Case Report

Low-grade adenosquamous carcinoma breast in 55-years-old female: A diagnostic challenge

Shilpa Garg, Shivani Kalhan, Neha Garg, Shweta Rana, Manmeet Kaur Gill, Ashok Sangwaiya

Department of Pathology, Shaheed Hasan Khan Government Medical College, Nalhar, Mewat, Haryana, India

ABSTRACT

Low-grade adenosquamous (LGAS) carcinoma is rare morphological variant of metaplastic breast carcinoma. Only few cases have been reported in the literature so far. We reported a case of LGAS carcinoma in 55-years-old female who presented with huge lump breast since 6 months. On fine needle aspiration cytology, it was diagnosed as mesenchymal tumor with uncertain malignant potential. Mastectomy without axillary clearance was performed. On histopathology diagnosis of LGAS carcinoma was made and patient was kept on regular follow-up. Due to limited literature available LGAS carcinomas are usually misdiagnosed and treated as benign breast lesions. These tumors have risk of local recurrence after incomplete excision and low metastatic potential also. So, high index of suspicion should always be kept for these tumors to diagnose them at early stage.

Key words: Adenosquamous, breast, carcinoma, metaplastic

INTRODUCTION

Low-grade adenosquamous (LGAS) carcinoma is rare histopathological type of metaplastic breast carcinomas (MBCs). LGAS carcinomas are first described in early 1980's.^[1] On preliminary investigations like mammography, ultrasonograpy, fine needle aspiration cytology, trucut biopsy, and on frozen sections; it is difficult to distinguish them from other benign and low-grade lesions. So excision biopsy is necessary for definitive diagnosis. These tumors have potential of recurrence after incomplete excision and low metastatic potential too.^[1,2] We reported a case of LGAS carcinoma breast in 55-year-old female.

CASE REPORT

A 55-year-old postmenopausal female presented with lump left breast since 6 months. Physical examination revealed a

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diffuse lump measuring 6 cm × 5 cm involving upper outer quadrant of left breast. No lymph nodes were palpable in the axillary region. There was no family history of breast carcinoma. Examination of the right breast as well as systemic examination was unremarkable. Mammography revealed a highly dense mass with well-defined margins diagnosed as BIRADS 4B. Ultrasonography revealed a solid hypoechoic mass of 5 cm dimension. Clinically and radiologically presumptive diagnosis of carcinoma breast was kept, and fine needle aspiration cytology was advised. On cytology, smears were cellular and were composed of slightly pleomorphic plump oval to spindle shaped cells having fine chromatin and inconspicuous nucleoli. These cells were embedded in fibro myxoid stroma [Figure 1]. Possibility of a mesenchymal tumor with uncertain malignant potential was kept. Core needle biopsy performed was comprised of predominantly fibroblastic stroma, the epithelial component was not included in the biopsy. Mastectomy without axillary clearance was performed, and send for histopathology. Grossly mastectomy specimen measured 18 cm × 17 cm × 10 cm. On serial sectioning, a tumor identified measuring 10 cm × 9 cm × 8 cm. Cut section of the tumor was largely mucoid with some gray, white areas. Tumor was <0.1 cm from base [Figure 2]. On microscopic examination sections from the tumor revealed proliferating bundles and fascicles of spindle cells along with intervening scattered epithelial cells in ductular and gland formations. The latter are lined by pleomorphic

Address for correspondence: Dr. Shilpa Garg, House No. 12, Lucky Home Society, Sector-13, Rohini, New Delhi - 110 085, India. E-mail: shilpapgpath@gmail.com

hyperchromatic cells with focal squamous metaplasia. The cyst lined by squamous epithelium and filled with keratinous material were seen [Figure 3]. The stroma revealed dense hyalinization and focal myxochondroid change. The tumor has circumscribed borders. Foci of ductal carcinoma *in situ* and epithelial hyperplasia were present in the surrounding breast. Sentinel lymph nodes submitted separately were negative for any metastatic deposits.

On immunohistochemistry (IHC), the epithelial component was positive for cytokeratin and mesenchymal component for vimentin. The tumor was triple negative for estrogen receptor (ER), progesterone receptor (PR) and for her 2 neu oncogene. Smooth muscle actin (SMA) highlighted the myoepithelial cells [Figure 4].

