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Metaplastic Carcinoma of Breast with Chondrosarcomatous Differentiation- A Rare Case Report

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Abstract
Metaplastic carcinomas of breast are rare neoplasms. They are highly heterogenous groups of tumors that are characterised by an admixture of adenocarcinoma with dominant areas of spindle cell, squamous, and/or mesenchymal differentiation[1,2]. Other than a lower rate of lymph node metastases, MBC (metaplastic breast carcinoma) display poorer prognostic features relative to IDC. Due to its relative rarity and heterogenous histologic presentation, the pathologic diagnosis of MBC is difficult. We report a case of metaplastic breast carcinoma in whom fine needle aspiration cytology was performed with later histological confirmation.

Introduction

The term metaplastic carcinoma was first introduced by Huvos et al.[3] Metaplastic breast carcinoma (MBC) is very rare malignancy and metaplastic carcinoma with chondro-sarcomatous differentiation is even rarer(0.17%)[4].

It has been reported that these tumors are more likely to occur in women older than 50 years [5]. MBCs are highly heterologous groups of tumours that are characterized by the histologic presence of two or more cellular types, commonly a mixture of epithelial and mesenchymal components [1]. Oberman[5] separated metaplastic carcinomas into three groups: spindle cell carcinoma, invasive ductal carcinoma with extensive squamous metaplasia, and invasive carcinoma with pseudosarcomatous metaplasia. However, he suggested that these tumors were variants of a single entity because of the lack of correlation of microscopic pattern with prognosis, as well as the apparent overlapping microscopic findings.

Case Report

We report a case of metaplastic carcinoma of breast in a 52 years old female. She presented with a lump in the upper outer quadrant of the left breast for last 8 months in the Department of surgery, R.D. Gardi medical College, Ujjain

(M.P.). There was no history of nipple discharge or pain. Ultrasonography showed irregularly marginated mass with posterior enhancement. Her fine needle aspiration (FNA) cytology was done which showed malignant ductal epithelial cells arranged in clusters and scattered singly. Individual cells show pleomorphism, hyperchromatism, granular chromatin and indistinct nucleoli. Atyical chondrocytes were observed against a background of myxomatous substance. All these features were suggestive of metaplastic carcinoma of breast.(fig.1)

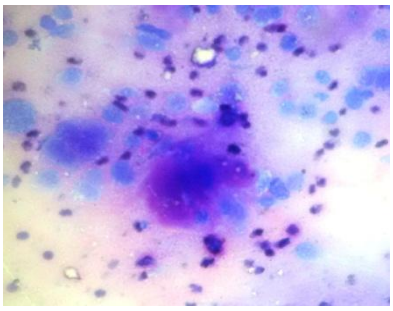

Fig. 1

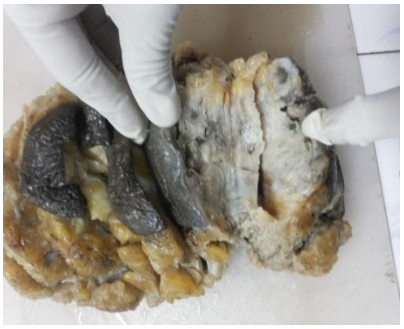

Fig. 2

After the surgery, a MRM (modified radical mastectomy) specimen was received in histopathology section. Gross examination of the specimen revealed a growth of 23x15x5 cm. Nipple and areola were identified grossly. Cut surface showed a grayish white, ill defined, variegative growth measuring 17x8 cm(fig.2). Growth was firm in consistency. The specimen was fixed in 10% formalin. Paraffin sections were prepared and stained with haematoxylin and eosin. No lymph nodes were retrieved from the specimen. Microscopic examination of H&E stained sections showed admixture of malignant ductal cells with dominant chondrosarcomatous areas. Individual tumor cells are binucleated, multinucleated and the nuclei are plump and hyperchromatic with perinuclear clear spaces. These cells were seen embedded in the chondroid matrix(fig.3,fig.4). All skin margins, nipple and areola were free from tumor invasion. Based on these histological features, a histopathological diagnosis of metaplastic carcinoma with chondrosarcomatous differentiation was made.

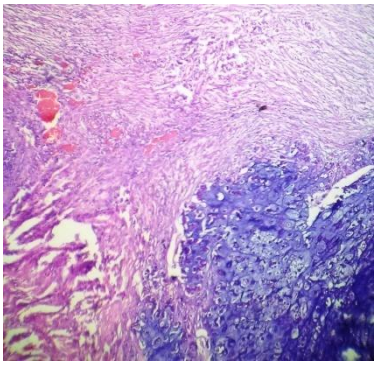

Fig. 3(10x)

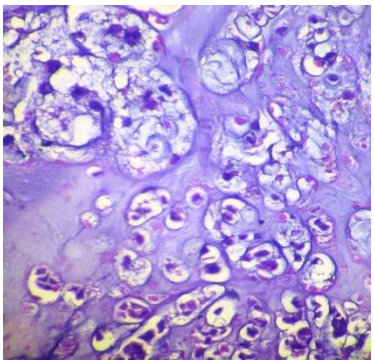

Fig. 4(40x)

Discussion

World Health Organization (WHO) recognized MBC as a unique pathologic entity in 2000. Since then, the incidence of MBC has risen, likely representing an increased recognition by pathologists [6]. Metaplastic carcinomas of the breast have been broadly classified as purely epithelial and mixed epithelial – mesenchymal. The purely epithelial group includes squamous cell carcinomas, adenocarcinoma with spindle cell differentiation and adenosquamous carcinoma. The second broad category metaplastic carcinoma also called as matrix producing carcinoma show an infiltrating carcinoma mixed with heterologous mesenchymal elements ranging from benign

chondroid/osseous matrix to frank sarcoma (chondrosarcoma, osteosarcoma, rhabdomyosarcoma, fibrosarcoma) [4]. The designation of carcinosarcoma is used when the mesenchymal component is malignant. The popular theory explaining the histiogenesis of metaplastic components is through transformation of myoepithelial cells or a multipotent duct progenitor cell after p53 mutation [7].

Very few case reports of metaplastic carcinoma with chondrosarcomatous component have been described in the literature. The commonest epithelial element is poorly differentiated duct carcinoma, NST as in the present case. Metaplasia has also been reported in association with lobular, tubular, medullary and mucinous breast carcinoma [7]. Among the spectrum of heterologous mesenchymal components seen in metaplastic carcinoma, the incidence of osteo/chondrosarcoma is very rare. This rare chondrosarcomatous component was seen in our case.

MBCs are characterized by a larger tumour size at presentation, higher rates of both local and distant recurrence, higher rates of ER, PR and Her2 negativity. The incidence of lymph node metastasis from metaplastic carcinoma is lower than might be anticipated for infiltrating duct carcinoma, in keeping with the sarcomatous phenotype. Purely sarcomatoid tumors have significant lower rate of nodal metastasis than conventional ductal and lobular carcinomas[8]. An aggressive course has been seen in metaplastic carcinomas-sarcomatoid type as compared to the matrix producing metaplastic carcinomas. Most metaplastic carcinomas are managed by radical mastectomy followed by radiation and chemotherapy. The differential diagnoses of chondrosarcomatous lesions of the breast include a pure chondrosarcoma and malignant phyllodes tumor with heterologous component [9]. Extensive meticulous tumor sampling to rule out carcinoma component breast in the former and the presence of benign ductal elements would exclude the possibility of the latter differential diagnosis.

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