Original Research Paper

Volume-9 | Issue-1 | January-2019 | PRINT ISSN - 2249-555X

Pathology

SPINDLE CELL SARCOMA OF BREAST : A CASE REPORT

Muktanjalee Deka Associate professor, Department of Pathology , Gauhati Medical College and Hospital

Bini Borah* Post graduate trainee, Department of Pathology , Gauhati Medical College and Hospital *Corresponding Author

ABSTRACT Primary spindle cell sarcoma is a rare neoplasm constituting 0.2-1% of all mammary malignancies comprising of <5% of all soft tissue tumors and spindle cell sarcomas being one of the most common subtypes . Here we report a case of 38 years old female with swelling in the left breast for a period of 2 years . FNAC was performed and was diagnosed as malignant spindle cell lesion with differential diagnosis of metaplastic carcinoma of breast and malignant phyllodes tumor . The patient underwent simple mastectomy and after both histopathological and immunohistochemical examination of the post-mastectomy specimen , the case was reported as intermediate grade spindle cell sarcoma of breast . Four months later patient was readmitted with recurrence of the tumor mass at the mastectomy site and the tumor was again diagnosed as intermediate grade spindle cell sarcoma as before . Primary spindle cell sarcoma often carries a poor prognosis . Combination of histopathological and immunohistochemical examination is mandatory for diagnosis .

KEYWORDS :

Introduction

Primary sarcoma of breast is a rare neoplasm and constitute 0.2-1% of all mammary malignancies , comprising of <5% of all soft tissue tumors[3,7]. It usually occurs in 4th to 5th decades of life and mean age is around 40 years[4] . It shows female preponderance and male cases usually represent less than 5% of primary breast sarcomas[1] . Spindle cell sarcoma is one of the most common subtypes[6] .

Case Report

We present a case of 38 years old female , who presented with a swelling in the left breast for a period of 2 years , which was insidious in onset , gradually progressive in size with no associated pain , ulceration or nipple discharge along with no family history . Physical examination revealed a non tender , firm to hard palpable mass in the left breast . Subsequently FNAC was performed and on microscopic examination , cellular smears showed hyperchromatic pleomorphic spindle cells , both in clusters as well as singly dispersed in a background of abundant myxoid stroma . The case was diagnosed as malignant spindle cell lesion with the differential diagnosis of metaplastic carcinoma of breast and malignant phyllodes tumor . The patient underwent simple mastectomy and the specimen was sent to department of pathology , Gauhati Medical College and Hospital , for histopathological examination . On gross examination of the specimen , a tumor mass was detected measuring (20×15×12) cm^3 . Cut surface of the tumor mass is well circumscribed , solid , grayish white . Histopathological examination showed spindle to stellate cells with fascicular arrangement at places . Cells were hyperchromatic showing moderate pleomorphism and delicate cytoplasm . Delicate vasculature noted in the background . The tumor had infiltrative edge . Mitotic count was 10/10 HPF . Epithelial elements not seen . The following differential diagnosis were considered – 1) malignant phyllodes tumor 2) metaplastic spindle cell carcinoma 3) monophasic synovial sarcoma 4) myoepithelial carcinoma . Immunohistochemical examination was performed with tumor cells showing diffuse and strong vimentin positivity and EMA , desmin , ER , PR , Her2neu , S-100 , calponin negativity . Immunostaining with Ck was done three times showing negative results . Both histopathological and immunohistochemical findings ruled out the above mentioned differentials . Therefore the tumor was reported as intermediate grade spindle cell sarcoma of breast .

Four months later , the patient was readmitted with recurrence of tumor mass at the mastectomy site . Revision mastectomy with excision of the mass was performed . On gross examination , a tumor mass measuring (8.5×5.5×5) cm^3 was noted with cut surface of the mass being well circumscribed , solid , grayish white Microscopic examination of the tumor was suggestive of the recurrence of intermediate grade spindle cell sarcoma of breast .

