

Case Report

Mucinous carcinoma of breast in 32 years old female patient - A rare case report

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Abstract

In India, breast cancer is the most common cancer among females. Invasive ductal carcinoma is the commonest reported type of breast carcinoma. Mucinous carcinoma is a relatively rare histological subtype of breast cancer. The two known subtypes, the pure and mixed are labelled based upon the quantification of cellularity. The prognosis of mucinous breast cancers is better than that of infiltrating ductal carcinomas NOS with a 10 year survival of more than 80%. Treatment modalities include surgery, chemotherapy and radiation therapy. We reported this case because of its rarity and we can demonstrate classical histological findings too.

Key words

Mucinous carcinoma, Breast cancer, Prognosis, Histological findings.

Introduction

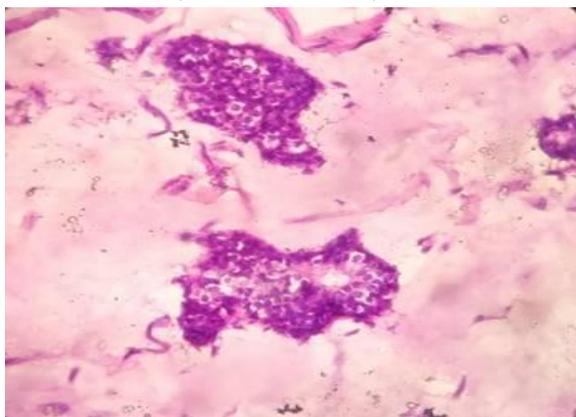
In India, breast cancer is the most common cancer among females. Invasive ductal carcinoma is the commonest reported type of breast carcinoma. Mucinous carcinoma is a relatively rare histological subtype of breast cancer. It accounts to 1 - 7% of all invasive breast cancers [1, 2]. Because of its rarity despite having a large tumor size, the axillary lymph node is not involved, hence rendering favorable

prognosis. Pure mucinous carcinomas should be distinguished from mixed neoplasm, because the latter have a poorer prognosis that is most likely related to the extent of invasive carcinoma lacking extracellular mucin. We reported this case because of its rarity and we can demonstrate classical histological findings too.

Case report

A 32 years old female presented with breast swelling since 7 months in surgery OPD. On examination, the tumor was located in the upper outer quadrant of the left breast, measured 5×4×4 cm, and was nodular and soft to firm in consistency. A fine needle aspiration was advised. FNAC was performed in cytology department at our hospital [3-11].

Photograph – 1: FNAC shows a mucinous background and monomorphic tumor cells in loose clusters (H&E stain, 40X).



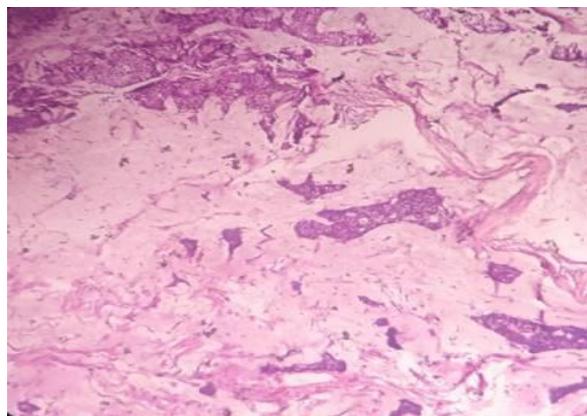
Photograph – 2: Gross appearance of mucinous carcinoma with well circumscribed mass and gelatinous areas.



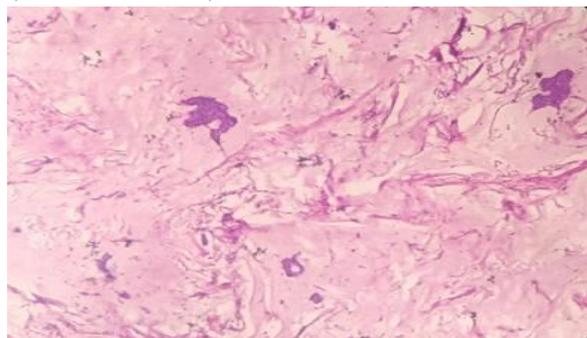
Cytological examination revealed a mucinous background against which were seen monomorphic tumor cells arranged in loose clusters and also singly scattered. Individual tumor cells had abundant eosinophilic cytoplasm, round to oval monomorphic to mildly pleomorphic eccentrically located nuclei with fine granular chromatin. Intracytoplasmic mucin or signet ring cells were not detected (**Photograph - 1**). A diagnosis of mucinous carcinoma of the left breast was made. The

surgeons performed Modified Radical Mastectomy and we received a skin covered specimen measuring 10×5×2 cm. Skin was wrinkled and nodular and was attached to the underlying tumor. Cut surface showed a lobulated tumor measuring 5×4.5×4cm having gray- white solid and gelatinous areas (**Photograph - 2**). The tumor was reaching up to the skin. Histopathological examination confirmed the diagnosis of pure mucinous carcinoma of the breast with no component of ordinary invasive ductal cancer. The tumor was well circumscribed and arranged in a lobular pattern. Clusters of tumor cells were seen floating in extracellular pools of mucin (**Photograph - 3, 4**). The tumor cells were large, mildly pleomorphic with moderate amount of eosinophilic cytoplasm and vesicular nuclei with prominent nucleoli. All surgical margins and lymph nodes were free from tumor tissue.

Photograph – 3: Clusters of malignant tumor cells floating in extracellular pools of mucin (H&E stain, 40X).



Photograph – 4: Pools of mucin with singly scattered and loose clusters of malignant cells (H&E stain, 40X).



Discussion

Mucinous carcinoma (MC) of breast is a rare histologic type of breast cancer occurring in elderly females and is characterized by abundant extracellular mucin secretion to a degree that mucin forms a large proportion of tumour volume relative to epithelium. Its prevalence is in the range of 1- 7% of all mammary neoplasms [12]. The two known subtypes, the pure and mixed are labelled based upon the quantification of cellularity [13]. The pure type consists exclusively of tumor tissue with extracellular mucin production in over of 90% of the tumor, while the mixed form contains abundant an infiltrating ductal epithelial component without mucin [14]. Mucinous breast carcinoma is a rare condition with challenging imaging diagnosis. It is a special type of breast cancer, characterized by large production of extracellular mucin.

In the present case, the age of the patient is 32 years. The reported prevalence of pure mucinous carcinoma is 7% in women 75 years or older and 1% in women less than 35 years of age [15, 16]. So that our case is the rarest among the cases of breast carcinoma. Mucinous carcinomas of breast are usually well differentiated or moderately well differentiated and have few mitotic figures. However carcinoma in situ can coexist with them [17]. Our case showed feature of pure mucinous carcinoma without any other component. There is a likely-hood that all MCs originate as a pure carcinoma.

As the carcinoma grows a clone of tumor cells dedifferentiates and shows the NOS pattern of invasive ductal carcinoma. Thus larger tumors are more likely to be mixed tumors. Park S, et al. in their study of 104 patients of MC had described that truly pure tumors are characterized by less aggressive behaviour and favorable histologic grade, and are rarely associated with nodal disease [18]. The prognosis of mucinous breast cancers is better than that of infiltrating ductal carcinomas NOS with a 10 year survival of more than 80%. Treatment modalities include surgery, chemotherapy and radiation therapy.

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