

## Case Report

# Malignant myoepithelioma of the breast: a case report and review of literature

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**Abstract:** In this article, we described a malignant myoepithelioma of the breast (MMB) in a 69-year-old woman. Breast cancer derived from myoepithelial cells is very rare, usually benign. The diagnosis of MMB based on histological and immunohistochemical finding. In this case, the author diagnosed the tumor as MMB, because tumor tissues were immunopositive for 34βE12, P63, SMA, S-100, CD10, E-Cad and Ki-67, and immunonegative for CK5/6, desmin, ER, PR and C-erbB-2, because tumor tissue showed invasive growth and local hemorrhage or necrosis, suggesting malignant, and also because there was a transition between the tumor cells and hyperplastic myoepithelium of non-tumorous ducts. The patient's postoperative recovery is smooth and regular following of patient is essential.

**Keywords:** Malignant myoepithelioma, breast, immunohistochemistry

## Introduction

Malignant myoepithelioma of the breast (MMB) is extremely rare, and its biological behavior is unclear [1]. Mostly MMB has a good prognosis, but handful of them shows local recurrence or distant metastasis. The treatments of MMB mainly by wide surgical excision, lymph node dissection, adjuvant radiotherapy and chemotherapy [2, 3]. Here, we reported a rare case of MMB showed invasive growth and local hemorrhage or necrosis, but no metastasis in a 69-year-old woman.

## Case report

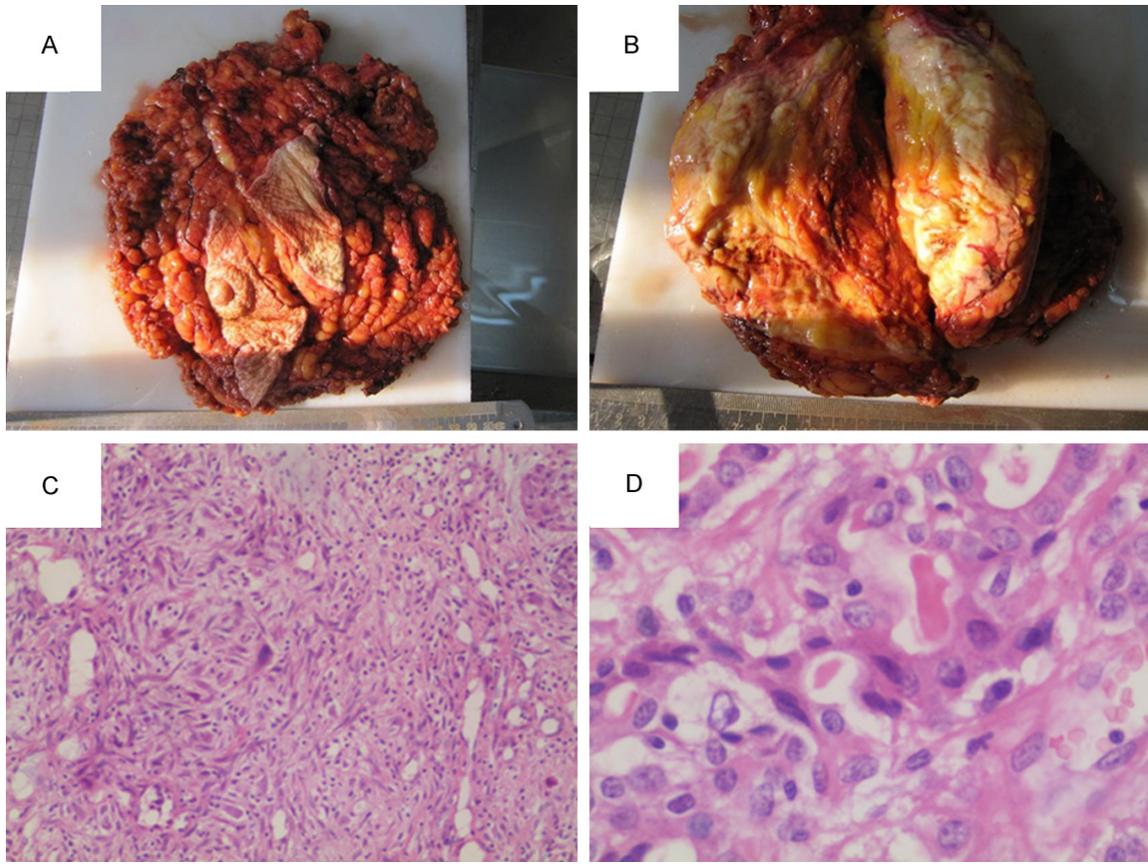
A 69-year-old woman had normal menstrual cycle before postmenopausal at 50-year-old. She was hospitalized with discomfort of right breast at Taiping People's Hospital of Dongguan, China, in June 13, 2013. Specialist examination showed symmetrical breasts, no skin swelling, no ulcers, no exudate, no pus overflow and no orange peel-like skin change. A suspicious "dimple sign" can clearly be seen in the right