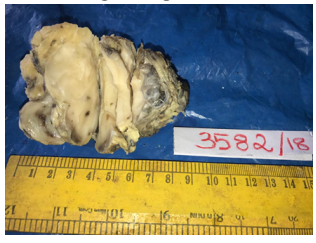


Fig – 1 : A well circumscribed tumor mass , Solid , grayish white in colour

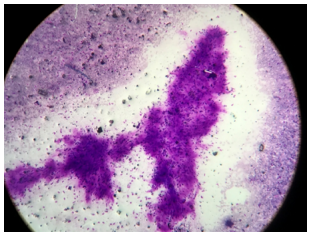


Fig - 2 : 100X : Spindle cells are arranged in clusters as well as singly dispersed in a background of myxoid stroma (MGG stain)

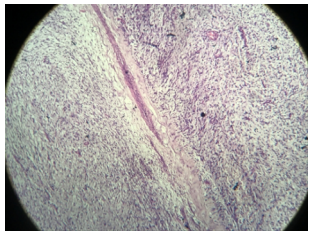


Fig – 3 : 100X : Cells are arranged in fascicular pattern (H & E stain)

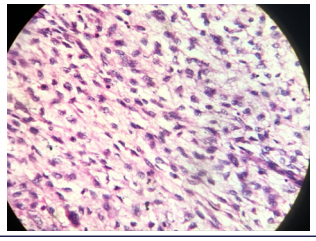


Fig – 4 : 400X : Hyperchromatic moderately pleomorphic spindle cells . Mitoses are seen in the background (H & E stain)

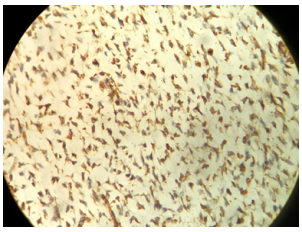
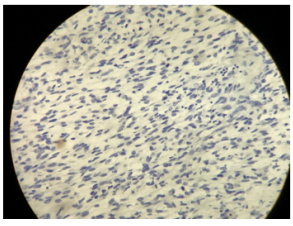


Fig-5 : Shows strong vimentin positivity



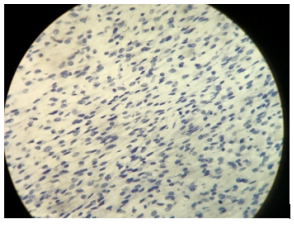
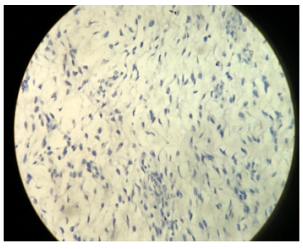


Fig – 6 : ER negativity **Fig – 7 : PR negativity**



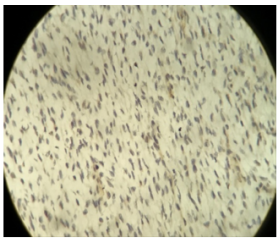


Fig – 8 : Her2neu negativity **Fig – 9 : Ck negativity**

Discussion

Mammary sarcomas are heterogenous group of malignant neoplasms that arise from mammary stroma with spindle cell sarcoma being a descriptive subtype . Other descriptive subtypes are myxoid sarcomas , pleomorphic sarcomas and small round cell sarcomas[3] . They can arise as a primary lesion , or more commonly secondary to radiotherapy[3] . The use of radiotherapy increases the risk of development of angiosarcomas , pleomorphic undifferentiated carcinomas and other rare types of sarcomas within the field of irradiation[10] .

They usually present with gradually increasing mass typically without any pain or overlying skin changes[8] . As a group , mammary sarcomas vary greatly in size , ranging from less than 1 to 30 cm or more . In most studies , the mean and median sizes fall between 4 to 7 cm . The gross appearance of the tumor is influenced in part by the specific histological characteristics of the lesion , but the specimens typically consist of fleshy , moderately firm , pale tissue with varying amounts of haemorrhage and necrosis . Most sarcomas appear well circumscribed grossly , even if the border is invasive histologically[10] .

