DOI: 10.7860/JCDR/2022/58130.16680

Case Report

Pathology Section

Diagnostic Dilemma in Spindle Cell Lesions of Breast- A Case Report

K KHOWSALYA SUBRAJAA[1], S PREETHI[2], S BALAMURUGAN[3], S MANJANI[4]

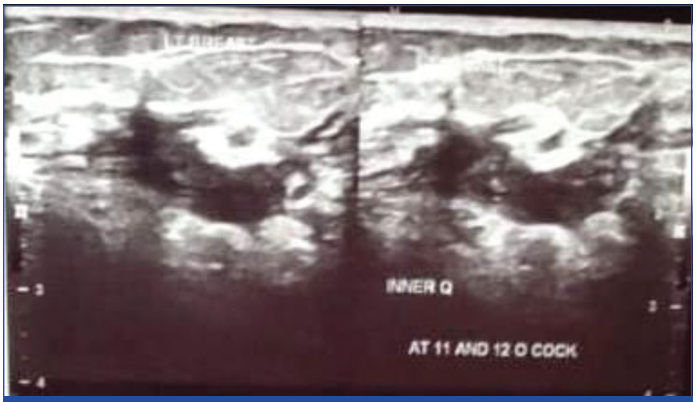
ABSTRACT

Spindle cell lesions of breast pose diverse morphological patterns which can turn out to be reactive, benign and malignant tumours with overlapping features. Differential diagnosis are wide. It is challenging to the pathologist due to its rarity. The origin of spindle cell lesions of the breast is highly variable and represents multiple lineages. Hereby authors report a case of a 56-year-old female presented to the Outpatient Department with left breast swelling. Mammogram showed hypoechoic ill-defined irregular lesion. On imaging findings, evolving abcess and neoplastic were considered as probable diagnosis. On histopathological examination, the lesion showed bland spindle cells arranged in short fascicles and and in diffuse pattern. The lesion was diagnosed as spindle cell lesion. Immunohistochemistry confirmed the diagnosis of fibromatosis. The standard treatment of wide local excision with adequate safety margins was done. Postoperative period was uneventful. On two years follow-up, the patient had no recurrence. While being very rare at this site, the lesion has locally aggressive behaviour with high recurrence rate.

Keywords: Abscess, Benign, Neoplastic, Swelling

CASE REPORT

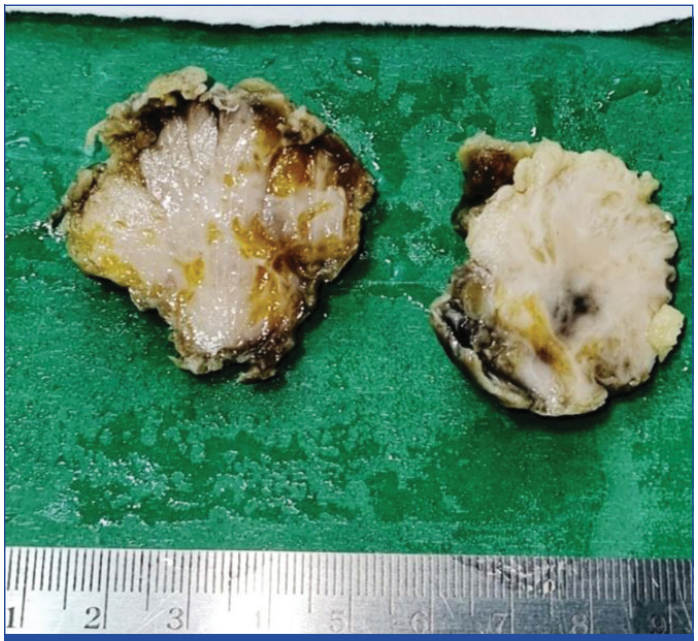
A 56-year-old female presented to the Outpatient Department with left breast swelling since three months. On examination the lump was 2×2 cm in left upper inner quadrant. Overlying skin and Nipple areola complex was normal. Right breast and bilateral axilla normal. The lump was mobile, non tender and firm in consistency. Mammogram of left breast showed fairly defined predominantly hypoechoic lesion measuring 1.9×1.1×1.6 cm in the upper inner quadrant and reported as ill-defined irregular lesion with differential diagnosis of evolving abcess/suspicious of a malignant lesion [Table/Fig-1]. Suggested Fine Needle Aspiration Cytology (FNAC) for further evaluation Cytology (FNAC) for correlation.



