CLINICAL VIGNETTE

Pleomorphic Lobular Breast Carcinoma: A Case Report

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Case Report

A 45-year-old woman felt a left breast mass, which was biopsied, revealing an invasive lobular carcinoma. The tumor was both estrogen receptor (ER) and progesterone receptor (PR), and HER2-neu negative. Genetic testing was performed due to her young age at diagnosis and a positive family history of breast cancer with BRCA 1 and 2 negative. She chose to undergo left mastectomy and was found at pathology to have a 2.1 cm, grade 2 invasive pleomorphic lobular carcinoma (PLC) with associated both pleomorphic lobular carcinoma in situ and classical lobular carcinoma in situ. She also had a separate 4 mm focus of classical lobular carcinoma in situ in the same quadrant. One of 7 axillary nodes was positive with a 5 mm focus of invasive disease. She therefore had multifocal stage II T2N1M0 breast cancer.

Postoperatively she received chemotherapy with doxorubicin and cyclophosphamide for 4 cycles, followed by docetaxel for 4 cycles. She then started and currently continues on tamoxifen, having completed 4 years of tamoxifen therapy, and has remained in remission.

Discussion

Pleomorphic lobular carcinoma (PLC) is a variant of classical invasive lobular carcinoma (ILC), which accounts for approximately 1% of epithelial breast malignancies. With the pathologic features of tumor cells arranged in single files or in a loosely cohesive pattern and a targetoid growth pattern, PLC retains some of the typical pathologic features of ILC. However, in contrast to classical ILC, PLC has the cytologic features of greater cellular pleomorphism, greater mitotic activity, nuclear abnormalities, and abundant eosinophilic cytoplasm. It is unusual for PLC to coexist with classical lobular carcinoma in situ.[1]

On immunohistochemical stains, loss of e-cadherin expression on tumor cell membranes is seen in both ILC and PLC. While ER and PR are usually expressed in ILC (more than 85% positive), the ER expression rate is variable in PLC; it has been reported in some studies to be as low as 20%[2] but as high as 96% in others.[3] HER2 protein overexpression or gene amplification has been seen in up to 6% of ILC cases, and in the range of 2-31% of PLC cases, with the highest rate of expression in grade 3 PLC.[2] In addition, the ki67 index is often higher in PLC.

Jung et al[4] compared imaging findings of PLC and ILC in 22 cases of PLC and 47 of ILC. Most cases were identified on mammography and ultrasound with a spiculated mass or architectural distortion, with or without calcifications. Mammography did not detect PLC in one patient (4.5%) and did not detect ILC in 7 cases (14.9%), which was not significant. MRI and ultrasound equally revealed more frequent multiplicity than mammography. However, despite the more aggressive features histologically of PLC, imaging findings did not differentiate PLC from ILC.

PLC has a worse prognosis than ILC with the more aggressive histologic features as described above. A review of 5,635 patients with breast cancer found 481 with ILC (8.5%).[3] Of those patients with ILC, pathologic tissue for re-review was available in 356 (74%) of cases, 52 of which had PLC. The authors concluded that PLC, in comparison to ILC and invasive ductal carcinoma (IDC), presented with larger tumors (20 vs 15 vs 13mm), more positive nodes (1 vs 0 vs 0), more frequently required mastectomy (63.5% vs 38.7% vs 28.8%), and more often developed distant metastasis compared to ILC (11.5% vs 3.7%).

Another paper retrospectively compared the clinical features and outcomes of patients with PLC to those with IDC.[5] The age at presentation of PLC is often higher than for IDC. In that study, the average at presentation was 51.4 years for ILC,[5] while in another paper the reported average age was 59 years,[1] with most women being postmenopausal. Compared to the patients with IDC, those with PLC had larger tumors (mean 3.2 cm for PLC compared to 2.2 cm with IDC) with higher grade, more axillary nodal metastasis, more nipple areolar complex invasion, and a higher rate of multiple lesions.

Our patient was atypical with her young age at presentation of PLC and with concurrent classic lobular carcinoma in situ, although her cancer stage is consistent with what has been reported in PLC. At this point, she is doing well. Her endocrine therapy will be changed to an aromatase inhibitor

when she becomes menopausal, and hopefully she will remain in remission with a good disease free and overall survival.

The potentially aggressive clinical and pathologic characteristics of PLC in general can result in worse outcomes with patients often presenting at a later stage. Therefore, as with all invasive breast cancer, earlier detection and use of appropriate multimodality therapies as indicated by pathology and stage can potentially improve survival in PLC.

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