TPM Vol. 32, No. S3, 2025
ISSN: 1972-6325
https://www.tpmap.org/

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CONFRONTING THE UNCOMMON: A CASE REPORT ON MALIGNANT PHYLLODES TUMOUR OF THE BREAST INITIALLY MISDIAGNOSED AS INVASIVE DUCTAL CARCINOMA

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Abstract

Background:
Phyllodes tumours (PTs) are rare fibroepithelial neoplasms of the breast, constituting 0.3–1% of all breast tumours. Malignant PTs comprise only 10–20% of cases and are prone to rapid growth, local recurrence, and distant metastasis. Differentiation from invasive ductal carcinoma (IDC) can be challenging, especially with core needle biopsy due to sampling limitations.

Case Presentation:
We report a 47-year-old female who presented with a 10×7 cm lump in the right breast for 4 months. Initial core needle biopsy suggested IDC, triple-negative subtype, with Ki-67 of 10%. PET-CT revealed a hypermetabolic breast mass (T2N0M0). She underwent right modified radical mastectomy. Histopathology demonstrated stromal atypia, marked nuclear pleomorphism, high mitotic activity (20–30/10 HPF), and CD34 focal positivity in malignant spindle cells, consistent with malignant PT. Postoperatively, she received 25 fractions of adjuvant radiotherapy. She is on a close follow-up schedule with no recurrence at present.

Conclusion:
This case highlights the diagnostic pitfalls in differentiating malignant PT from IDC on core needle biopsy, the necessity of extensive tissue sampling, and the role of histopathology in guiding definitive management.

Keywords:
Phyllodes tumour, malignant breast tumour, core needle biopsy, invasive ductal carcinoma, histopathology, case report