[Table/Fig-1]: Mammogram showing hypoechoic lesion in the left breast upper quadrant.

The FNAC was done outside and the cytology report showed paucicellular smears with occasional clusters of benign ductal epithelial cells, showing bimodal population with myoepithelial rimming, occasional cells showed mild nucleomegaly. Background showed fibromyxoid stromal fragments with bipolar bare nuclei and cyst macrophages. No atypical cells were reported.

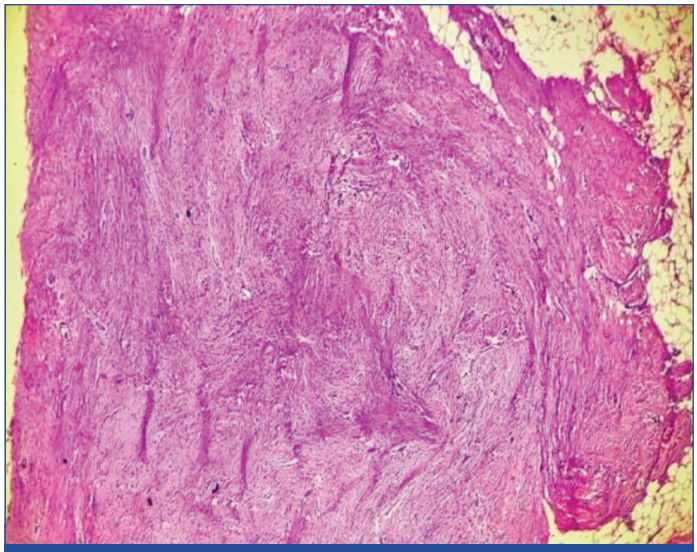
Patient underwent lumpectomy and the specimen was sent to pathology department in 10% buffered formalin. On gross examination, vaguely nodular 5×4 cm with partial capsule, grey white firm on cut surface was present [Table/Fig-2]. Tissue sections were processed and the slides were stained with Haematoxylin and Eosin (H&E).



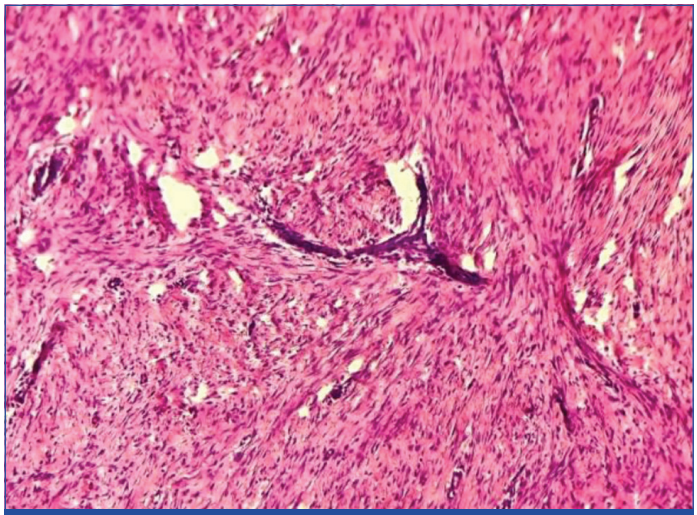
[Table/Fig-2]: Gross picture showing grey white cut surface.

Microscopically multiple sections showed a cellular lesion composed of bland spindle cells arranged in short fascicles and in diffuse pattern [Table/Fig-3,4]. The spindle cells have elongated nuclei and eosinophilic cytoplasm [Table/Fig-5]. No significant nuclear atypia. Mitotic activity inconspicuous. The spindle cells are seen infiltrating the adjacent adipose tissue and skeletal muscle. There are foci of entrapped benign-appearing ductal epithelial cells and peripheral aggregates of lymphoid cells [Table/Fig-6]. Surrounded fat shows cluster of multinucleate giant cells and foamy macrophages. With all these findings it was reported as features favour spindle cell lesion possibly fibromatosis of breast. But other possibilities were also considered such as myofibroblastoma- infiltrative type, phyllodes (stromal overgrowth) and low-grade fibromatosis-like spindle cell carcinoma. So, Immunohistochemistry (IHC) was advised.