Hence, final diagnosis of LGAS carcinoma was kept, and the patient was kept on regular follow-up. Now she is on regular follow-up since 10 months without any evidence of recurrence.



Figure 1: Photomicrograph of the smear prepared from fine needle aspirate comprise of cellular stromal fragments showing oval to spindle shape cells embedded in fibromyxoid stroma with mild cellular atypia (Leishman ×200)



Figure 3: Photomicrograph showing (a) predominantly spindle cells and collagenous stroma (b) infiltrating tumor with squamoid differentiation and cyst lined by squamous epithelium and filled with keratinous material (H and E ×200)

DISCUSSION

Metaplastic breast carcinomasare a heterogenous group of malignant lesions, accounting for <1% of all invasive breast carcinomas.^[1,2]

The World Health Organization have classified MBC into pure epithelial type and mixed epithelial and mesenchymal type. The epithelial type MBC is subclassified into squamous cell carcinoma, adenosquamous carcinoma and adenocarcinoma with spindle cell differentiation; mixed type MBC is subclassified into carcinosarcoma and carcinoma with osseous and chondroid metaplasia.^[3-5]

Low-grade adenosquamous carcinoma also known as syringomatous squamous tumor is very rare variant of metaplastic carcinoma.^[1] It was first described in early 1980's by Rosen and Ernsberger^[6] and after that only a few case



Figure 2: Photomicrograph of the gross specimen showing well circumscribed gray, white tumor



Figure 4: Immunohistochemical (IHC) staining with (a) cytokeratin: Highlighting the epithelial component (b) smooth muscle actin: Highlighting the myoepithelial cells (IHC ×200)

reports and case series have been published. It is commonly seen in females aged from 31 to 87 years. Clinically it presents as palpable painless mass.^[1]

It is difficult to diagnose these tumors from other benign and invasive tumors on incillary noninvasive investigations. On imaging studies like ultrasonography and mammography only the benign nature of the lesion is observed. On ultrasonography usually a round or oval well-circumscribed hyperechoic mass is seen. On mammography, the usual findings of invasive tumor like pleomorphic and linear microcalcifications are not seen in LGAS carcinoma.^[7] Despite the infiltrative nature, these tumors do not exhibit much cytological atypia so possess difficulty on cytology. As a result, these lesions are easily misinterpreted as benign lesions and lead to delay in diagnosis.^[27]

Diagnosis is usually made histologically on excision biopsy specimen as on trucut biopsy also the infiltrative nature of the tumor cannot be observed. On histopathology, these tumors consist of infiltrative small round to irregular glands embedded in collagenous and spindle cell stroma. Some of the glands reveal varied amount of squamoid differentiation. Despite the infiltrative nature, these glands reveal low-grade cytological atypia, few to absent mitosis, absent to minimal necrosis. Lymph nodes are usually negative for metastases. All these features are seen in our case. One rare finding present in our case was the formation of cysts lined by squamous epithelium and lumen filled with keratinous material, this has not been described in the literature so far.^[1]

Immunohistochemistry profile of these tumor has been described by Kawaguchi and Shin.^[8] LGAS carcinoma exhibit triple negative IHC profile that is, negative for ER, PR and HER2/neu receptors. These tumors are variably positive for myoepithelial and cytokeratin markers. SMA, p63, calponin and CD-10 markers also reveals variable degree of positivity.^[7] Our case was positive for cytokeratin and SMA.

Histologically differentials include lesions with small glandular proliferations and minimal cytological atypia that is, benign lesions like sclerosing adenosis, microglandular adenosis and the malignant one like tubular carcinoma. Despite the histological overlap in all these cases, the morphology and IHC help in making definitive diagnosis.^[1] Distinction from these benign mimics is essential for proper management and treatment. LGAS carcinomas are known to locally recur after incomplete excision and have low metastatic potential. So far, lymph node metastasis has not been reported in these tumors, so wide local excision without axillary clearance is the treatment of choice. However, these patients should be kept on regular follow-up.^[1,2]

CONCLUSION

Low-grade adenosquamous carcinomas are rare variant of metaplastic carcinoma. These tumors are usually misdiagnosed and are treated as benign lesions. These are usually diagnosed later on when they recur. So, high index of suspicion should be kept for such tumors to diagnose them at early stage.

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