

Smooth Muscle Proliferation in Fibroadenoma

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A twenty-nine-year-old Bahraini female presented with painless right breast lump of thirteen years duration. The lump was 7.5 cm, well-defined, mobile and located in the lower inner quadrant of the right breast with no palpable axillary lymph nodes. Breast ultrasound findings revealed right breast hypoechoic mass slightly irregular and lobulated with minimal cystic changes, vascularity and faint focal calcification. Fine-needle aspiration cytology was C2 (benign).

The lump was surgically removed. The lump measured 55x55x32 mm, lobulated, firm and tan colored tissue. Histopathology revealed benign tumor formed of mixed epithelial and stromal components. Immunohistochemically, the stromal spindle cells were strongly positive for smooth muscle myosin. Microscopic and immunohistochemical findings proved that the abundant stromal elements were smooth muscle cells.

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Fibroadenoma is the most common benign lesion of the breast. Fibroadenomas are composed of epithelial and stromal components. Abnormal smooth muscles are rarely encountered in the stroma of fibroadenomas¹. Goodman et al first reported a case of fibroadenoma with prominent smooth muscle cells in 1981².

The aim of this report is to report a case of a large fibroadenoma for 13 years.

THE CASE

A seven-month pregnant 29-year-old Bahraini female presented to the breast clinic. She complained of painless right breast lump of thirteen years duration. The lump did not increase in size during this period. The patient had no history of oral contraceptive pill intake or other drugs, chronic illnesses or surgery. Family history was negative for breast cancer.

Clinically, the mass was 7.5 cm well-defined, mobile, and located in the lower inner quadrant of the right breast with no palpable axillary lymph nodes. Left breast examination was normal. The clinical impression was either giant fibroadenoma or phyllodes tumor. Breast ultrasound findings showed right breast hypoechoic mass at 4 o'clock, slightly irregular and lobulated with minimal cystic changes, vascularity and faint focal calcification. No other

breast lesions or axillary lymph nodes were seen. Fine-needle aspiration cytology was C2 (benign). The patient had an excisional biopsy after weaning the baby.

Macroscopically, the right breast lump removed and measured 55x55x32 mm, lobulated, firm and tan colored tissue. The cut surface of the specimen was homogenous, solid, and white in color. No cystic lesions, neither hemorrhage nor necrosis were seen and the lesion was well-demarcated but not encapsulated.

Histopathology revealed a completely excised benign tumor formed of mixed epithelial and stromal components; however, the stromal elements were dominant. Nuclear pleomorphism and mitosis were absent, see figure 1.

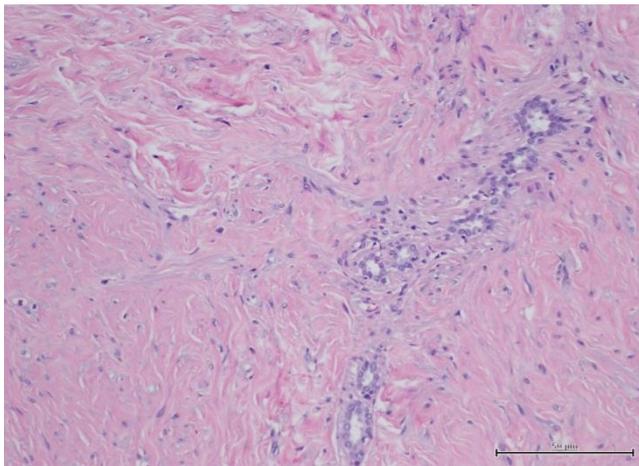


Figure 1: The Stromal: Spindle Cells, Eosinophilic Cytoplasm and an Elongated Nuclei

Immunohistochemically, the stromal spindle cells were strongly positive for smooth muscle myosin, see figure 2.

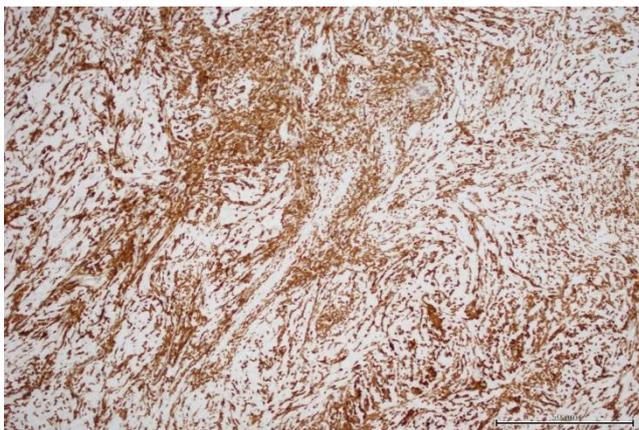


Figure 2: Immunohistochemically, Spindle Cells Strongly Express Smooth Muscle Myosin

Microscopic and immunohistochemical findings proved that the abundant stromal elements were smooth muscle cells.

DISCUSSION

Smooth muscle cells have been considered rare in fibroadenomas since Goodman et al reported such case in 1981². Shimizu et al revealed the presence of smooth muscle stroma component in 4 (4.7%) cases of 85 fibroadenoma cases³. In our case, the overall histological pattern is that of a large fibroadenoma with muscle component proven by immunohistochemistry stain (SMM).

In normal histology of the mammary tissue, smooth muscle fibers are absent, except for the erector muscle of the nipple³. Therefore, the presence of smooth muscles in fibroadenoma of the breast is said to be metaplastic originating from stromal fibroblasts, myofibroblast and myoepithelial cells³. Shimizu et al clearly explained that smooth muscles could appear in the stroma of long standing tumors due to metaplastic process³.

The differential diagnosis of fibroadenoma with abundant smooth muscle cells includes leiomyomas and myoid hamartoma^{4,5}. The diagnosis of the former is restricted to lesions occurring in subareolar area and is composed of exclusively smooth muscle cells positive with immunohistochemistry for desmin and smooth muscle myosin⁶. Myoid hamartomas are tumor-like lesions composed of variable mixture of normal mammary components and smooth cells⁷. In our case, the differentiation was made based on the proliferation of ductal and stromal components.

CONCLUSION

A rare case of a long standing breast mass with abundant smooth muscle proliferation was reported.

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