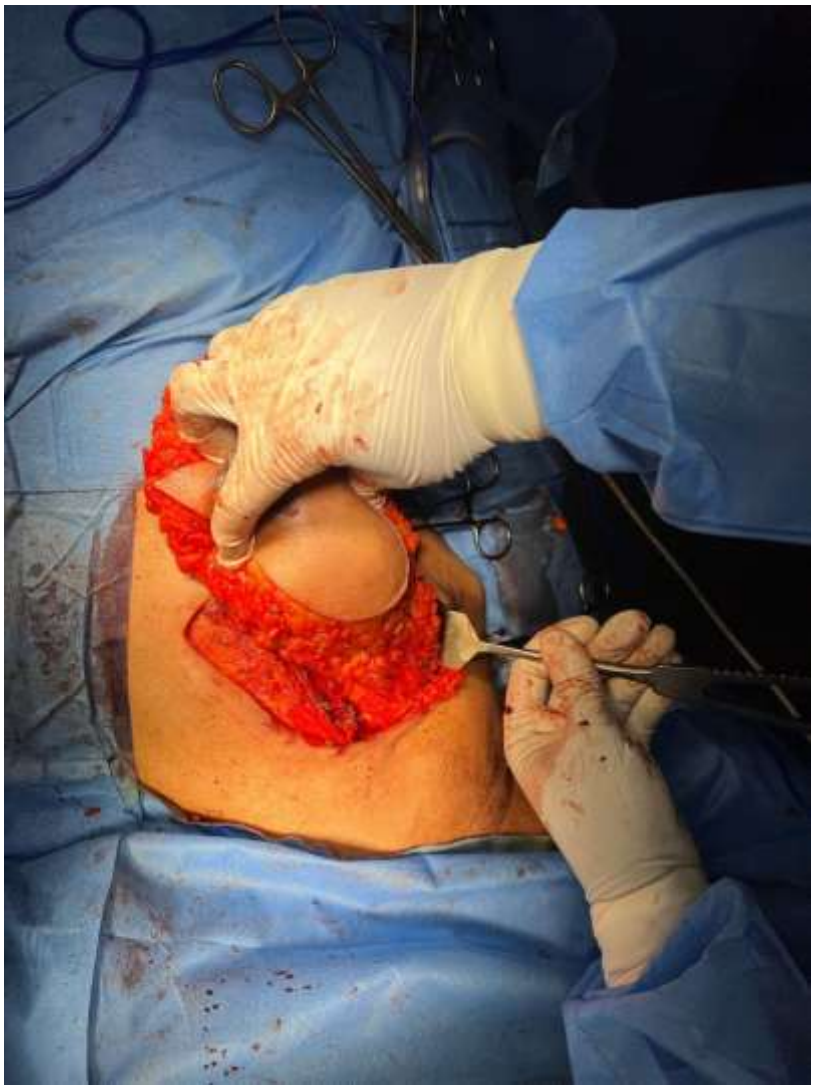
INTRODUCTION

Phyllodes tumours (PTs) are rare fibroepithelial lesions of the breast, representing 0.3–1% of all breast tumours and typically occurring in women aged 35–55 years (1,2). The term “phyllodes” derives from the Greek word phyllon, meaning “leaf”, reflecting their characteristic leaf-like stromal fronds seen on histology (3). PTs are histologically classified into benign (60–75%), borderline (13–26%), and malignant (10–20%) subtypes, based on stromal cellularity, nuclear atypia, mitotic activity, stromal overgrowth, and tumour margins (4).

Malignant PTs tend to exhibit rapid growth, local recurrence (up to 25%), and distant metastasis, most often to lungs, bones, and liver (5,6). Genetic studies have identified MED12 mutations in up to 60% of PTs, along with TERT promoter mutations and PI3K/AKT/mTOR pathway alterations, which may have future therapeutic implications (7,8). Differentiating malignant PTs from invasive ductal carcinoma (IDC) is challenging, particularly in limited tissue samples from core needle biopsy (9).

We present a case of malignant PT initially misdiagnosed as IDC on core needle biopsy, emphasising the diagnostic challenges and management considerations for this uncommon entity.

Case Presentation



Clinical details:

A 47-year-old female presented with a progressively enlarging, painful lump in the right breast for 4 months. She had no history of comorbidities or family history of breast malignancy. Examination revealed a 10×7 cm firm to hard mass in the upper outer quadrant of the right breast, mobile with overlying breast tissue, with no skin changes or fixation to chest wall. No axillary or supraclavicular lymphadenopathy was detected. Left breast and axilla were normal.

Investigations:

Core needle biopsy performed at an outside hospital reported IDC, triple-negative subtype (ER, PR, HER2 negative; Ki-67: 10%). PET-CT scan demonstrated a hypermetabolic irregular mass in the right breast (T2) with benign-appearing axillary lymph nodes and no distant metastasis.

Treatment:

The patient underwent right modified radical mastectomy under general anaesthesia. (Figure-1, 2 and 3)

