

## Case Report

# A case of metaplastic breast cancer in a man

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Received 5 December 2012; revised 9 December 2012; accepted 25 December 2012

Metaplastic breast cancers (MPBCs) represent <1% of breast cancers. Reports of MPBC in men are limited to case reports. We report a case of MPBC with pulmonary metastasis occurring in a 59-year-old man who initially presented with a presumed breast abscess. Histology from the breast lesion revealed a poorly differentiated carcinoma and a computed tomography scan showed an ulcerative right-sided breast mass and an area of scarring in the apex of the left lung. The breast lesion and the lung lesion were resected separately and the histology from the lung showed a poorly differentiated carcinoma with sarcomatous features in keeping with metastasis from a primary breast cancer. Our patient then proceeded to chemotherapy with FEC 100 regimen (5-fluorouracil, epirubicin and cyclophosphamide). MPBC is an aggressive breast cancer that has a propensity to metastasis to the lungs. Prognosis is poor.

## INTRODUCTION

Metaplastic breast cancers (MPBCs) represent <1% of breast cancers. Reports of MPBC in men are limited to case reports. We report a case of MPBC with pulmonary metastasis occurring in a 59-year-old man.

## CASE REPORT

A 59-year-old man was referred to the breast team with a presumed right-sided breast abscess which had not responded to antibiotics. His medical history included epilepsy, hypertension and emphysema for which he takes tegretol and amlodipine.

His mother had breast cancer at 50. He works as a caretaker and lives with his partner. He is an ex-smoker with a 60 pack-year history and minimal alcohol intake.

On examination he had a painful, fluctuant area in the upper outer quadrant of the right chest wall with skin ulceration. It was presumed that this was a simple abscess; however, an inflammatory cancer needed to be excluded.

Under general anaesthesia, an incision was made over the area of fluctuance. Clear serous and sanguineous fluid was drained from a 3 × 4 cm cavity. The base of the cavity was nodular in areas and biopsies were taken. The histology, from the biopsy, revealed a poorly/differentiated carcinoma. The immunoprofile was of a carcinoma and the TTF1

positivity suggested an origin from lung or thyroid. A computed tomography (CT) scan of the chest, abdomen and pelvis showed a 5 × 4 cm ulcerative right-sided breast mass, with a number of small rounded right axillary lymph nodes. There was moderate emphysema of the lungs and an 18 mm area of scarring in the apex of the left lung. No bony abnormalities were identified.

It was decided that local control of the ulcerating breast mass was needed first and a right mastectomy with level 1 axillary clearance and latissimus dorsi flap reconstruction was performed. The tumour was 55 mm in diameter and showed staining with alpha smooth muscle actin and cytokeratins confirming a metaplastic immunophenotype. It was classified as a poorly differentiated grade 3 invasive metaplastic carcinoma. It was oestrogen- and progesterone-receptor negative. There was no evidence of lymph or vascular invasion; however, one of the five lymph nodes removed contained macro metastasis with focal extra capsular tumour excision. The deep resection margin was 0.5 mm.

A positron emission tomography scan was performed to investigate the lung lesion previously identified on CT. This showed a 2.4 cm hyper-metabolic lesion in the apex of the left lung which abutted the pleural surface but did not invade it. There were no hyper-metabolic hilar or mediastinal nodes. We initially felt that this was most likely to be a lung primary with breast metastasis. As a result, our patient underwent a

three-port video-assisted thoracic surgery and wedge resection. The lung was grossly emphysematous. A palpable nodule in the apical segment of the left upper lobe was resected with frozen sections sent. Lymph nodes from station 5 were sampled. The histology from the lung demonstrated a poorly differentiated carcinoma with sarcomatous features in keeping with metastasis from a primary breast cancer. The morphology and immune profile of the lung tumour were similar to that of the breast tumour. Vascular and visceral pleural invasion were present, but there was a clear 2 cm margin. The station 5 lymph node did not reveal any malignancy.

Following recovery from surgery, our patient was started on the FEC 100 regimen (5-fluorouracil, epirubicin and cyclophosphamide). A bone scan prior to chemotherapy showed no evidence of bony metastasis and a CT scan showed no focal collection or residual mass in the right breast and no significant intrathoracic adenopathy.

Our patient completed a course of six cycles of chemotherapy. A CT scan following completion showed no macro-metastasis. He was referred for radiotherapy of the chest wall and is about to start a course with 40 Grays in 15 fractions to the right chest wall and supraclavicular fossa.

## DISCUSSION

MPBC is an aggressive breast cancer which presents with a larger tumour size and higher grade than invasive ductal carcinomas [1]. It accounts for <1% of breast cancers. Reports of MPBC in men are limited to case reports [1–3].

MPBCs are a histologically diverse group of tumours characterized by two or more cell types [4]. Ductal carcinomatous epithelium transforms to squamous or spindle cell components or mesenchymal elements [2, 5]. Typically they are oestrogen- and progesterone-receptor negative as in our case [2]. MPBCs have lower rates of nodal involvement than invasive ductal carcinomas; however, the risk of metastatic disease is higher with MPBC [6]. As a result, the prognosis is worse with 5-year survival ranging from 49 to 68% [1].

MPBC has a tendency to metastasize to the lungs; Rayson *et al.* [6] found that 79% of patients with metastasis had pulmonary metastasis. Other studies have also reported high rates of pulmonary metastasis suggesting similar clinical behaviour to sarcomas [7]. Once distant metastases develop in MPBC median survival is about 8 months [6].

Surgical treatment is the first-line therapy for MPBC; a study by Pezzi *et al.* [1] looking at the management of 892 women with MPBC found that 95% of patients had surgical resection. Fifty-six per cent of these women had a mastectomy due to the large size of tumour [1].

The benefit of chemotherapy in MPBC is unclear [6]. A study looking at the use of chemotherapy in 7 patients with distant metastasis in 14 separate trials of chemotherapy found only one partial response observed to doxorubicin [6]. There are a limited number of studies looking at the use of chemotherapy in MPBCs; however, it appears that MPBC responses less well to chemotherapy than invasive ductal carcinomas [6]. Very few patients with MPBC receive hormonal therapy due to the low proportion of oestrogen- or progesterone-receptor positive cancers [1].

Our case describes a vanishingly rare male cancer that raised a diagnostic challenge about whether our patient had a primary breast tumour with a lung metastasis, a primary lung tumour with a breast metastasis or two synchronous tumours. Additionally, this case highlights how important it was to consider the diagnosis of malignancy when treating an atypical abscess.

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