



Pleomorphic lobular carcinoma of the breast: Clinicopathological analysis of a distinctive and rare variant of lobular carcinoma

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ABSTRACT

Pleomorphic lobular carcinoma (PLC) of the breast is an uncommon variant of invasive lobular carcinoma (ILC), accounting for 0.67% of all breast carcinomas and <5% of lobular carcinoma. This lesion is usually misdiagnosed as infiltrating ductal carcinoma. It has been identified as a distinct entity from classic ILC and is reported to be associated with a more aggressive clinical behavior than classic lobular carcinoma. In this report, we aim to describe radiological and pathological characteristics of PLC and to review the therapeutic management.

We present a new case of PLC occurring in a 74-year-old woman, consulting for a retro-areolar mass in the right breast, measuring 3 cm in great diameter. She underwent a mastectomy. The tumor was described as PLC. Radiologically, the PLC is most commonly similar to invasive ductal carcinoma. It is described as a speculated mass on mammography or ultrasonography. However, unlike the classic variant, the tumor cells of the pleomorphic variant of ILC are larger and have abundant cytoplasm with large hyperchromatic nuclei that show prominent nucleoli. Positivity for hormone receptors and amplification of human epidermal growth factor-2/neu in PLC suggest that endocrine-related targeted therapy and trastuzumab may be valuable treatment regimens for these patients.

KEY WORDS: Breast cancer, distinctive entity, pleomorphic lobular carcinoma

INTRODUCTION

Invasive breast carcinoma is subdivided into ductal, lobular, tubular, and other special types by morphological classification. With the development of immunohistological and molecular biology techniques, invasive breast carcinoma has been further classified into new subtypes with unique characteristics and behaviors. Invasive pleomorphic lobular carcinoma (PLC) is one such distinctive subtype of invasive breast carcinoma, accounting for 0.67% of all breast carcinomas and <5% of lobular carcinoma. This lesion is usually misdiagnosed as infiltrating ductal carcinoma. It has been identified as a distinct entity from classic invasive lobular carcinoma (ILC) and is reported to be associated with a more aggressive clinical behavior than classic lobular carcinoma [1]. In this report, we aim to describe radiological and pathological characteristics of PLC and to review the therapeutic management.

CASE REPORT

A 74-year-old woman presented with progressively, painless lump in right breast. By physical exam, a well-limited palpable mass was identified in the right retroareolar area without peripheral

nodes. No additional abnormalities were appreciated in both breasts. Mammography reported well-defined asymmetric density in the left breast imaging reporting and data system-4. An ultrasound breast revealed a hypoechoic mass with irregular margins measuring 5 cm × 3 cm × 2 cm. Pathological exam of biopsy taken from the lump concluded ILC. Metastatic workup was negative. She was staged cT3N0M0. She underwent a mastectomy. Macroscopically, the mass measured 6 cm × 4 cm × 3 cm with infiltrative margins. The cut surface was white. On microscopic exam, the lesion was an invasive carcinoma with highly atypical tumor cells infiltrating in a trabecular and cord-like pattern without duct formation [Figure 1]. The cells were large with abundant cytoplasm and target inclusion, enlarged nuclei with vesicular chromatin and prominent nucleoli [Figure 2].

No lymph vascular invasion was seen. Axillary 12 lymph nodes were negative for metastases. Immunohistochemical findings reported negative membranous E cadherin [Figure 3]. Estrogen and progesterone receptors were negative. The oncoprotein human epidermal growth factor-2 (HER-2) was not amplified (Score 1). The Mib 1 index was 10%. We retain the diagnosis of retro-areolar PLC.

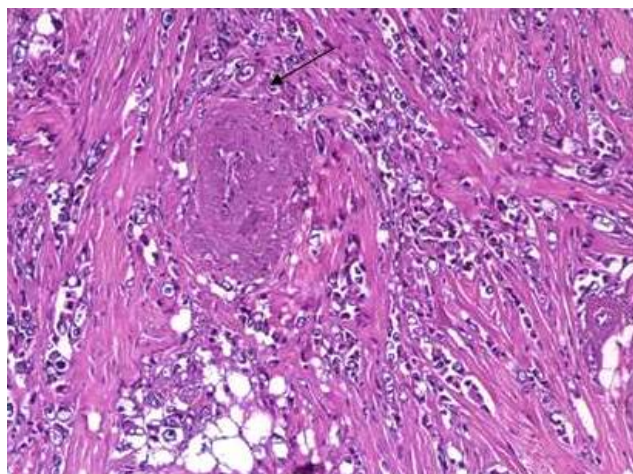


Figure 1: Tumor cells arranged in a linear and single-file growth pattern with targetoid distribution around vascular structure (arrow) (H&E, $\times 100$)

