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# Myoepithelial Carcinoma of Breast-A Rare Case Report

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**ABSTRACT** *Breast lesions originating from myoepithelial cells are divided into 3 major categories: myoepitheliosis, adenomyoepithelioma, and myoepithelial carcinoma.The myoepithelial carcinoma is extremely rare, leading to difficulties in the diagnosis. We present the clinical and the pathological characteristics of a case of a myoepithelial carcinoma of breast and role of immunohistochemical markers for its diagnosis.*

**INTRODUCTION:**
The ductal system of breast is lined by epithelial cells surrounded by contractile myoepithelial cells .These myoepithelial cells helps to propel milk from lobules towards the nipple. Breast lesions originating from myoepithelial cells are divided into 3 major categories: myoepitheliosis, adenomyoepithelioma, and myoepithelial carcinoma[1].The myoepithelial carcinoma is extremely rare, leading to difficulties in the diagnosis. We present the clinical and the pathological characteristics of a case of a myoepithelial carcinoma.

**CASE REPORT:**
A 42-year-old lady presented with a painless lump in the right breast for three months, which was progressively increasing in size. She had attained menarche at 14 years of age and married for last 20 years. She has two children and breast fed for at least one year. There was no history of breast or any related cancer in her family. On examination a well defined swelling, which measured 6×4 cm was present behind the nipple areola complex of her right breast. The swelling was non-tender, hard in consistency with an irregular surface and well defined margins. The lump was fixed to the overlying skin and nipple retraction was present. There was no involvement of the pectorals. The opposite breast was normal. No palpable lymph nodes were present in both axillae. The rest of the examinations were normal. The clinical diagnosis was of carcinoma of the left breast in the central quadrant, which was a T3N0M0 tumor according to the AJCC (American Joint committee on Cancer), 7th edition.

The fine needle aspiration cytology smears showed presence of malignant cells as single cell and clusters. The cells were monomorphic, with variable amounts of cytoplasm. Sizes of nuclei were 3-4 times that of RBCs with irregular nuclear margin, with indistinct nucleoli. Chromatin pattern were granular. The features were suggestive of lobular carcinoma of breast. Routine blood tests were within normal limit. The workup for a distant metastasis was negative, with normal liver function tests, X-rays of the chest and spine, and ultrasound of the abdomen.

The patient underwent mastectomy with level 1 and 2 axillary lymph node clearance (Auchincloss`s modified radical mastectomy) under general anesthesia. The gross specimen measured 20×12×6 cm. Nipple was retracted. The tumor measured 4.5×3×2.5 cm in maximum dimension. The cut surface was grey white and firm. The margins were relatively well preserved. Eight lymph nodes were isolated, the largest one measuring 1.5×0.5 cm and the smallest one 0.3 cm in diameter. Grossly one lymph node appeared to be involved.

Sections examined showed a tumor with lobular architecture. The tumor lobules were irregular (some of them had ragged borders) shaped and composed of sheets of monomorphic ovo-spindloid cells admixed with aggregates of monomorphic round cells and occasional tubules. Some of the lobules had myxohyaline stroma and exhibited cribriform like architecture. The tumor had pushing type of infiltrative margins. The lobules were separated by hyalinised fibrous stroma. Occasional mitosis was seen. Focal areas of infarctoid necrosis seen. Calcifications were not seen. Resected margins and nipple areola were free of tumor. No lymphovascular emboli seen in section studies. All the lymph nodes were free of tumor. {Figures 1 and 2 here}

On Immunohistochemistry the tumor was positive for CD 10 and S-100 protein; focally positive for AE1/AE3 and HMWCK noted in the tubules within lobules; while the tumor was negative for WT1, P63 protein, CD56, synaptophysin, CEA and SMA. So all the features stated above suggested it to be a myoepithelial carcinoma of breast. The patient had an uneventful postoperative stay. Patient is now on adjuvant chemotherapy.

