



MIXED MUCINOUS BREAST CARCINOMA IN A 35 YEAR OLD FEMALE- A CASE REPORT

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ABSTRACT Mucinous carcinoma of breast accounts for about 1.5-5% of all primary breast carcinomas. Rarely, they can occur with invasive ductal carcinoma, prognosis of which is related to the predominant component. A thirty five year old female presented with bilateral breast lumps since 4 months. Family history was not significant. Physical examination revealed a firm, fixed lump in the lower inner quadrant of left breast. On Fine- needle aspiration cytology from left breast lump, a diagnosis of carcinoma breast (C5) was given. Following this, Core cut biopsy was done and histopathological examination was suggestive of mucinous carcinoma. Patient was advised left modified radical mastectomy (MRM) with axillary clearance and a lumpectomy with wide local excision in the right breast. Patient is currently under regular follow up period and has received two cycles of chemotherapy. It is important to differentiate mixed mucinous carcinoma from pure mucinous carcinoma as the latter has a favorable prognosis and a better overall survival rate.

KEYWORDS : Mucinous, Mixed, Pure, Ductal carcinoma, Invasive.

INTRODUCTION

Mucinous carcinomas of breast are also known as Colloid, Mucoïd or Gelatinous carcinomas and comprise 1.5-5% of all primary breast malignancies.¹

Rarely, they can occur with invasive ductal carcinoma, prognosis of which is related to the predominant component. Pure mucinous carcinoma has a better prognosis as compared to mixed mucinous carcinoma.²

Pure type is composed of at least 90% of mucinous component.³

Mixed mucinous carcinoma are mostly associated with lobular or ductal neoplasia (insitu or invasive) and few have neuroendocrine differentiation.

Here we present a case report of mixed mucinous carcinoma of breast in a thirty five year old female.

CASE PRESENTATION

A thirty five year old female presented with bilateral breast lumps since 4 months. There was no family history of breast cancer. Physical examination revealed a firm, tender lump of 4cmx4cm in the lower inner quadrant of left breast which was fixed to the overlying skin. In the right breast 5cmx5cm lump was noted in the upper outer quadrant which was firm, freely mobile.

Fine- needle aspiration cytology (FNAC) was performed; a diagnosis of carcinoma breast (C5) was rendered. In the right breast, FNAC done twice was inconclusive.

After this, core cut biopsy was done from both the breast and histopathological examination was suggestive of mucinous carcinoma, left breast and right breast revealed occasional benign breast ducts in a fibrocollagenous stroma.

Following this, patient was advised a left modified radical mastectomy (MRM) with axillary clearance and a lumpectomy with wide local excision was performed in the right breast. Specimens were sent for histopathological examination. We received a specimen of MRM measuring 28x18x3cm. On cut section, firm to hard areas measuring 10x9x4cm were identified in the central quadrant. Also seen was a soft, well defined area measuring 1.5cm in diameter in the outer quadrant. Nineteen lymph nodes were identified, largest measuring 1.5x1x0.3cm. On microscopic examination, sections from the tumor mass showed cells arranged in nests, cords and also the tumor cells were embedded in pools of mucin forming clusters and acini. Cells were pleomorphic, hyperchromatic with vesicular nuclei and occasional mitosis was seen. A diagnosis of Invasive ductal carcinoma with mucinous differentiation was given. Deep resected margin, superior, inferior, medial, lateral and anterior margins were free of

tumor. Twenty one lymph nodes were identified, all of which were free of tumor. On immunohistochemistry, estrogen, progesterone and Her-2neu were negative.

We also received a right breast lumpectomy specimen. Two nodules were identified measuring 6x4.5x4cm and 5x3x1.5cm. On cut surface, grayish white slit like areas were noted. On microscopic examination, sections from the two nodular masses showed benign breast ducts and acini interspersed in dense fibrocollagenous stroma. Some of the ducts were cystically dilated with eosinophilic secretions in the lumen. Also focal areas of adenosis and epithelial hyperplasia were evident.

Patient is under regular follow up period and has received two cycles of chemotherapy.

Figure 1: Cytosmear shows ductal epithelial cells dispersed in pools of extracellular mucin. (H & E stain, 4x).

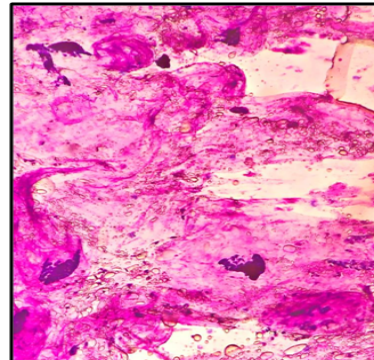


Figure 2: Microphotograph Showing Mixed Mucinous Carcinoma Comprising Of Invasive Ductal And Mucinous Components. (h & E Stain, 4x).