Figure -1

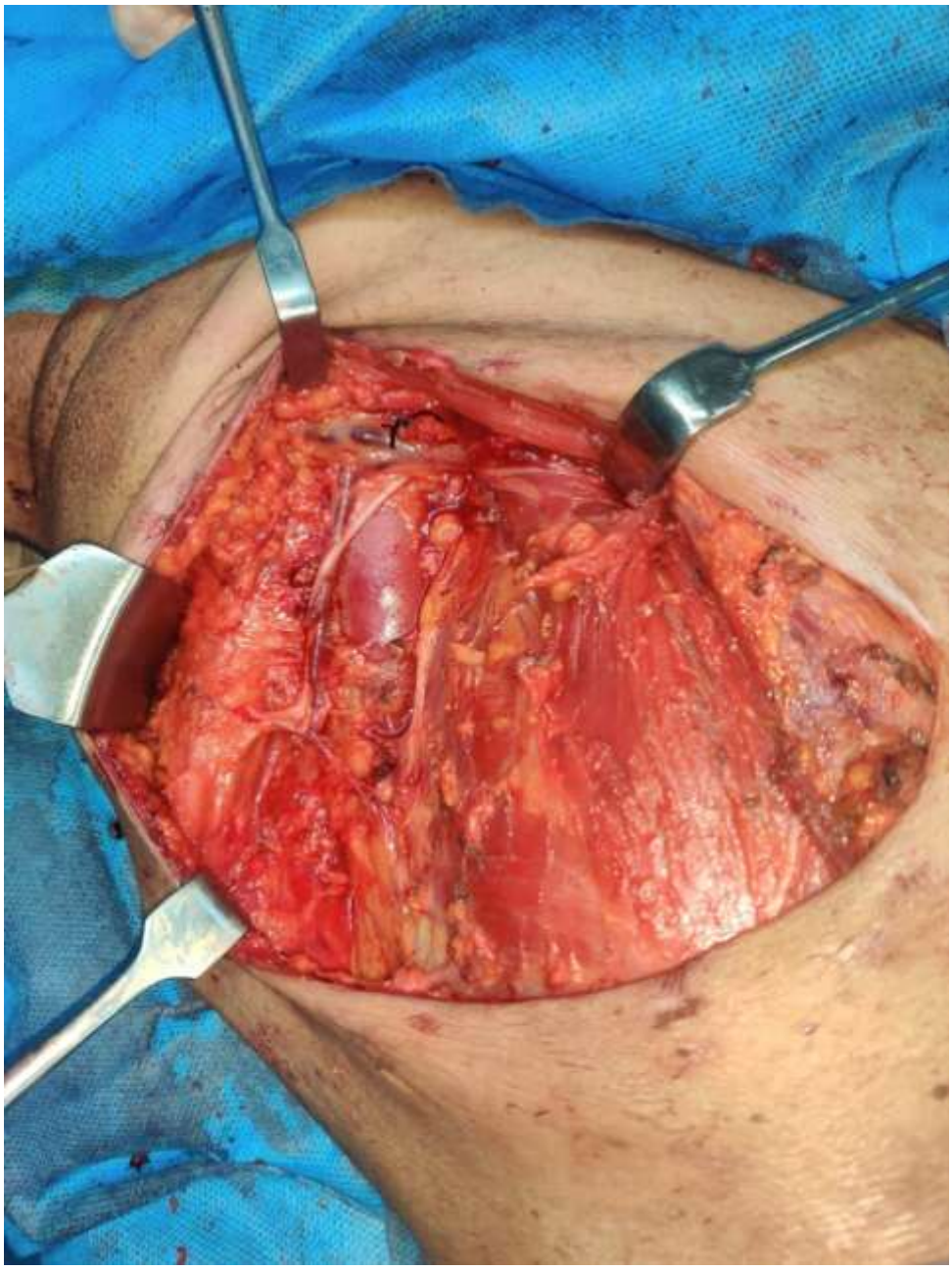


Figure -2

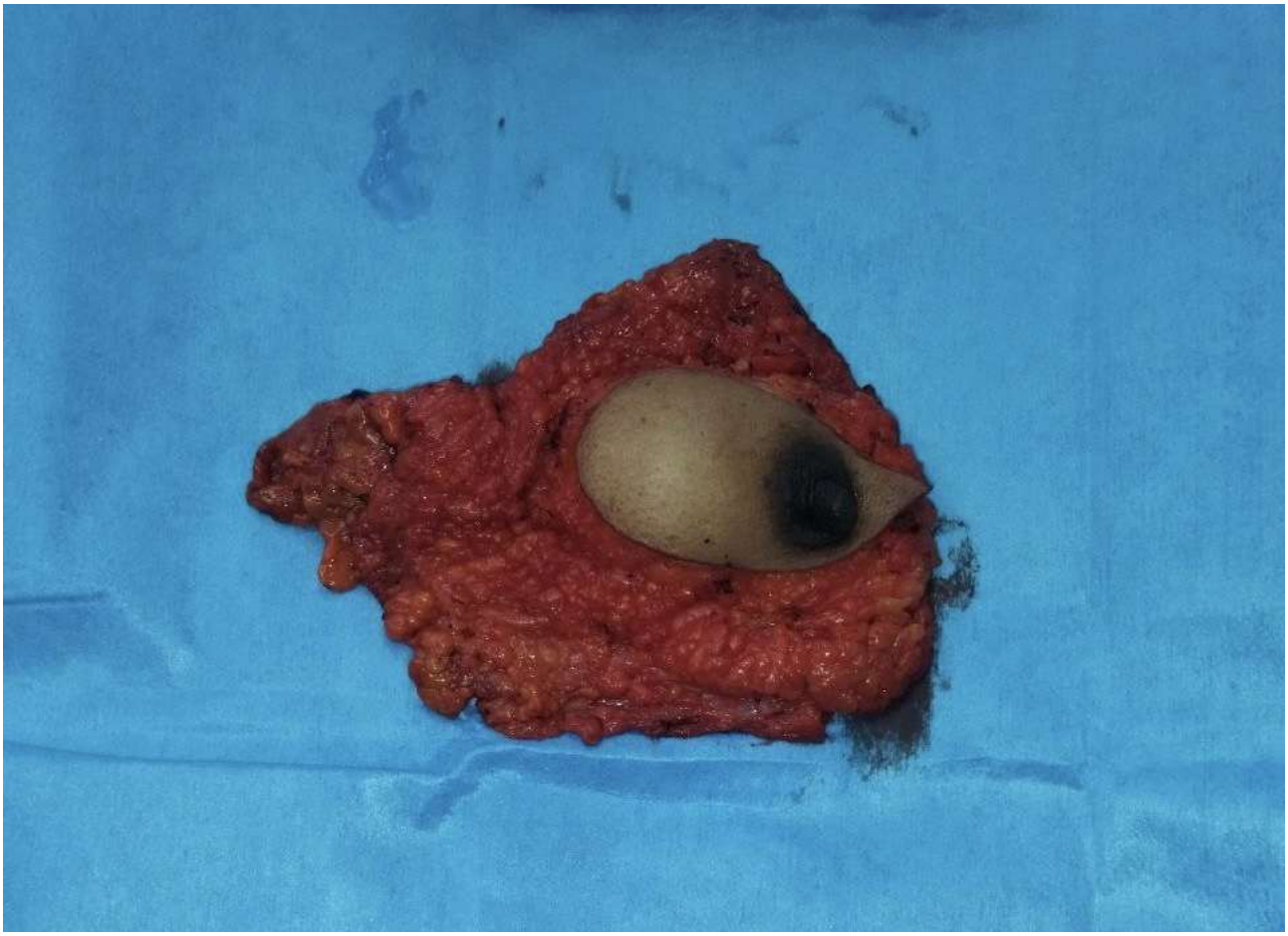
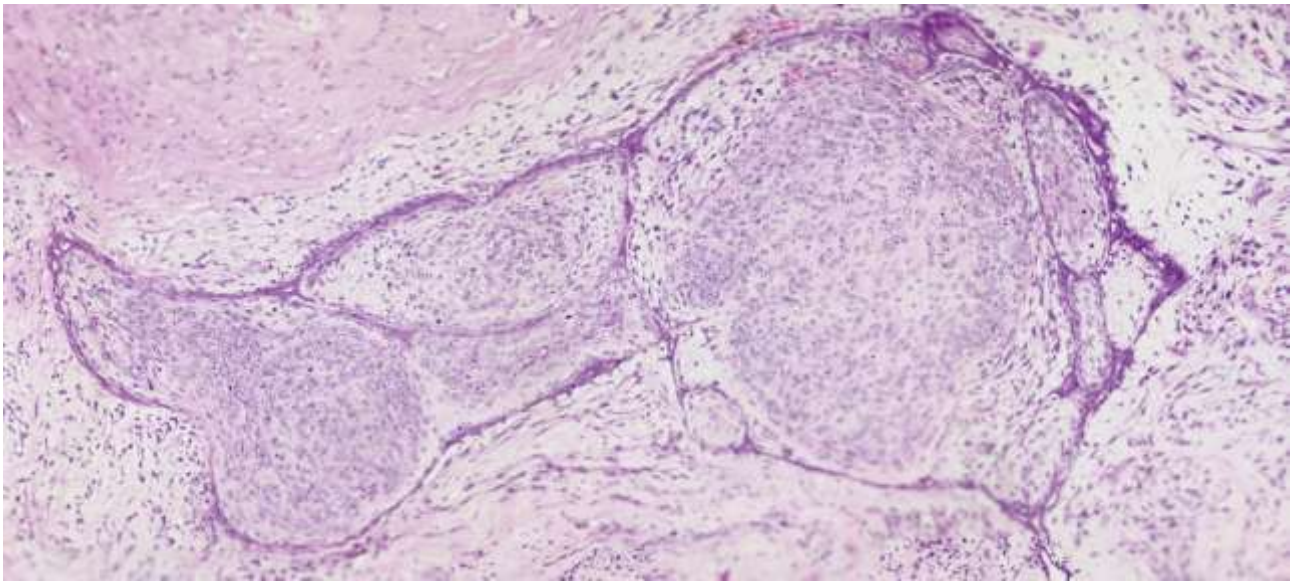


Figure -3

Histopathology:

Grossly, the tumour measured 10×7 cm. Microscopy revealed stromal hypercellularity, marked nuclear pleomorphism, hyperchromatic nuclei with irregular contours, and a mitotic count of 20–30 per 10 high-power fields. Malignant spindle cells exhibited focal CD34 positivity. Fibroadenomatoid changes were present in the surrounding tissue. No



lymph node metastasis was identified (0/12). Final diagnosis: malignant PT (pT2N0M0). (Figure-4 and 5)

