be insufficient to distinguish primary from metastatic tumour on bronchus in some clinical situations [4-6]. In the present case, a history of the underlying disease and detailed immunohistochemical examination such as ER/PR and TTF-1 was useful to arrive at a further appropriate diagnosis.

DeBeer et al [10] reported probably the first case of carcinoma of the breast cancer metastasising to the mucosa of a major bronchus. Tenholder et al [11] and Fitzgerald et al [12] reported seven and six patients respectively with metastatic breast cancer proven by bronchial biopsy.

Treatment of endobronchial metastases must be planned according to the histology of the primary tumour, location of the lesion in the bronchial tree, number of lesions, evidence of other metastatic sites and medical status of the patient. Patients are usually treated with chemotherapy and radiotherapy.

Intraluminal radiotherapy is one of the treatment choices for the palliation of symptoms due to endobronchial metastases [13-15] though its effect on survival has not been studied. Nd: YAG laser for debulking in patients with endobronchial obstruction alone or combined with external and / or endobronchial radiotherapy has shown improved survival in selected patients as a treatment option [16,17]. Unfortunately, these facilities were not available at our institute and hence not used in our patient but she remains relatively symptom free till now.

IV. Conclusion

Endobronchial metastases from breast cancer although uncommon, should be considered when a known case of breast cancer presents with symptoms and radiological findings suggesting endobronchial obstruction. The problem merits attention for it is often mistaken as a second primary lung tumour owing to the rarity of the presentation and should be confirmed by IHC when in doubt.

V. FIGURES

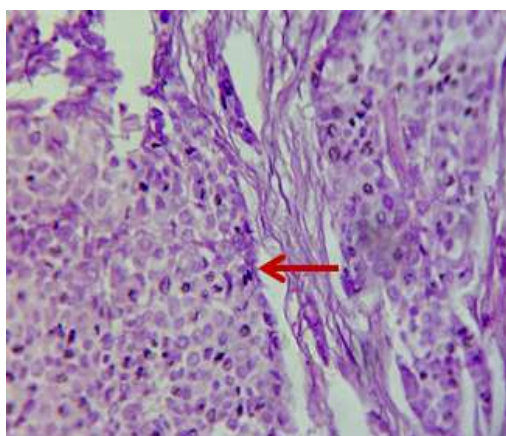


Fig 1: Photomicrograph of the Histopathology from Modified Radical Mastectomy specimen showing infiltrating ductal carcinoma in solid pattern. (H & E stain, Mag × 400)

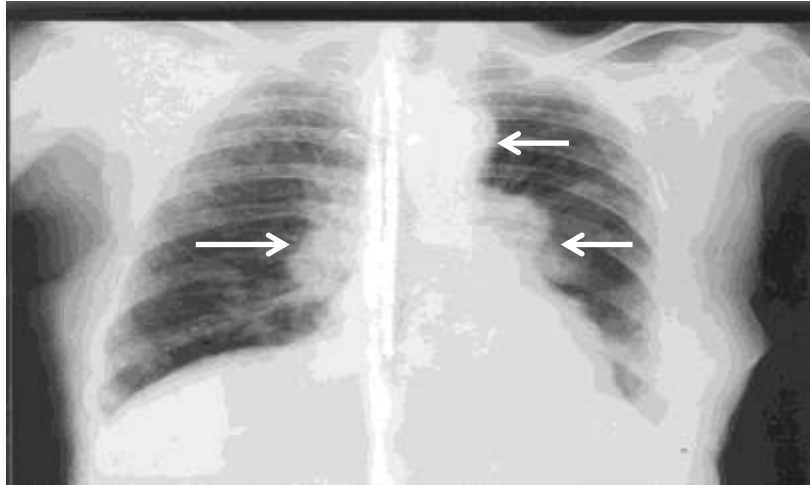


Fig 2: Chest X-ray showing multiple nodular opacities in both lung fields and bilateral dense hilar shadow (white arrows).

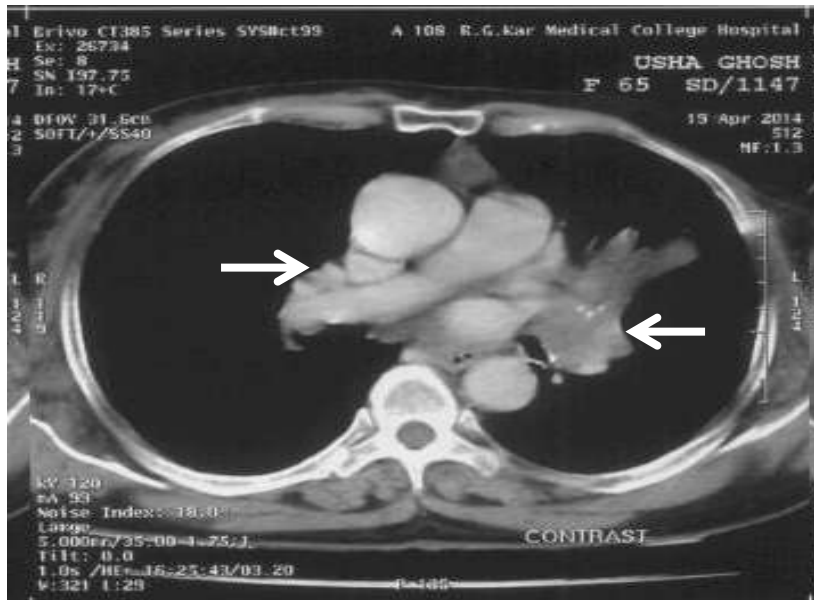


Fig 3: CECT thorax showing central lung mass at left hilum with mediastinal Lymph nodes (White arrows)

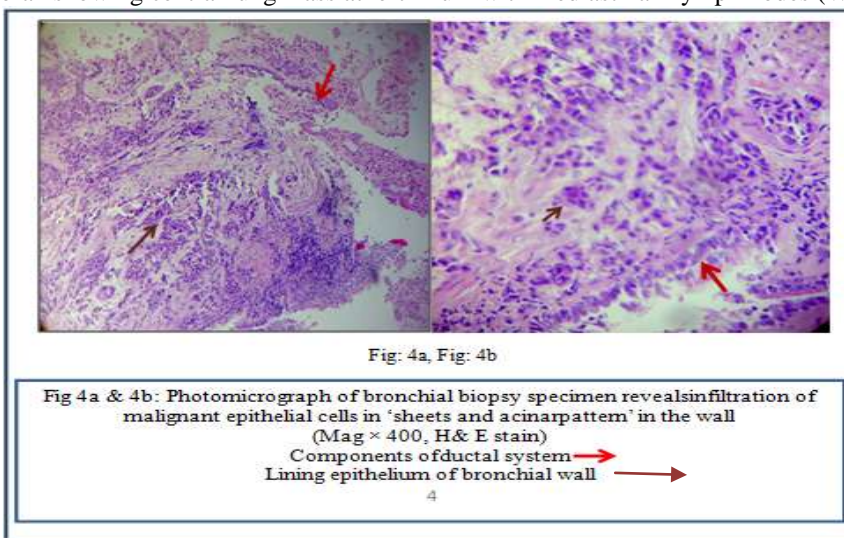


Fig: 4a, Fig: 4b

Fig 4a & 4b: Photomicrograph of bronchial biopsy specimen reveals infiltration of malignant epithelial cells in 'sheets and acinar pattern' in the wall (Mag x 400, H& E stain)
Components of ductal system →
Lining epithelium of bronchial wall →

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