

Invasive Ductal Carcinoma Arising in Phyllodes Tumor With Isolated Tumor Cells in Sentinel Lymph Node

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Phyllodes tumor (PT) consists of stroma of variable grading and benign ductal epithelium. Although exceptional, carcinomas that arise from the epithelium in PTs do exist, and seem to behave less aggressively than the usually encountered breast carcinoma. To the best of our knowledge, among the invasive carcinomas that have arisen in PTs, only 1 has been proved to have metastatic carcinoma in the lymph nodes. Here, we describe the youngest woman to have invasive ductal carcinoma that arose in a borderline PT, with isolated carcinoma cells in the sentinel lymph node. Whether such a combined lesion carries a more indolent course is also discussed. [*J Chin Med Assoc* 2010;73(11):602–604]

Key Words: breast carcinoma, isolated tumor cells, phyllodes tumor

Introduction

Phyllodes tumor (PT) is an uncommon tumor that mainly occurs in middle-aged to elderly women. It is composed of epithelial and stromal elements, and the latter is usually the focus of diagnosis, treatment and prognosis.^{1,2} The epithelial part is mostly benign and draws less attention. However, malignant change of the epithelial part does happen. Here, we report a young woman with invasive ductal carcinoma that arose from a PT.

Case Report

The patient was a 24-year-old woman who had had a painless tumor over her left breast for 4 years. Sonographic examination showed a 28 × 8 mm hypoechoic hypervascular tumor. The clinical diagnosis was fibroadenoma. However, the breast tumor grew rapidly to 98 × 35 mm in a few months. Core biopsy revealed a fibroepithelial lesion with a mild increase in stromal cellularity. With such an extraordinarily rapid growth, the tumor was excised. The excised tumor was

10 × 8 × 3.5 cm in size, with lobulation and leaf-like structure in the cut surface (Figure 1A).

Microscopically, the tumor was well circumscribed. The stroma was moderately cellular with mild cytological atypia. The mitotic count in the most active area was 3 per 10 high-powered field. There was neither stromal overgrowth nor necrosis. According to the World Health Organization 2003 grading system, it was classified as a borderline PT, based on an increase in mitotic figures. In a focal area, ductal carcinoma *in situ* and invasive ductal carcinoma (Nottingham histological score 4) were observed (Figure 1B). The invasive part was 2.5 cm at its greatest dimension and had lost the myoepithelium (Figure 1C). The carcinoma cells were immunoreactive for estrogen receptor (90%) and progesterone receptor (90%), but non-reactive for HER-2/Neu (1+).

Due to the presence of invasive carcinoma, mastectomy and sentinel lymph node biopsy were performed. The mastectomy specimen only harbored atypical ductal hyperplasia. Several isolated tumor cells (0.05 mm in greatest dimension), were demonstrated in 1 out of the 2 sentinel lymph nodes by cytokeratin stain (Figure 1D). The patient then received hormonal



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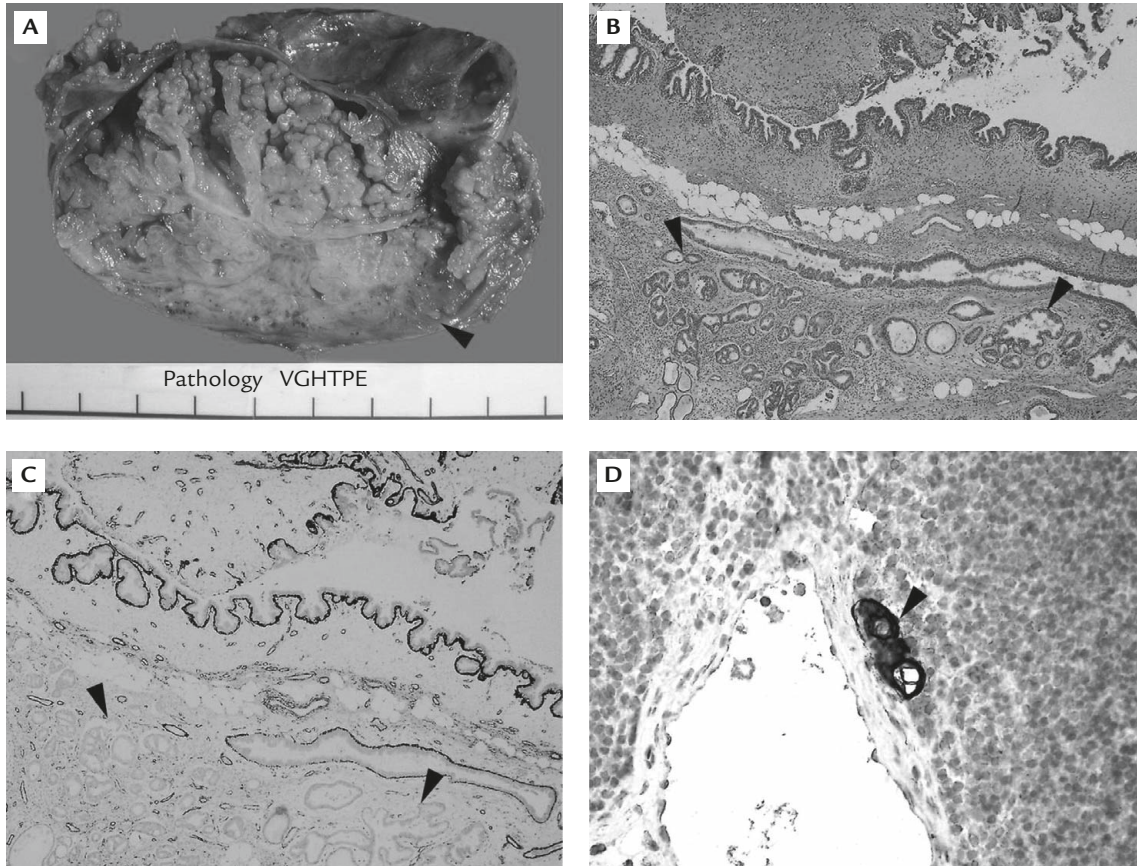


