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## Case Report

# Axillary lymph node metastasis from mucoepidermoid carcinoma with cutaneous presentation <sup>☆</sup>

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## ABSTRACT

Extramammary metastases to the breast and axilla are uncommon, and isolated axillary lymph node metastases are especially rare. Contralateral breast malignancies are the most common primary cancers with axillary lymph node metastases. However, in patients with a clinical history of extramammary malignancy and newly developed axillary lesions, consideration of possible extramammary lymph node metastasis is important for diagnosis and treatment and to avoid unnecessary surgery. We report the case of a 73-year-old woman who presented with a palpable lump in the axilla. The patient had a history of surgery for a mass on her back, which was confirmed as mucoepidermoid carcinoma with cutaneous presentation. Ultrasonography revealed a single enlarged lymph node with cystic changes and loss of the fatty hilum in the right axilla. There were no suspicious malignancies in either breast on mammography or sonography. The patient underwent an excisional biopsy and was diagnosed with axillary lymph node metastasis from mucoepidermoid carcinoma.

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## Introduction

Metastases to the breast and axilla are uncommon and difficult to diagnose owing to various clinical, radiological, and histological findings. The most common primary tumors with breast and axillary metastases are contralateral breast cancers. Other malignancies include hematological malignancy, malignant melanoma, lung, ovarian, or

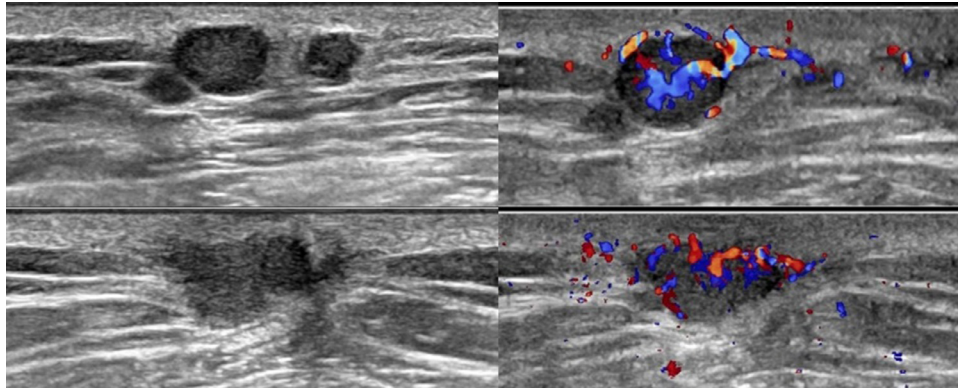
stomach cancer, and rare mucoepidermoid carcinoma (MEC) [1–4]. In extramammary metastases to the breast and axilla, breast-only involvement or both breast and axillary lymph node (LN) involvement is relatively frequent, while isolated axillary LN metastases are rare [3]. In this article, we report the radiological findings of cystic changes in an isolated axillary LN metastasis in a patient diagnosed with rarely arising MEC with a cutaneous presentation on the back.

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**Fig. 1 – Ultrasonography shows 3 oval, circumscribed, hypoechoic nodules and an irregular, indistinct, hypoechoic nodule on the right side of the back, under the previous surgical site. Color Doppler examination reveals increased vascularity in the nodules.**

## Case report

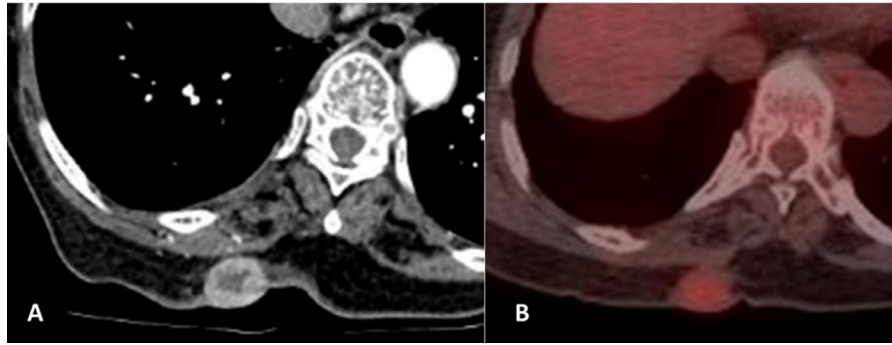
A 73-year-old female presented with a palpable lump and itching sense on her back. She had a history of surgery for a slowly growing mass on her back for 5 years and was diagnosed with nodular hidradenoma. Six months later, she had a second operation for recurrent mass on her back and histopathological examination revealed skin appendage malignancy. She was transferred to our hospital and underwent a wide excision. Histopathological examination revealed focal residual carcinoma of malignant tumor with sebaceous differentiation and all clear resection margins. She presented with a palpable lump and itching sense on her back 6 months later. Ultrasonography revealed 3 oval, circumscribed, hypoechoic nodules (0.3 cm, 0.6 cm, 0.4 cm) and an irregular, indistinct hypoechoic nodule (0.7 cm) on the right side of the back under the previous surgical site. Color Doppler examination revealed increased nodule vascularity (Fig. 1). The patient underwent a wide excision under suspicion of recurrence. Histopathological examination revealed recurrent MEC. All resection margin was clear. Immunohistochemistry of the tumor was positive for p63, Mucicarmine, and d-PAS. At the 16-month follow-up, the patient revisited our clinic with a palpable mass on her back and underwent chest computed tomography (CT) and positron emission tomography-CT (PET-CT). CT showed a 2.5-cm oval, circumscribed, heterogeneous enhancing mass with adjacent skin thickening at the previous surgical site on the right side of the back (Fig. 2A). PET-CT revealed  $^{18}\text{F}$ -FDG uptake in the mass (maxSUV, 3.2 g/mL) and a suspicious recurrence (Fig. 2B). No distant metastases were observed. The patient underwent surgery and was confirmed to have recurrent MEC (Fig. 3A). The patient underwent palliative radiotherapy. At the 2-year follow-up, the patient complained of a palpable mass in the right axilla. Physical examination revealed a hard, movable, oval mass in the right axilla. The mediolateral oblique view of the mammogram showed a circumscribed hyperdense mass (Fig. 4A). Ultrasonography revealed a single enlarged LN with cystic changes and a loss of the fatty hilum (Fig. 4B). Color Doppler examination revealed increased vascularity in the peripheral solid portion of the axillary LN (Fig. 4C). There were no

