

Unusual and Isolated Pulmonary Metastasis of Malignant Phyllodes Tumour of Breast

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Abstract

Though metastasis to the lung is common, isolated extensive pulmonary metastasis with complete replacement of the entire lung is unusual. We present the fatal case of a 60-year-old female patient in whom the entire left lung parenchyma was replaced by a greyish-white solid mass at autopsy. There was no evidence of tumour elsewhere in the body. She had undergone modified radical mastectomy for phyllodes tumour of the right breast 10 years back. The unusual feature of our case was the presentation of the metastasis occurring 10 years after modified radical mastectomy and completely replacing the whole of a contralateral lung mimicking a primary lung tumour, with no other organ involvement. [Indian J Chest Dis Allied Sci 2017;59:187-189]

Key words: Phyllodes tumour, Lung, Metastasis, Pulmonary tumour, Breast tumour.

Introduction

This case report describes the rare occurrence of metastasis of phyllodes tumour of the right breast to the whole of the contralateral lung replacing the entire parenchyma, giving the appearance of a primary tumour of the lung, with no other organ involvement. Phyllodes tumour of the breast are rare. These account for less than 1% of all breast tumours.¹ Malignant phyllodes tumour, comprise of less than 25% of phyllodes tumour and have a propensity for rapid growth and metastatic spread usually within three years after resection of primary tumour and has a high fatality with a mean survival of four months after diagnosis.¹ Metastasis usually occurs by haematogenous spread, the commonest sites for metastasis being the lung (70%-80%) followed by pleura (60%-70%), and bone (20%-30%).²

Case Report

A 60-year-old female presented with breathlessness on exertion and cough since 15 days. Clinical examination revealed absent breath sounds in the left hemithorax. Laboratory investigations were within normal limits. She had been operated for a breast tumour 10 years back. Computerised tomography (CT) of thorax was suggestive of lung mass/empyema with a mediastinal shift. Her condition deteriorated in the hospital and she expired within 10 days of hospital stay.

At autopsy, the left lung weighed 700g, with the entire lung showing a greyish-white mass with areas of haemorrhage and necrosis (Figure 1). No lymph

nodes were identified. Scrapes prepared from the mass showed dyscohesive plump to spindled tumour cells with a background of nuclear debris and necrosis suggesting a low grade malignant spindle cell tumour. Histopathology of the mass showed spindle tumour



Figure 1. The left lung shows whitish tumour involving the whole of the lung leaving only a small area of normal lung at the apex. The right lung was normal.

cells in sheets and short fascicles with myxoid areas (Figure 2). Areas of necrosis were seen. No epithelial elements were identified. The differential diagnosis was of a primary lung sarcoma *versus* metastasis of a spindle cell tumour. Immunohistochemistry showed diffuse positivity for vimentin and smooth muscle actin (SMA), negativity for CD-34, S-100 and epithelial membrane antigen (EMA) confirming a diagnosis of metastatic phyllodes tumour.

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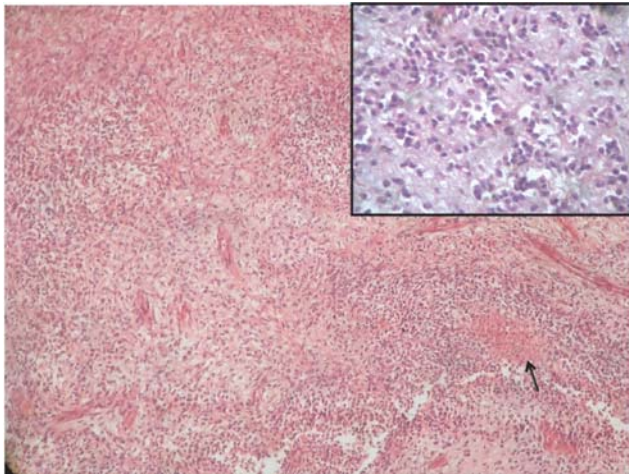


Figure 2. Photomicrograph showing spindle shaped tumour cells in sheets and short fascicles with focal area of necrosis (black arrow). No epithelial elements seen (Haematoxylin and eosin $\times 100$). *Inset.* High power view showing tumour cells in a myxoid background (Haematoxylin and eosin $\times 400$).

We reviewed the slides of the mastectomy specimen done 10 years back and confirmed a diagnosis of malignant phyllodes tumour having both epithelial and stromal elements; there being no epithelial elements in the metastatic tumour.

The right lung showed areas of firmness and congestion and foci of bronchopneumonia and acute respiratory distress syndrome on microscopy. There was no evidence of recurrence at primary site (right chest wall or axilla). All other organs were unremarkable and showed no signs of metastasis.

Discussion

Lung is the most common metastatic site from extrapulmonary organ tumours, as it is the primary capillary filter of venous drainage from many organs.³ Metastasis to the lung can present as solitary or multiple nodules.⁴ However, extensive metastatic involvement of the lung, completely replacing the whole of the lung mimicking a primary tumour as seen in our case has not been reported in the literature so far to the best of our knowledge.

Metastasis from phyllodes tumour has been reported to occur in 10% of borderline and high grade malignant phyllodes tumour, usually within the first three years following mastectomy and is fatal with a mean survival of four months from the time of diagnosis.^{1,5} The longest interval between primary and metastatic phyllodes tumour has been 16 years to our knowledge.⁶ In our case, metastasis occurred 10 years after resection of primary phyllodes tumour which is also rare.

Malignant phyllodes tumour metastasises to the lung in 70%-80% cases, wherein the presence of both epithelial and stromal tissues confirms the diagnosis.

The stromal tissue is neoplastic in origin and has the potential to metastasise.^{2,5} Hawkins *et al*⁷ showed that four features (high mitotic count, stromal overgrowth, severe nuclear pleomorphism, and infiltrating margins) were predictors for the development of metastases. Of these, stromal overgrowth is the most accurate predictor. Thus, patients having increased stromal cellularity should be followed closely as they have a greater potential to metastasise. Phyllodes tumour metastasis has been reported in the heart showing only spindled tumour cells with no epithelial elements.⁸ In our case too metastasis in the lung showed only spindled tumour cells with no identifiable epithelial cells.

When a lung tumour shows features of a low-grade myxoid spindle cell sarcoma, the following differentials should be considered when the primary site is not known: (i) low-grade fibromyxoid sarcoma; (ii) myxofibrosarcoma; and (iii) phyllodes tumour/periductal stromal sarcoma. Pulmonary metastasis from sarcomas occurs from primary sites like extremities/trunk (65% cases) as compared to metastasis from breast (2% cases).⁹ Immunohistochemistry and molecular markers can help in reaching a final diagnosis.

In our case, since the patient had a prior history of phyllodes tumour, a diagnosis of metastatic phyllodes tumour seemed most likely combined with the histomorphological pattern. Early metastatic disease is curable by resection which can significantly improve the prognosis. Our case had involvement of the whole contralateral lung associated with an unfavourable prognosis, not amenable to treatment even with an ante-mortem diagnosis.

The case described is unique in that the tumour involved the whole of the contralateral lung, mimicking a primary lung sarcoma. Also the metastasis occurring after 10 years is also rare. To conclude, metastasis should be kept in the differential diagnosis even in cases involving the entire lung.

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