**DISCUSSION:**
Myoepithelial cells are part of the normal microscopic anatomy of lobules and ducts of the breast. Breast lesions originating from myoepithelial cells are divided into 3 major categories: myoepitheliosis, adenomyoepithelioma, and myoepithelial carcinoma[1]

As myoepithelial cells have mixed epithelial and smooth muscle phenotypes, the distinction between epithelial

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cell layer and MEC layer is not always readily identifiable on routine H and E-stained sections. So, most of the immunological markers are detected against smooth muscle related antigens. Immunohistochemically, most of the antibodies used to detect myoepithelial cells and their related neoplasm are directed against keratins and myofilaments. A fully differentiated myoepithelial cell acquires a contractile phenotype due to the cytoplasmic α- smooth muscle actin (SMA) and the heavy chain myosin. Depending on the degrees of differentiation, they variably show staining for SMA, vimentin, calponin, S-100 (Epithelial membrane antigen), NGFR, CD 10, and EGFR[2]. Antibodies to smooth-muscle actin, muscle-specific actin, calponin, and smooth-muscle myosin heavy chain all stain normal myoepithelial cells and most tumors containing myoepithelial cells. Due to their poor degree of differentiation, myoepithelial carcinomas are best examined with a panel that includes all antibodies to broad-spectrum keratins, all high-molecular-weight keratins, p63, as well as antibodies to myofilaments[2]. In our case, tumors immunoreactive for S100 and CD10; focally reactive for broad-spectrum keratins (CK AE1/AE3) and HMWCK confirmed the diagnosis of myoepithelial carcinoma. Benign adenomyoepithelial lesions variably express hormone receptors in the epithelial component. However, myoepithelial carcinomas typically are completely negative for hormone receptors[3]. Our case was also negative for ER and PR. The myoepithelial cells are mitotically quiescent with a low proliferative index, but they can be transformed[4]. Though they are believed to be low grade malignancies, an aggressive clinical behavior is documented in more than 50% of the cases with predominant haematogenous metastases with a propensity for a local recurrence[5].

**SUMMARY:**

Myoepithelial carcinoma of the breast is rare. It is difficult to diagnose owing to its varied morphological characteristics and non-specific clinical manifestations, so the diagnosis is based on histological and immunohistochemical findings. Due to lack of management guidelines and the possibility of a local recurrence and the metastatic behavior which have been reported, an aggressive local treatment with an adjuvant chemo-radiotherapy should be the standard of care even in the small tumors.

**Fig1- Tumor cells are present in irregular sheets and lobular pattern in a hyaline stroma (H&E stain 10x10X).**

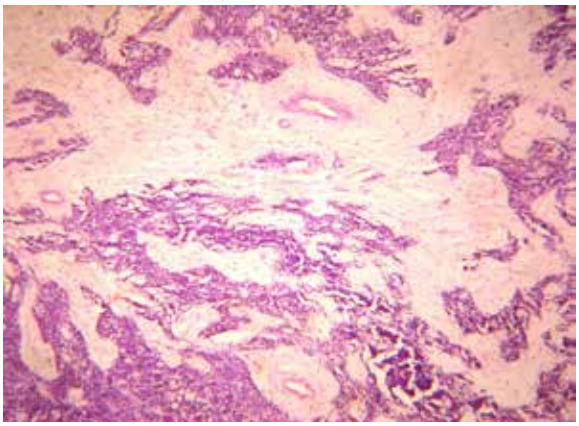
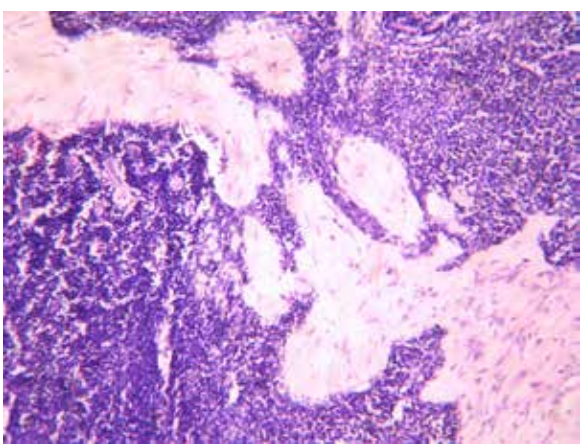


**Fig2- Cells are monomorphic, round to oval with occasional mitosis (H&E stain 40x10X)**



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