side of the areola area, but no crater nipple and no nipple discharge after extruding. An elastic hard mass with clear border, smooth surface, movable and mild tenderness was revealed in outer quadrant of the right breast. No lymphadenopathy was observed in bilateral axillary. Ultrasonography also revealed a large hard mass in right breast. Laboratory tests revealed an obviously rising CA15-3 level (29.33 U/ml), but CEA level (3.0 ng/ml), CA 125 level (27.53 U/ml), CA 19-9 level (20.18 U/ml) and CA 72-4 level (6.8 U/ml) were within normal limits. The patient was diagnosed as having a malignant spindle cells tumor in right breast by biopsy histopathology examination. Patient with epidural anesthesia on the right modified radical mastectomy were carried out.

## Gross findings

A nipple with spindle breast skin measured 23 cm × 17 cm × 3 cm in volume, and the skin measured 14 cm × 7 cm in area. A 6 cm × 4 cm × 3 cm gray, hard quality and no envelope hard mass can clearly be seen at 1.5 cm from the

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**Figure 1.** The MMB tissues were stained with hematoxylin and eosin. A: A nipple with spindle breast skin from patients after surgical operation. B: A 6 cm × 4 cm × 3 cm gray, hard quality and no envelope hard mass can clearly be seen at 1.5 cm from the bottom of the nipple. C: Tumor tissues display diffuse and irregular surrounding the breast duct or arrangement among the tubes, beam or nested shaped (40 ×). D: Hyaline cells and spindle cells were the two main cells in tumor tissues (200 ×).

bottom of the nipple (**Figure 1A, 1B**). 6 axillary lymph nodes in diameter with 0.3~0.8 cm were also separated.

### Histopathological findings

The MMB tissues were stained with hematoxylin and eosin (**Figure 1C, 1D**). Microscopic observation showed tumor tissues display diffuse and irregular surrounding the breast duct or arrangement among the tubes, beam or nested shaped (**Figure 1C**). Hyaline cells, polygonal, abundant cytoplasm, lightly stained or transparent, round nucleus and prominent nucleoli, and spindle cells, fusiform, abundant cytoplasm, eosinophils, packed tightly and unclear boundaries were the two main cells in tumor tissues (**Figure 1D**). Tumor tissue showed invasive growth and local hemorrhage or necrosis. A transition around the lesion lobular acini and ducts of outer periphery can clearly be

seen between hyperplasia myoepithelium and tumor cells. No tumor cell metastases were observed on axillary lymph nodes (0/6).

