CASE REPORT

Breast fibroblastoma without smooth muscle differentiation

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ABSTRACT

Background/Aim: To report a very rare case of breast fibroblastoma without smooth muscle differentiation.
Case report: A 42-year-old women presented left breast tumor of non-nipple location, and core needle biopsy (CNB) was diagnosed as benign phillodes tumor by the author. The tumor was solid white and measured 23 mm × 31 mm × 33 mm. Microscopically, a thick capsule was noted, and the tumor was composed of a proliferation of mesenchymal spindle cells; no epithelial element was seen. Frequently, tumor cells shows striform or cartwheel appearances. No significant mitotic figures were seen. Immunohistochemical study showed that the tumor cells were positive for vimentin, CD10, CD68, estrogen receptor, and progesterone receptor. The p53 was negative and Ki-67 labeling index was < 1%. The tumor cells were negative for cytokeratin (CK) AE1/3, CK CAM5.2, CK34BE12, CK7, CK20, h-caldesmone, alpha-smooth muscle actin (ASMA), desmin, myoglobin, S100 protein, KIT, CD34, CD45, synaptophysin, Factor VIII-related antigen, CD31, CEA, and EMA. The pathological diagnosis was fibroblastoma of breast.
Conclusion: A very rare case of breast fibroblastoma without smooth muscle differentiation is reported.

Key Words: Breast, Fibroblastoma, Tumor, Histology, Pathology, Immunohistochemistry

1. INTRODUCTION

Fibroblastoma (FB)/Myofibroblastoma (MFB) is a rare mesenchymal tumor of the breast exhibiting fibroblastic and myofibroblastic lineages. In WHO blue book,[1] only MFB was used. In the present study, MFB is defined as myofibroblastic mesenchymal breast tumor with smooth muscle differentiation, and FB as fibroblastic mesenchymal breast tumor without smooth muscle differentiation. The FB is not listed in WHO blue book. Breast FB is very rare.

2. CASE REPORT

A 42-year-old women presented left breast tumor in non-nipple area. She was diagnoses as a kind of sarcoma (leiomyosarcoma) at the first private hospital which examined core needle biopsy (CNB) and aspiration biopsy cytology. She was referred to our hospital for second opinion. The previous CNB was re-examined and was diagnosed as benign phyllodes tumor by the author, epithelial element of which was thought to be missed by incident. Because the patient was consented for, excisional lumpectomy was performed.

The tumor was solid white and measured 23 mm × 31 mm × 33 mm (see Figure1A). A vague capsule was seen, but no obvious features of capsular invasion were recognized. Microscopically, a thick capsule was noted, but capsular and extracapsular invasion of the tumor cells were frequently seen. The surgical margins were negative for tu-

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mor cells. The tumor was composed of a straightforward proliferation of mesenchymal spindle cells. No epithelial element was seen. The features of the mesenchymal tumor cells varied from area to another, and formed simple normocellular to complex hypercellular regions. Frequently, tumor cells shows striform or cartwheel appearances (see Figure 1B). Nuclear pleomorphism was slight or none. No significant mitotic figures were seen. No necrosis was noted. Immunohistochemical study was performed by Envision technique of Dako Corp,[2] and showed that the tumor cells were positive for vimentin (see Figure 1C), CD10, CD68, estrogen receptor (ER) (see Figure 1D), and progesterone receptor (PgR). The p53 was negative and Ki-67 labeling index was < 1%. The tumor cells were negative for cytokeratin (CK) AE1/3, CK CAM5.2, CK34BE12, CK7, CK20, h-caldesmone, alpha-smooth muscle actin (ASMA), desmin, myoglobin. S100 protein, KIT, CD34, CD45, synaptophysin, Factor VIII-related antigen, CD31, CEA, and EMA. The pathological diagnosis was FB of the breast.