suspicious malignancies in either breast on mammography or sonography. The patient underwent an excisional biopsy. Microscopic examination revealed varying proportions of epidermoid and intermediate cells and mucocytes. The results of immunohistochemical staining with hematoxylin and eosin (H&E,  $\times 100$ ) were supportive of metastatic MEC (Fig. 3B). Upon further evaluation, no local recurrence or distant metastases were observed. The patient did not want radiotherapy. The patient presented at our emergency room with unconsciousness 4 years and 6 months later. Chest and abdominal CT revealed multiple bone metastases. The patient refused treatment and was transferred to another hospital.

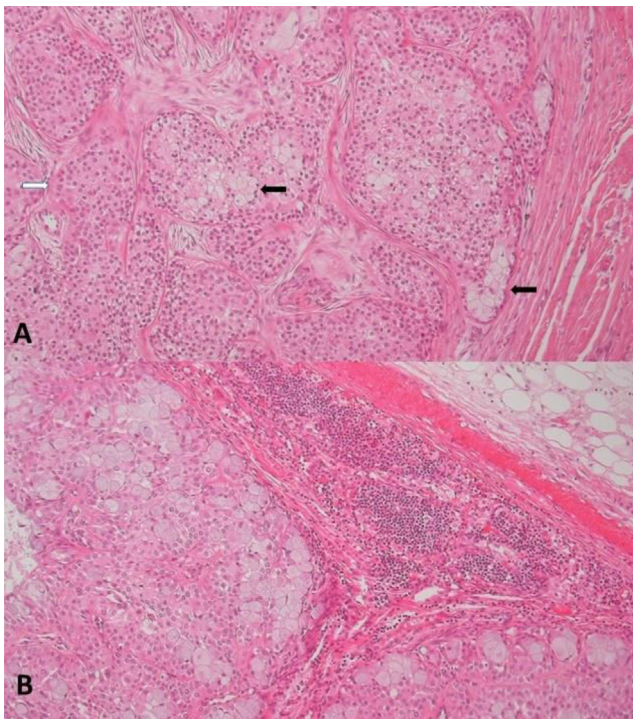
## Discussion

Axillary lymphadenopathy has been observed in both benign and malignant conditions. The most common finding is benign reactive hyperplasia caused by inflammation or infection. The most common cause of malignant lymphadenopathy is primary breast cancer. Other causes of primary malignant tumors include hematological malignancies, melanoma, and lung, ovarian, or stomach cancer [1–4]. MEC is rare. Metastases to the breast and axilla are also rare, accounting for approximately 2% of all mammary malignancies [5]. Axillary LN metastases from breast cancer and extramammary malignancies are usually associated with breast involvement. Isolated axillary LN metastases without breast lesions are rare but have been detected. De Lair et al. reported that, in 11% of 85 patients with metastatic lesions in the breast, axilla, or both, breast and axillary lesions were the first presentations of metastases. Only 8% of patients had isolated axillary LN metastases, and 14% had both breast and axillary metastases [3].