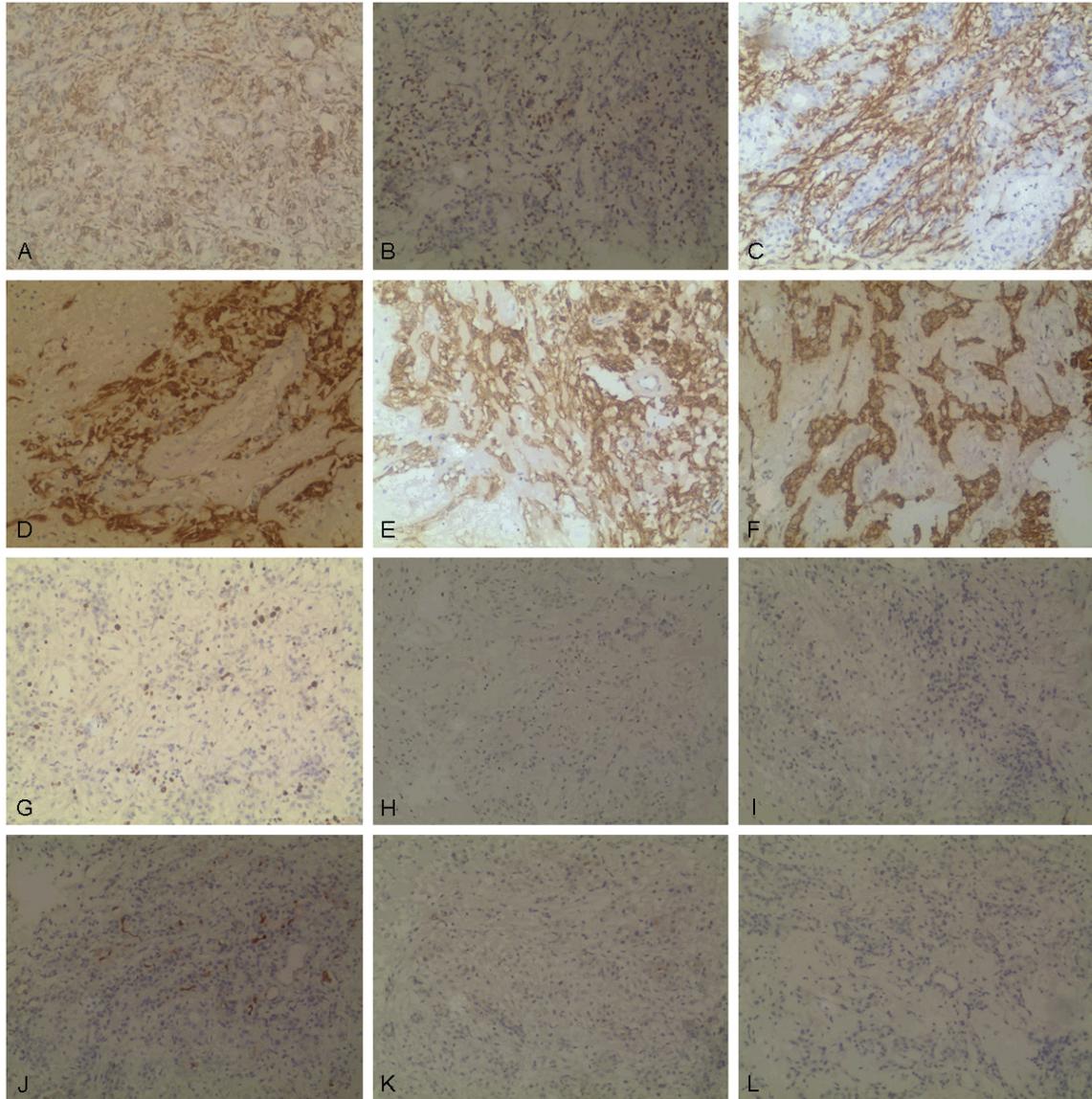
### Immunohistochemical findings

Tumor tissues were immunopositive for 34βE12(+), P63(++), SMA(+++), S-100(+++), CD10(+++), E-Cad(+++) and Ki-67 (10%+) (**Figure 2A-G**), and negative for CK5/6(-), desmin(-), ER(-), PR(-), and C-erbB-2(-) (**Figure 2H-L**).

### Discussion

Breast myoepithelial cells are usually located between the basement membrane and lobular breast ductal epithelium. Breast cancer derived from myoepithelial cells is extremely rare, usually benign, but there are local infiltration characteristics. Myoepithelial cells have a characteristic of both epithelial and smooth muscle

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**Figure 2.** MMB tissues were stained with immunohistochemistry. The tissues were immunopositive for 34 $\beta$ E12 (A), P63 (B), SMA (C), S-100 (D), CD10 (E), E-Cad (F) and Ki-67 (G) (A-G), and negative for CK5/6 (H), desmin (I), ER (J), PR (K), and C-erbB-2 (L) (H-L). (100  $\times$ ).

cells [4]. Malignant myoepithelioma (MM) also known as myoepithelial carcinoma is entirely or mainly composed by myoepithelial cells, belonging to infiltrating tumors. Besides salivary glands, MM can occur in the skin, soft tissue, breast, and lung [2]. Microscopy revealed bundles of spindle cells sometimes packed tightly and unclear boundaries arranged in a storiform pattern. Recently, Ohtake *et al.* reported a MMB with focal rhabdoid features [5]. Non-specific clinical manifestations, so the diagnosis of MMB based on histological findings and immunohistochemical findings. A

mainly histological manifestations is tumor tissue invasive growth and the type of cancer cells varied, can clear cell like, plasmacytoid cell or epithelial cell like [6]. Generally considered, the type of tumor cells unrelated to tumor prognosis. Tumor cells often lack significant atypical, and the mitotic generally not more than 3-4/10HPF. In this case, tumor tissue showed invasive growth and local hemorrhage or necrosis, Suggesting malignant.

It is important to distinguish malignant myoepithelioma of the breast from fibromatosis, ade-

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myoepithelioma of breast, myofibroblastic tumor, spindle cell carcinoma and malignant fibrous histiocytoma. Besides histological findings, immunohistochemical findings were the key point to distinguish them. Given their poor distinguish of them, MMB 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. In this case, the author diagnosed the tumor as MMB, because tumor tissues were immunopositive for 34 $\beta$ E12, P63, SMA, S-100, CD10, E-Cad and Ki-67, and immunonegative for CK5/6, desmin, ER, PR and C-erbB-2, because tumor tissue showed invasive growth and local hemorrhage or necrosis, suggesting malignant, and also because there was a transition between the tumor cells and hyperplasia myoepithelium of non-tumorous ducts.

MMB is very rarely and few reports. Its biological behavior is unclear. However, the mostly MMB has a good prognosis, and handful of shows local recurrence or distant metastasis. In this case, tumor tissue showed invasive growth and local hemorrhage or necrosis, but not metastasis. So, regular following of patient is essential.

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## Disclosure of conflict of interest

None.

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