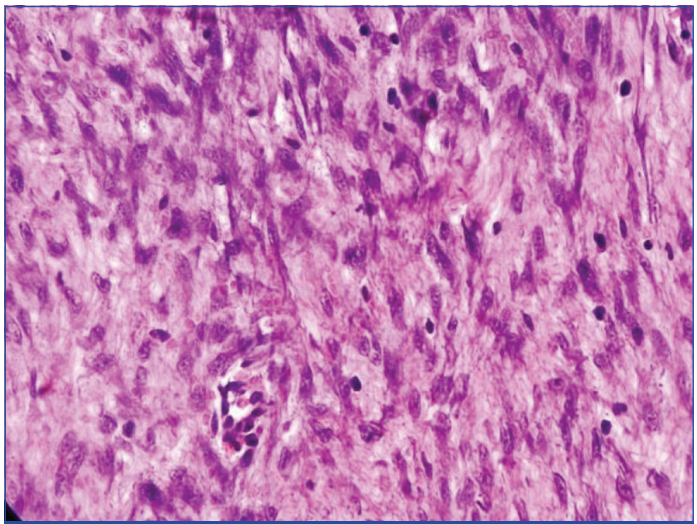
The tumour cells showed positivity for beta-catenin and negative for BCL2, Desmin, SOX10, h-caldesmon. The CD34 stain was done which highlighted the vascular lumens. The final diagnosis was given as spindle cell neoplasm, consistent with fibromatosis



[Table/Fig-3]: Photomicrograph showing spindle cells arranged in fascicles and bundle (H&E stain, 40X).



[Table/Fig-4]: Photomicrograph showing bland spindle cells in fascicles (H&E stain, 100X).

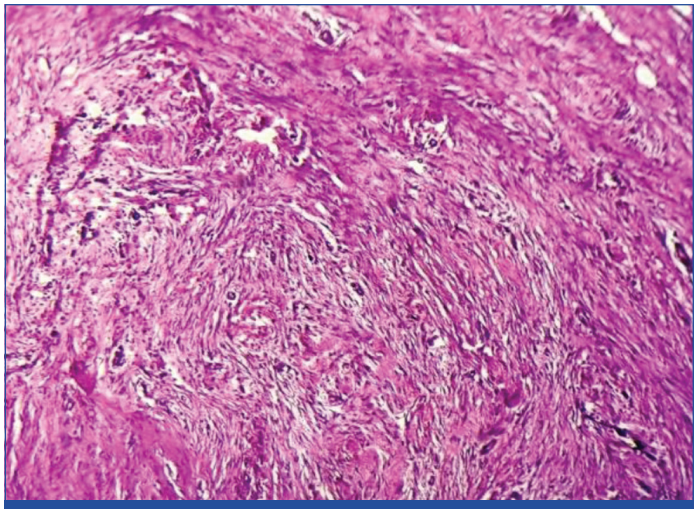


[Table/Fig-5]: Photomicrograph showing spindle cells with elongated nuclei and eosinophilic cytoplasm (H&E stain, 400X).

of left breast lump. The standard treatment of wide local excision with adequate safety margins was done. Postoperative period was uneventful. On two years follow-up, without any intervention, the patient had no recurrence.

DISCUSSION

Spindle cell lesions of the breast comprise a heterogeneous group of lesions [1]. Pathologists should recognise the wide range of differential diagnoses and be familiar with the diverse morphological appearances of these lesions to make an accurate diagnosis and to suggest proper management of the patients [2]. Differential diagnosis to be considered are both benign and malignant such as myofibroblastoma, phyllodes tumour, nodular fasciitis, dermatofibrosarcoma protuberans and low-grade fibromatosis-like spindle cell carcinoma [3,4]. The differentiating features for myofibroblastoma is fascicular growth separated by hyalinised collagen bands. For nodular fasciitis is lesion shows loose fascicles to storiform pattern of spindle cell arrangement with myxoid stroma. Dermatofibrosarcoma protuberans composed of spindle cells arranged in storiform to whorled pattern with cells showing abundant eosinophilic cytoplasm. Low-grade fibromatosis-like spindle cell carcinoma shows cytologically bland spindle cells with areas of epithelial differentiation [4]. Fibromatosis can occur at various location in the body typically arising from the muscle, the fascia and aponeurosis. Breast being the unusual location, fibromatosis accounts for 0.2% of all breast tumours [5].