Figure 1. (A) Well-circumscribed mass with leaf-like structures on cut surface. The invasive carcinoma component was located at the 4 to 5 o'clock position of the tumor (arrowhead). (B) Phyllodes tumor with invasive ductal carcinoma (arrowheads) infiltrating the stroma (hematoxylin & eosin, 20×). (C) Myoepithelial cells were lost in the invasive carcinoma component (arrowheads) (anti-smooth muscle actin, 20×). (D) Isolated tumor cells demonstrated by cytokeratin (arrowhead) in the sentinel lymph node (anti-cytokeratin, 200×).

Table 1. Invasive carcinoma arising in phyllodes tumors

Case	Age (yr)	Size (cm)	Type of carcinoma	LN	Reference (year)
1, 2	NA	NA	Invasive CA (2 cases)	NA	Norris & Taylor ³ (1967)
3	NA	NA	Squamous cell CA	NA	Cornog et al ⁴ (1971)
4	45	5.5	Invasive CA	Negative	Pietruszka & Barnes ⁵ (1978)
5	NA	NA	Invasive CA	NA	Azzopardi ⁶ (1978)
6	47	4	Tubular CA	NA	Leong & Meredith ⁷ (1980)
7	NA	NA	Invasive CA	NA	Bassermann & Eiermann ⁸ (1980)
8	60	1.4	Papillary CA	NA	Cole-Beuglet et al ⁹ (1983)
9	60	4	Invasive CA	Negative	Klausner et al ¹⁰ (1983)
10	NA	NA	Squamous cell CA	NA	Hunger et al ¹¹ (1984)
11	41	5.6	Papillotubular CA	Negative	Ishida et al ¹² (1984)
12	47	13	Invasive ductal CA	Negative	Yasumura et al ¹³ (1988)
13	NA	NA	Invasive ductal CA	NA	de Rosa et al ¹⁴ (1989)
14	47	17	Invasive lobular CA	NA	Kodama et al ¹⁵ (2003)
15	26	3.3	Invasive ductal CA	Positive (4/13)	Parfitt et al ¹⁶ (2004)
16	NA	3.5	Invasive CA	Negative	Tokudome et al ¹⁷ (2005)
17	69	NA	Squamous cell CA	NA	Ramdass & Dindyal ⁷ (2006)
18	54	8.0	Invasive ductal CA	Negative	Sugie et al ⁸ (2007)
19	24	10	Invasive ductal CA	Positive (1/2)	Present case (2010)

LN = lymph node; NA = not available; CA = carcinoma.

therapy (goserelin acetate and tamoxifen), adjuvant chemotherapy (500 mg/m² 5-fluorouracil, 75 mg/m² epirubicin, and 500 mg/m² cyclophosphamide, for 6 times) and reconstructive surgery. The tumor did not recur during 15 months of follow-up.

Discussion

In young women, fibroadenoma is more commonly encountered than PT or carcinoma. However, any feature indicative of a more aggressive tumor should not be missed. In our case, the tumor displayed an exceedingly fast growth, which resulted partly from the PT and partly from the coexisting carcinoma.

Malignant transformation of the epithelium in PTs is rare. Eighteen patients have been reported with invasive carcinomas that have arisen in PTs (Table 1).³⁻¹⁹ Three of these had squamous cell carcinoma (16.7%), the occurrence of which was more frequent than its occurrence in breast carcinoma in general (<0.1%).²⁰ As for the status of lymph nodes, only 1 patient had pathological evidence of lymph node metastases.¹⁶ The reported metastatic rate (10.5% with the present case included) seems to be lower than that of ordinary invasive carcinoma of the breast (20.6–70.1% for different tumor sizes).²¹ It is also interesting that invasive carcinomas that arise in fibroadenomas are associated with lower metastatic rates.²² Such a phenomenon might result from earlier detection of invasive carcinoma in a coexisting lesion,²² PT or fibroadenoma. In addition, lymph node metastasis is also relatively less frequent in squamous cell carcinoma than ordinary carcinoma of the breast. The more frequent occurrence of squamous cell carcinoma in the 18 cases mentioned above might also have contributed to the lower metastatic rates. However, the status of lymph nodes was not fully described in some of these cases, and there remains the possibility of underestimation of the metastatic rates.

The reported patient with lymph node metastases¹⁶ and our patient were young, at 26 and 24 years of age, respectively. Whether such combined lesions behave more aggressively in young women warrants further study.

In conclusion, we should always be alert when managing a patient with breast tumors that show an unusual clinical course, irrespective of age. In such circumstances, further investigation, or at least close follow-up, is needed. The combination of 2 tumors, PT and invasive carcinoma, highlights the importance of thorough examination of the resection specimen.

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