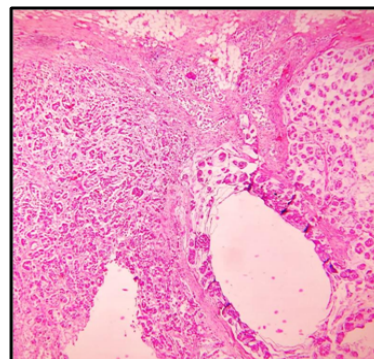


Figure 3: Microphotograph Showing Tumor Cells Seen Floating In Pools Of Mucin (red Arrow) Along With Invasive Ductal Carcinoma (black Arrow). (h & E Stain, 10x).

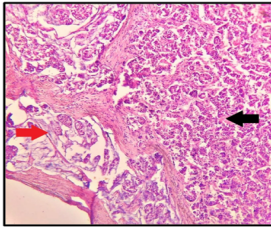
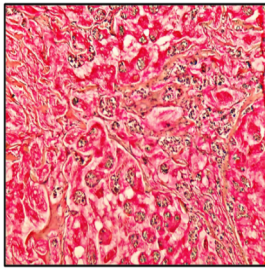


Figure 4: Microphotograph Showing Mucicarmine Positivity In Mucinous Areas.



DISCUSSION

Mucinous carcinoma of breast is a rare variant accounting of 4% (1-7%) of all invasive breast cancers.³ It most commonly affects elderly post-menopausal women. In our case, patient was a 35 year old woman. According to a study the mean age was 58 (range 55 to 81).⁴ The incidence of Mucinous carcinoma under 35 years old age is only 1%.^{5,6,7}

According to a study done by Kato et al, mucinous growth can begin in the intraductal carcinoma and in invasive ductal carcinoma.⁸ It has been known that mucinous carcinoma originates from ductal carcinoma, but whether its growth is initiated in the intraductal carcinoma or invasive ductal carcinoma is still unknown.⁸

Mucinous carcinoma (MC) is further divided into pure and mixed forms.^{9,10,11,12} Pure form comprises of more than 90% of mucinous cells. Mixed type is defined as having both mucinous and invasive solid components. Solid component may be formed by ductal carcinoma insitu, invasive ductal carcinoma or carcinoma with neuroendocrine differentiation.

As per the literature, mucinous carcinomas occur as pure carcinoma. When a clone of tumour cells differentiate and loses its ability to produce and secrete mucin, the tumour would change from pure MC to mixed MC. This explains larger size of mixed MC as compared to pure MC. The average size of MC is 2-3 cm in contrast to larger size of mixed MC.^{13,14}

Pure mucinous carcinoma has a better prognosis as compared to the mixed form which is an aggressive tumor same as isolated invasive carcinoma. Pure mucinous carcinoma is a type of insitu carcinoma in which a part of mucin secretion detaches the epithelium from underlying stroma, as a result of which the epithelial cells that are broken engulf mucin and it appears at the base of the cell and extracellularly. Henceforth, it was proven that in a pure mucinous carcinoma, it is mucin which is invading the stroma rather than the tumor cells that explained its better prognosis as compared to mixed variety composed of a solid component.¹⁴

Mixed mucinous carcinoma may be further divided into two groups based on amount of mixed mucinous component as was proposed by Lei et al.¹⁵ Two subgroups were partial mixed mucinous carcinoma containing <50% of mucin and mixed mucinous carcinoma.

As per the literature, the five year and ten year survival rates of invasive ductal carcinoma and pure mucinous carcinoma are 77%, 92% and 75-89% respectively.⁵

According to a study done by Di Saverio et al in which 11,400 pure mucinous carcinoma patients were retrospectively reviewed, the 5 year survival rate was 94% higher than IDC which was 82%. In this study, the most significant prognostic factor was nodal status followed by age, tumor size, progesterone receptors and nuclear grade.^{16,17}

Mucinous carcinomas usually have a high proportion of hormone receptor expression.

According to the study done by Lei Lei et al, mixed mucinous carcinoma with a smaller mucinous component presented with more aggressive features having lymph node metastasis, advanced clinical stage and a higher P₅₃ expression.¹⁵ As per the literature, incidence of axillary metastasis is 2-14% in pure mucinous carcinoma^{5,16,17,18,19} and 45-64% in mixed mucinous carcinoma.^{5,16} In our case axillary lymph nodes were free of metastasis.

According to a study, on immunohistochemical analysis, nuclear reactivity for ER and PR receptors was found in 86% and 72% of pure mucinous carcinomas respectively.^{20,21} In the mixed mucinous carcinoma ER and PR were identified in 74% and 52%.²² In our case ER, PR and HER2neu were negative.

In early stage breast carcinoma, breast conserving surgery is done. In locally advanced carcinoma, MRM followed by neo-adjuvant chemotherapy is recommended.²⁰ In our case as the patient was not given adjuvant hormonal therapy as the hormone receptors were negative.

In a study done by Bae et al Mucinous carcinoma had a 5 year overall survival of 98.9% as compared to 94.9% in Invasive ductal carcinoma.²³

CONCLUSION

We are reporting this case because of the rarity of Mucinous carcinoma in young females. It is important to differentiate mixed mucinous carcinoma from pure mucinous carcinoma as the latter has a favorable prognosis and better chances of survival.

Conflicts of Interest

None.

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