CASE REPORT

SOLITARY FIBROUS TUMOUR OF BREAST

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Abstract

Solitary fibrous tumours (SFTs) are fibroblastic mesenchymal tumour primarily identified in the pleura but are now being reported in other anatomic sites as well. SFT is generally characterised as a radiologically confined neoplasm composed of a proliferated spindle cells arranged in patternless manner. Intervening tissue shows prominent haemangiopericytoma-like vessels. Stroma is usually fibrous. Tumour is positive for CD34. SFT has a specific translocation representing fusion NAB2 with STAT6 genes. This translocation can be highlighted with very good specificity and sensitivity using STAT6 immunohistochemical stain. Some cases of SFTs have also been described in the breast. Rarely, SFT can show aggressive behaviour. SFT enters the differential diagnoses of benign and malignant spindle cell tumours of breast and it is, therefore, important that its clinical, radiological and pathological features are known to clinicians and diagnosticians.

Key words: CD34, myofibroblastoma, NAB2-STAT6, solitary fibrous tumour

Introduction

Solitary fibrous tumours (SFTs) are fibroblastic mesenchymal tumour primarily identified in the pleura but are now being reported in other anatomic sites as well sites including upper respiratory tract, somatic tissue, mediastinum and head and neck.[1] SFT is generally characterised as a radiologically confined neoplasm composed of a proliferated spindle cells arranged in patternless manner. Intervening tissue shows prominent haemangiopericytoma-like vessels. Stroma is usually fibrous.

We describe a case of SFT of breast that presented as a palpable breast mass. We have also discussed the differential diagnosis of neoplasm as SFT enters the differential diagnoses of benign and malignant spindle cell tumours of breast and it is, therefore, important that its clinical, radiological and pathological features are known to clinicians and diagnosticians.

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Presentation of the Case

Clinical History

A 28-year-old lady presented with a lump in her left breast for 1 year. It measured about 6.5 × 6.0 × 4.0 cm and was located in the upper outer quadrant of the breast. The patient had complaints of pain; however, there was no nipple discharge. The right breast was normal on physical examination. Mammography and ultrasound were performed on the bilateral breasts and showed a mass of 6.5 × 6 × 4 cm in the left breast. Excision of the lump was recommended.

Gross Morphology

We received a lumpectomy specimen measuring 6.5 × 6 × 4 cm. External surface was a bit lobulated and cut surface was tan white, homogeneous and also lobulated. Several sections were taken (one section from every centimetre) and processed for histological examination.

Microscopic Morphology

Microscopically, the tumour composed of spindle cells arranged in patternless manner with prominent haemangiopericytoma-like blood vessels. Stroma was fibrous. Cell revealed mild atypia and occasional mitotic

figures. Areas of necrosis, epithelial component and anaplastic features were not seen. Margins were pushing. At a greater magnification, the tumour cells showed mild increase in nuclear to cytoplasmic ratio and inconspicuous nucleoli.

Immunohistochemistry

The tumour cells were diffusely positive for CD34 and STAT6. Other markers ERG, S100, Cytokeratin CAM5.2 and oestrogen receptors were negative [Figure 1].

Discussion

Fibroblastic tumours affecting the mammary glands are very rare and represent only <0.2% of all primary breast lesions, with no significant difference in incidence between men and women.[2] The presence of large and solid vascular tumours, with prominent blood vessels, can lead the radiologist to the possible diagnosis of a solitary fibrous tumour.[3] The conformation of diagnosis requires biopsy followed by histological and immunohistochemical evaluation. Histologically, tumour is composed of a proliferated spindle cells arranged in patternless manner. Intervening tissue shows prominent haemangiopericytoma-like vessels. Stroma is usually fibrous. Tumour is positive for CD34. SFT has a specific translocation representing fusion NAB2 with STAT6 genes. This translocation can be highlighted with very good specificity and sensitivity using STAT6 immunohistochemical stain.[4]

The main differential diagnoses of SFT in the breast are myofibroblastoma. Even though myofibroblastomas and SFT of the breast share many morphological characteristics, there are many differences in their cytological composition. The immunohistochemical profile also shows that they are distinct entities.[5] It was initially observed in males but is now diagnosed with the same frequency in both men and women.[6] These are derived from CD34+, vimentin + and fibroblasts of mammary stroma capable of multidirectional differentiation.[7]