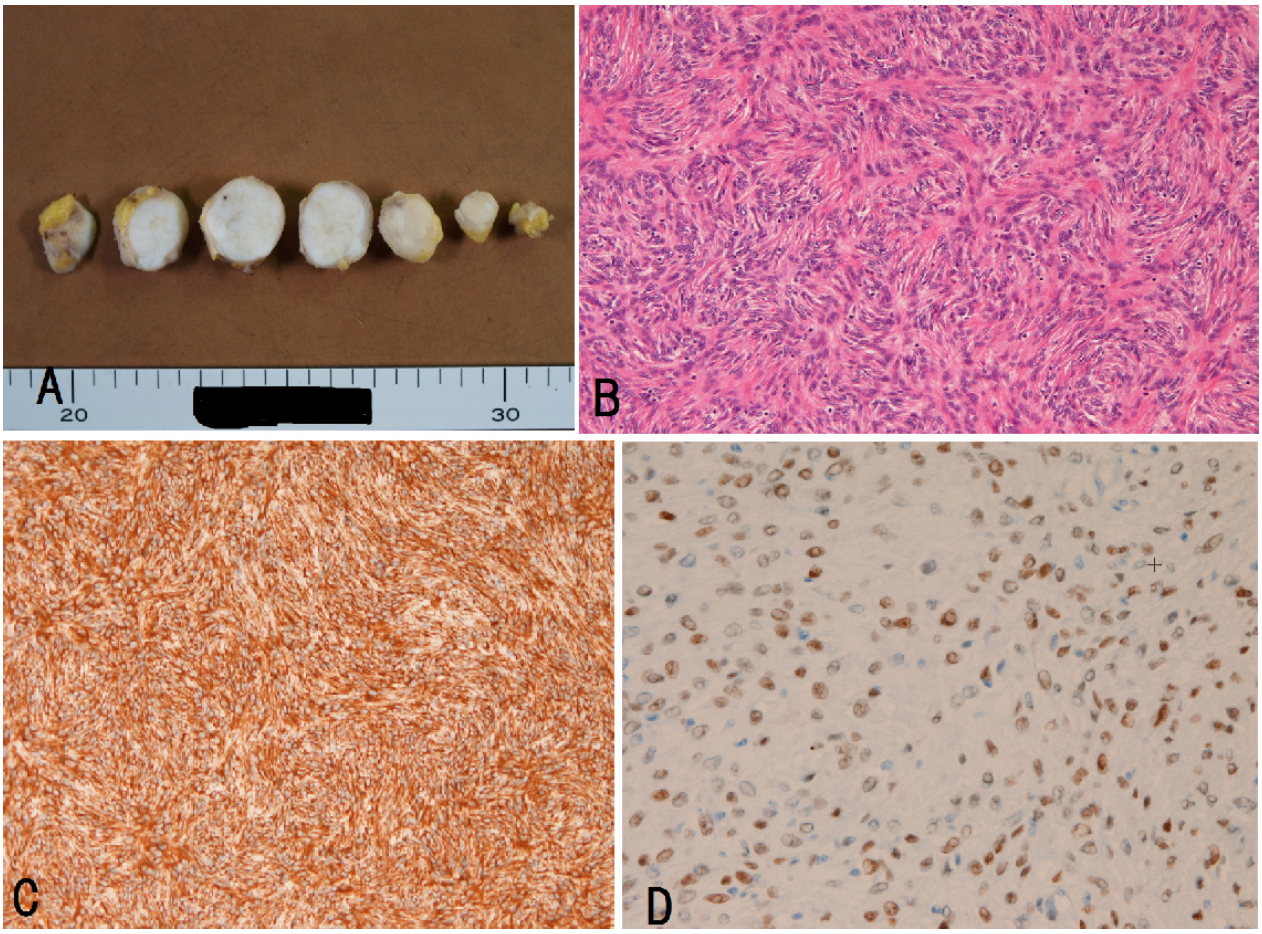

Figure 1. A: Gross cut features of the breast. The tumor is white and solid. Fibrous capsule is seen together with capsular invasion; B: Microscopic features. The tumor is composed of relatively cellular spindles cells arranged here with striform appearance. No mitotic figures are seen. HE, ×200; C, D: Immunohistochemical features of the breast tumor. The tumor cells are positive for vimentin (C) and estrogen receptor (D). C, D: ×200.

3. Discussion

Although the present tumor was diagnosed as FB by the author, it may belong to the spectrum of MFB by WHO.[1] The concept of MFB of WHO contains relatively broad spectrum of fibroblastic tumor ranging frank lipomatous lesions to highly complicated myoblastic tumor, though the most common are smooth muscle differentiation and benign natures. In the present study, the author defined the breast MFB into MFB which shows smooth muscle differentiation and FB which lacks smooth muscle antigen. The tumor lacked smooth muscle antigens (h-caldesmone, desmin, alpha-smooth muscle antigen); therefore it is breast FB. The capsular and extracapsular invasion does not imply the malignant nature, as noted in WHO. The negative p53 and low Ki-67 labeling index imply the benign characters of the tumor.[3] Although smooth muscle antigens were nega-

tive, the present tumor seems to belong to MFB of WHO without smooth muscle differentiation or FB. In the tumor, myoepithelial antigens (ASMA, CD10, p63, CK34BE12, h-caldesmone)[4] were negative except CD10 that was positive. CD10 seems to be stained in no myoepithelial cells but merely in the fibroblasts.[5] The positive staining of ER and PgR implies that the tumor is composed of mesenchymal cells inherent to breast mesenchyme.

The differential diagnoses are as follows: the present case is not different from phyllodes tumor or fibroadenoma because of lack of epithelial element. The tumor is different from myoepithelima because of lack of smooth muscle antigens. The present tumor is different from nodular fasciitis and inflammatory myofibroblastic tumor because of lack of inflammation. The tumor is not GIST because of negative KIT and CD34.[6–8] Negative KIT (CD117) shows that the tumor is not KIT-related tumors.[6–8] The present tumor is different from benign vascular lesions and pseudoangiomatous stroma hyperplasia (PASH) because of lack of significant vasculatures.[9] The tumor is different from desmoid-type fibromatosis because of the different histology. It is different from granular cell tumor, schwannoma, and neurofibroma in S100-protein negativity. However, the possibility that present tumor is nerve sheath tumor, such as neurothekeoma and nerve sheath myxoma cannot be excluded completely. The tumor is not different from sarcomas of breast including liposarcoma, angiosarcoma, osteosarcoma, leiomyosarcoma, rhabdomyosarcoma, and MPNST.

4. Conclusion

A very rare case of fibroblastoma of breast without smooth muscle differentiation is presented.

Conflicts of Interest Disclosure

The authors declare no conflicts of interest.

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