[Table/Fig-6]: Photomicrograph showing spindle cells entrapping the ducts (H&E stain, 100X).

Immunohistochemistry plays an important role in differentiating all these entities when the morphological features pose dilemma [6]. Fibromatosis shows positivity for beta-catenin, cyclin D1, calretinin and variable positivity for Smooth Muscle Actin (SMA) and negative for CD34 and cytokeratin. Myofibroblatoma shows diffuse and strong positivity for CD34 and desmin. Negative for cytokeratin and beta-catenin. Nodular fasciitis shows positivity for SMA and calponin. Negative for CD34 and cytokeratin. Dermatofibrosarcoma protuberans shows vimentin positivity and negative for SMA, S100 and desmin. Low-grade fibromatosis-like spindle cell carcinoma shows positivity for its most sensitive marker high molecular weight cytokeratins.

Though fibromatosis is non cancerous and does not metastases, it is prone for local recurrence (18-29%) [7]. Wide local excision with negative margins is the standard treatment.

CONCLUSION(S)

Spindle cell lesion of the breast is a very rare occurrence and also the cytological and pathologic features of this entity has limited literature support. Although it has been described in many site, relatively few instances of spindle cell lesions originating in the breast have been reported. Since, it has a locally aggressive behaviour with a high recurrence rate. Histomorphology with immunohistochemistry remains gold standard.

REFERENCES

[1] Rakha EA, Brogi E, Castellano I, Quinn C. Spindle cell lesions of the breast: A diagnostic approach. Virchows Arch. 2022;480(1):127-45.
[2] Benej R, Meciarova I, Pohlodek K. Desmoid- type fibromatosis of the breast: A report of 2 cases. Oncology Letters. 2017;14:1433-38.

[3] Abdelwahab K, Hamdy O, Zaky M, Megahed N, Elbalka S, Elmetwally M, et al. Breast fibromatosis, an unusual breast disease. J Surg Case Rep. 2017;2017(12):rjx248.
[4] Dwyer JB, Clark BZ. Low-Grade Fibromatosis- like Spindle cell carcinoma of the breast. Arch Pathol Lab Med. 2015;139:553-57.
[5] Yazidi TL, Aghbari SA, Qassabi BA, Riyami MA. Breast. Fibromatosis case series and literature review. Int J Surg Res Pract. 2021;8(1):123.
[6] Trihia HJ, Kouzos D, Souka E, Moundrea M, Manikis P, Provatas I. Fibromatosis of the breast: Report of a case with cytohistological Correlation. Arch Breast Cancer. 2022;9(2):240-46.
[7] Grimaldi MC, Trentin C, Gullo RB, Cassanob E. Fibromatosis of the breast mimicking cancer: A case report. Radiology Case Reports. 2018;13:01-05.

PARTICULARS OF CONTRIBUTORS:
1. Assistant Professor, Department of Pathology, Bhaarath Medical College and Hospital (BIHER), Chennai, Tamil Nadu, India.
2. Associate Professor, Department of Pathology, Bhaarath Medical College and Hospital (BIHER), Chennai, Tamil Nadu, India.
3. Professor, Department of Pathology, Bhaarath Medical College and Hospital (BIHER), Chennai, Tamil Nadu, India.
4. Associate Professor, Department of Pathology, Bhaarath Medical College and Hospital (BIHER), Chennai, Tamil Nadu, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. S Manjani,
Associate Professor, Department of Pathology, Bhaarath Medical College and Hospital (BIHER), Chennai, Tamil Nadu, India.
E-mail: manjani.md@gmail.com

PLAGIARISM CHECKING METHODS: [Jain H et al.]
- Plagiarism X-checker: Jun 07, 2022
- Manual Googling: Jul 07, 2022
- iThenticate Software: Jul 21, 2022 (14%)

ETYMOLOGY: Author Origin

AUTHOR DECLARATION:
- Financial or Other Competing Interests: None
- Was informed consent obtained from the subjects involved in the study? Yes
- For any images presented appropriate consent has been obtained from the subjects. Yes

Date of Submission: **May 31, 2022**
Date of Peer Review: **Jun 15, 2022**
Date of Acceptance: **Jul 11, 2022**
Date of Publishing: **Aug 01, 2022**