Radiological findings of axillary LN metastases from mammary and extramammary malignancies are usually nonspecific: greater than 2 cm in size, spherical in shape, with loss of fatty hilum, and asymmetric cortical thickening, which makes it difficult to distinguish between extramammary and breast cancer metastases. Associated calcification and

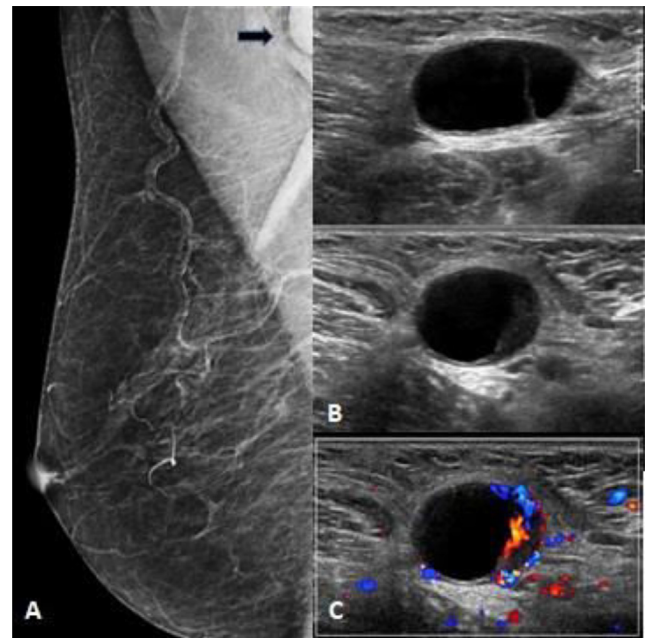


**Fig. 2 – (A)** An axial contrast-enhanced CT shows a 2.5-cm oval, circumscribed heterogeneous enhancing mass with adjacent skin thickening on the right side of the back. **(B)** Positron emission tomography-computed tomography shows  $^{18}\text{F}$ -FDG uptake in the mass.



**Fig. 3 – (A)** Microscopic findings show varying proportions of epidermoid cells (white arrow) and mucocytes (black arrow). The result of immunohistochemical staining with hematoxylin and eosin (H&E,  $\times 100$ ) was supportive of recurrent mucoepidermoid carcinoma on the back. **(B)** Microscopic findings show varying proportions of epidermoid cells, intermediate cells and mucocytes. The result of immunohistochemical staining with hematoxylin and eosin (H&E,  $\times 100$ ) was supportive of axillary lymph node metastasis from mucoepidermoid carcinoma.

cystic or necrotic changes in LN can be helpful in different diagnoses [1,2,4,6]. Primary tumors with cystic changes in metastatic LNs include thyroid papillary carcinomas, squamous cell carcinomas, serous adenocarcinoma in female genital track, and, less commonly, MEC [2,7]. In our patient,



**Fig. 4 – (A)** Mediolateral oblique view of mammography shows a circumscribed hyperdense mass in the right axilla (black arrow). **(B)** Ultrasonography shows an enlarged lymph node with cystic changes and loss of the fatty hilum in the right axilla. **(C)** Color Doppler examination shows increased vascularity in the peripheral solid portion of the lymph node.

metastatic lymphadenopathy showed a single enlarged LN with cystic changes, loss of the fatty hilum, increased vascularity in the peripheral solid portion, and no calcification. Breast involvement or distant metastases were not observed.

MEC is a common salivary gland malignancy, 60% of which occurs in the parotid gland and 30% in the minor salivary gland of the oral cavity. It can arise less commonly in the esophagus, lacrimal passages, and bronchi, and rarely in the skin [8,9]. Histologically, MECs are classified into three grades, low-, intermediate-, and high-grade tumors, based on the ratio of mucin-secreting cells, squamous cells, cells of intermedi-



ate type, and pleomorphism among carcinoma cells [10]. MECs frequently metastasize to cervical LNs because they usually arise from the salivary gland and are extremely rare in axillary LNs. Hematogenous metastasis to the lungs and bones has also been noted [8,9]. Ogura et al. reported that all metastatic LNs from MECs contained low-density areas and showed heterogeneous or rim enhancement on CT images, reflecting intranodal cystic formation on histopathological examination [9].

Fine-needle aspiration cytology (FNAC) is a well-established method for diagnosing LN metastasis. However, cystic LN metastasis is a common cause of false-negative results. Being aware of this possibility and repeated trials of FNAC or excisional biopsy are important in the suspicion of cystic metastasis [7].

Extramammary metastasis to the breast or axilla is an important diagnostic consideration because these patients have poor prognosis. De Lair et al. reported that patients had a median survival rate of 15 months after the diagnosis of breast and axillary lesion [3]. This poor survival rate is due to the fact that at the time of the discovery of the breast and axillary lesions, most patients already have widely metastatic disease. In our study, other distant metastases were not observed at the time of isolated axillary metastasis from the MEC; however, multiple bone metastases were noted 4 years and 6 months later.

Treatments for MEC include surgery for low-grade tumors and surgery with subsequent radiation treatment for intermediate- and high-grade tumors. Elective lymph node dissection is also recommended for high-grade tumors without distant metastasis [11].

## Conclusions

Solitary axillary LN metastases are rare. However, in patients with a clinical history of a non-mammary malignancy and newly developed axillary lesions, consideration of possible extramammary metastasis to the axillary LN is important for early and accurate diagnosis and avoiding unnecessary surgery. Cystic changes in axillary LN metastasis are a common cause of false-negative diagnosis, so being aware of the possibility of their occurrence, and repeated trials of FNAC or excisional biopsy are important for rapid and accurate diagnosis.

## Patient consent

Consent for publication has been obtained.

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