Breast sarcomas are often refractory to diagnosis by conventional triple assessment . Mammographic findings in sarcoma are non specific . Depending on the type , it may appear as a nonspiculated dense mass with indistinct borders to areas of asymmetry or even no mammographic abnormality at all[11] . Ultrasonography usually reveals an irregular hypoechoic mass , with indistinct margins and posterior acoustic shadowing[5] . MRI in breast sarcomas can indicate malignancy . The tumors are lobulated and display rapid enhancement and so called “wash out” characteristics , all of which may helpful in suggesting the diagnosis of malignancy[11] . But overall , primary breast sarcomas have no pathognomonic imaging features[5] . On FNAC , features of breast sarcomas can mimic other spindle cell lesions like phyllodes tumor or metaplastic carcinoma . That is why histopathology is of utmost importance for diagnosis of sarcomas . But at the same time , even histopathologically , features of spindle cell sarcomas can overlap with other malignant neoplasms like metaplastic spindle cell carcinoma , myoepithelial carcinoma , malignant phyllodes tumor etc . Also , morphology of some of the histopathological types of spindle cell sarcomas show extensive similarities with each other . These factors mandate the importance of immunohistochemistry . But it is to be noted that , sarcomas like monophasic synovial sarcomas can be difficult to differentiate from other spindle cell sarcomas based on histopathological and immunohistochemical profiles only . Therefore , molecular studies like break – apart FISH and RT-PCR of fusion transcripts have been employed for accurate diagnosis[12] .

The mainstay of treatment is surgical , generally comprising of either wide local excision or simple mastectomy depending on the size and the location of the tumor . Routine axillary lymph node dissection is not indicated since sarcomas predominantly exhibits haematogenous spread[9] . Also , most studies show that , at the very least , adjuvant radiotherapy tends towards better survival , but the role of chemotherapy is less clear .

Primary spindle cell sarcomas often carries a poor prognosis with prognostic factor depending mostly on the adequate surgical excision , tumor grade and tumor diameter . Studies show that tumor size >5 cm , often carries a poor prognosis[2] . The reported 5 year survival rate for patients with breast sarcomas range from 40 to 91%[3] .

Conclusion

Primary spindle cell sarcoma is a rare neoplasm , that needed to be diagnosed early for prompt treatment and adequate surgical resection for patient survival . The combination of histopathological , immunohistochemical and in some cases , molecular studies is mandatory for diagnosis .

REFERENCES

1. Adem C , Reynolds C , Ingle JN , Nascimento AG . Primary breast sarcoma : Clinicopathologic series from the mayoclinic and review of the literature . Br J Cancer . 2004;91(2):237-47 .
2. Al Benna , S . ,Poggemann ,K., Steinan , HU . et al . Breast Cancer Res Treat (2010) 122 : 619 .
3. Cil , Timucin et al . “Primary Spindle Cell Sarcoma of the Breast “. breast care 3.3(2008) : 197-199 .
4. Dimosthenis Miliaras and Emmanouel Konstantinides, “Malignant Fibrous Histiocytoma of the Breast : A Case Report,” Case Repoerts in pathology, vol 2012, Article ID 579245, 3 pages, 2012.
5. Eur J Radiol . 2017 Mar ; 88 : 1-7 . doi : 10 . 1016 / j . ejrad . 2016 . 12 . 020 . epub 2016 Dec 21
6. Gesakis, K., Tanos, G., Onyekwelu, O., Gaitis, A., Gudur, L., & Agarwal, A. (2014). Primary Spindle Cell Sarcoma of the Breast Masquerading as Necrotizing Fasciitis. Journal of Surgical Case Reports , 2014.1(2014) , rjt096.
7. Moore MP , Kinne DW. Breast Sarcoma . Surgclin North Am. 1996; 76:383-392
8. Pandey M, Mathew A, Abraham EK , Rajan B. Primary sarcoma of the breast .J Sur Onc.2004; 121-125
9. Pollard SG , Marks PV , Temple LN , Thompson HH. Breast sarcoma . A clinocopathological review of 25 cases .Cancer 1990;66:941-4.
10. Rosen's Breast Pathology , fourth edition
11. Timothy D. Pencavel , Andrew Hayes, Breast sarcoma – a review of diagnosis and management , International journal of Surgery,Volume 7, Issue 1, Pages 20-23, ISSN 1743-1991
12. WHO classification of Tumours of Soft Tissue and Bone , 4th edition