Figure -4

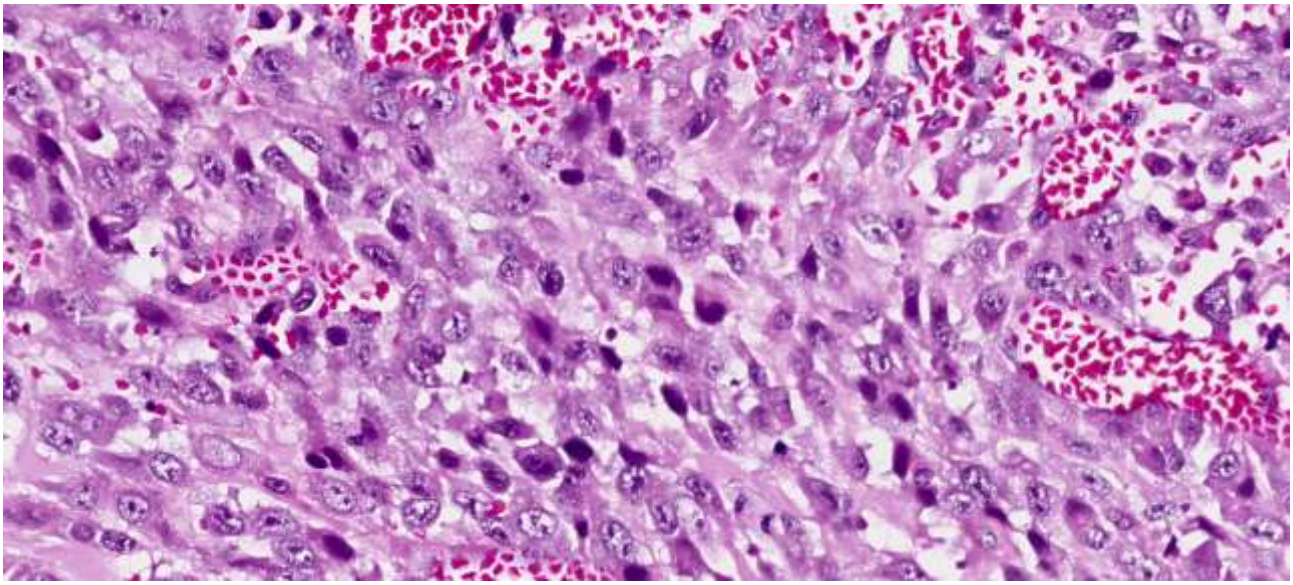


Figure -5

Postoperative course:

The patient recovered uneventfully and completed 25 fractions of adjuvant radiotherapy. She remains disease-free on regular follow-up.

DISCUSSION

Malignant PTs are the rarest and most aggressive subset of PTs, with reported incidence of 0.3–0.9 per 100,000 women (1,2). The present case demonstrates a common diagnostic challenge—misclassification as IDC on core needle biopsy. This occurs due to:

- Sampling error, especially when the stromal overgrowth lacks benign epithelial elements.
- Morphological overlap between spindle cell carcinoma and stromal cells of malignant PT (10).

Histopathology remains the gold standard for diagnosis. Key malignant PT features include stromal overgrowth, high mitotic rate (>10/10 HPF), marked pleomorphism, and infiltrative margins (4,5). Immunohistochemistry assists in differentiation:

- Cytokeratin-positive in IDC but negative in pure PT stromal cells.
- CD34 positivity supports a mesenchymal stromal origin (11).

Wide local excision with ≥1 cm margin or mastectomy is the treatment of choice for malignant PT (12). Axillary dissection is not routinely indicated due to rare nodal spread. Adjuvant radiotherapy may reduce local recurrence in high-risk cases (13). Chemotherapy has limited benefit. Given recurrence potential, close surveillance is essential, especially in the first 2–3 years post-treatment.

CONCLUSION

Malignant PT is a rare and aggressive breast tumour with significant diagnostic overlap with IDC in small biopsies. Extensive sampling and careful histopathological evaluation are critical for accurate diagnosis. Surgery with adequate margins remains the mainstay of treatment, with adjuvant radiotherapy considered in selected high-risk patients. Regular follow-up is essential to detect recurrence early.

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