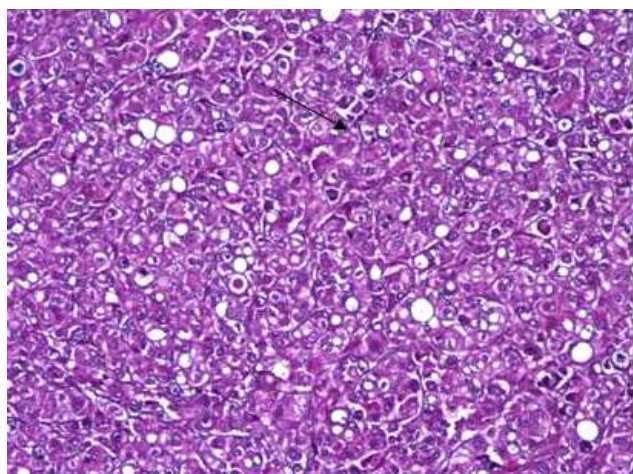


Figure 2: Invasive carcinoma with highly atypical tumor cells infiltrating in a trabecular pattern. The cells are large with abundant eosinophilic cytoplasm, enlarged nuclei, vesicular chromatin and prominent nucleoli (arrow) (H&E, $\times 200$)

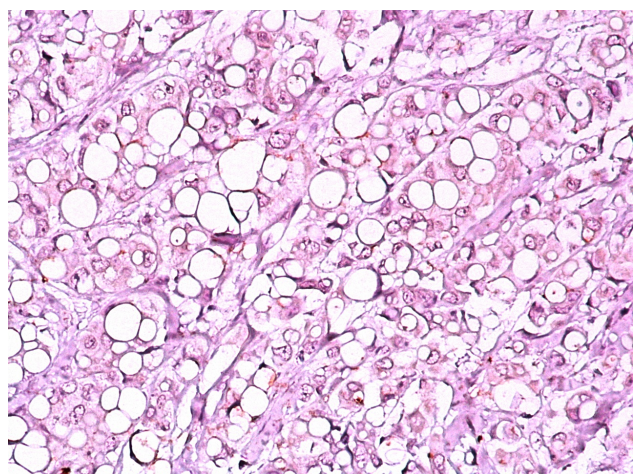


Figure 3: Tumor cells showing negative staining for E-cadherin which is characteristic of lobular carcinomas (Immunohistochemistry, $\times 400$)

DISCUSSION

PLC was first described in 1987 by Page and Anderson [2]. It affects postmenopausal women between 60 and 80 years. Tumor size ranges from 3 to 12.5 cm [3]. PLC is described by the World Health Organization classification as a variant of ILC that retains the distinctive growth pattern but exhibits a greater degree of cellular atypia and pleomorphism than the classical form [4]. It may have signet ring cells, apocrine, or histiocytoid differentiation. Radiologically, the tumor is most commonly detected as a speculated mass on mammography or ultrasonography. Microscopically, PLC is characterized by dissociated cells arranged singly or in a loosely cohesive pattern. The distinctive feature of PLC from ILC is the occurrence of significant atypical nuclei [5]. PLC has been reported with poor prognostic factors including large tumor size, axillary node metastasis, poor histological grade, and loss of E-cadherin [6]. PLCs showed an increased expression of hormone receptor markers and a frequent amplification of HER2/neu. Although PLCs are usually of luminal phenotype, the case we described was triple negative carcinoma. P53 expression demonstrated higher expression than classical ILC. Positivity for hormone receptors and amplification of HER2/neu in PLC suggest that endocrine-related targeted therapy and trastuzumab may be valuable treatment regimens for these patients [3]. The differential diagnoses of PLC are ILC, apocrine carcinoma, and invasive ductal carcinoma. Owing to its higher grade, the prognosis of PLC is poor and considered worse than classical ILC, with a higher risk of recurrence, nodal and distant metastasis [3]. The most common metastatic sites were bone, liver, lung, and peritoneum [7].

In conclusion, PLC of the breast has been recognized as a histological variant of ILC with poor prognosis. Molecular studies have established that PLC shares the same molecular genetics pathway as classical ILC; therefore, it is better classified as a variant of lobular carcinoma. Surgical management is the most common treatment modality. Nowadays, endocrine-related targeted therapies and trastuzumab are described to ameliorate the prognosis of these patients.

AUTHORS' CONTRIBUTIONS

All authors contributed to the conduct of this work. All authors also claim to have read and approved the final manuscript.

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