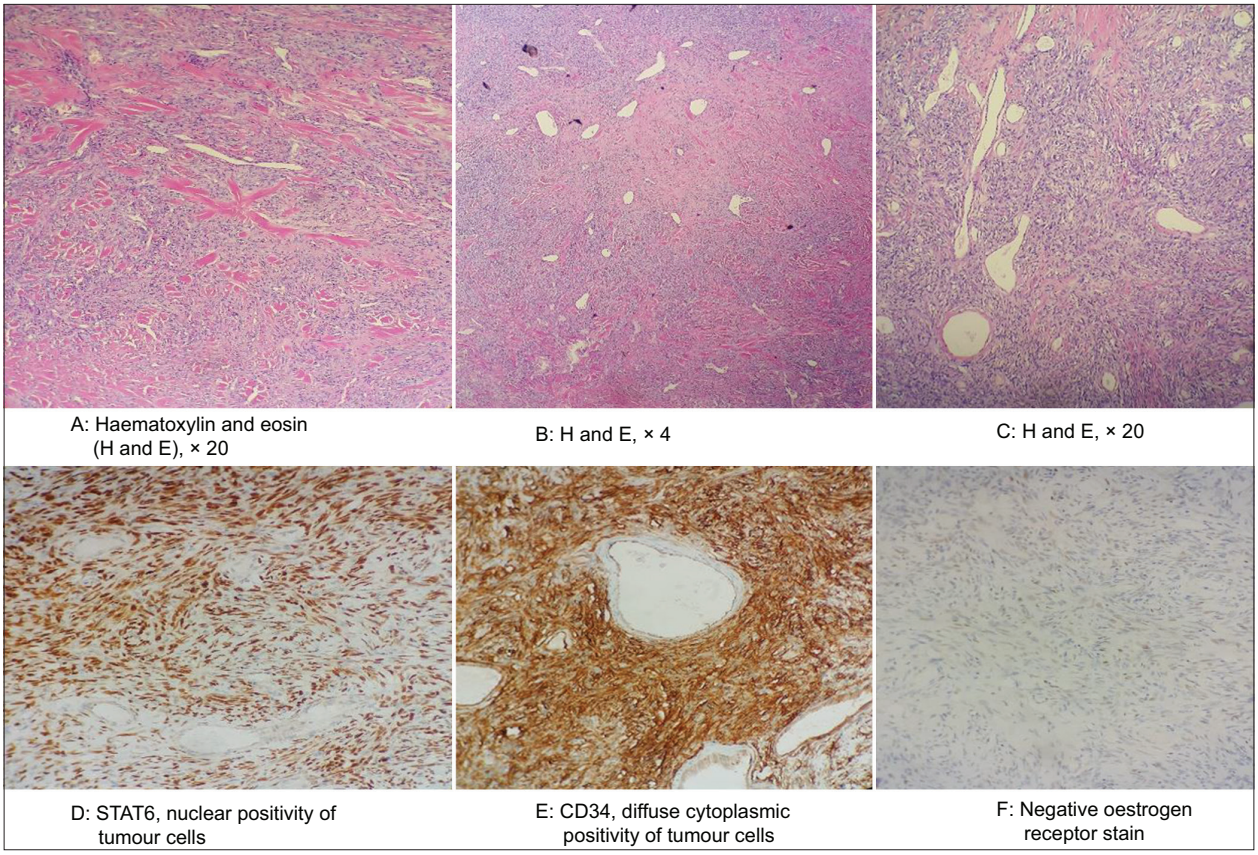

Figure 1: Histopathology of solitary fibrous tumour [A-C], Immunoprofile of solitary fibrous tumour [D-E]

Fibromatosis is another differential diagnosis that shows an infiltrative pattern of fibroblasts and myofibroblasts. There is a noteworthy risk of local recurrence but has no metastatic potential. Fibromatosis is uncommon in the breast and occurs in <0.2% of all primary breast lesions.[8]

Another differential to consider in benign spindle cell lesions is nodular fasciitis. It can also occur rarely in the breast and is diagnosed in relatively young patients. In the cellular phase, it may seem cytologically as malignant due to atypia, but the rapid growth and recent history and positivity of actin and smooth muscle favour nodular fasciitis.[9]

Fibromatosis-like variant of metaplastic carcinoma is a low-grade variant of metaplastic carcinomas. It is very difficult to diagnose in needle biopsy often since it can mimic other neoplasms of breast cells. An immunohistochemical staining panel with cytokeratins and myoepithelial markers is a requisite for the diagnosis of fibromatosis-like variant of metaplastic carcinoma fibromatosis-like spindle cell carcinoma.[10]

Inflammatory myofibroblastic tumour is a cellular lesion composed of fibroblasts and myofibroblasts mixed with plasma cells in a collagen-rich stroma in the background.[11]

Finally, the phyllodes neoplasms can also imitate any proliferation of spindle cells in small biopsies. These tumours are composed of stromal cells with leaf-shaped spaces that are covered by a benign mammary glandular epithelium. The phyllodes tumours are classified as benign, borderline and malignant, depending on atypia in stromal cells with increased cellularity, nuclear pleomorphism and mitosis. Stromal cells of phyllodes tumours are positive for CD34, vimentin and β-catenin, they are negative for cytokeratin.[12]

The importance of differentiating between these above-mentioned spindle cell tumours of the breast lies in their different clinical behaviour and treatment options.

Conclusion

It is important to know about pathological features of different spindle cell lesions of breast so that they are diagnosed and treated in an appropriate and recommended way.

Conflict of Interest

The authors declare that they have no conflict of interest.

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Authorship Contributions

Concept and design: SN, NA, UH, MH; Data Collection and interpretation: SN, NA; Literature review and writing: SN, UH; Manuscript approval: SN, NA, UH, MH