Case Report

Pure mucinous carcinoma in a male breast-a rare entity

Vidyadhara Rani P*1 and Naveen Kumar S2

1Mahalakshmi MRI Diagnostic Center, H-No 3-1-343, Dr. Ambedkar Road, Beside Sunrise Hospital, Karimnagar 505001.
2Department of Pathology and Department of Radiology, Chelmeda Anand Rao Institute of Medical Sciences, Karimnagar, Andhrapradesh.

*Correspondence Info:
Dr. Vidyadhara Rani P
Mahalakshmi MRI Diagnostic Center,
H-No 3-1-343, Dr. Ambedkar Road, Beside Sunrise Hospital, Karimnagar 505001.
E-mail: dr_vidya31@yahoo.co.in

Abstract
Male breast carcinoma is rare as compared to female counterpart. Pure mucinous carcinoma is an extremely rare histological subtype accounting for less than 1% of male breast cancers. So far very few cases of pure mucinous carcinoma of male breast have been reported in the literature. Fine-needle aspiration cytology is a well-established procedure for the evaluation of female breast masses but the diagnosis of malignancy in aspirates from male breast masses is rare. In the present study, we report a case of pure mucinous carcinoma in a 70 year old male diagnosed by fine-needle aspiration and confirmed by histopathology. Immunohistochemical staining for hormonal study was done.

Keywords: Cytology, male breast cancer, pure mucinous carcinoma.

1. Introduction
Male breast carcinoma is an uncommon neoplasm, accounting for 0.6% of all breast carcinomas and <1% of malignancies in men.1 Invasive ductal carcinoma of no special type is the most common type of male breast carcinoma, accounting for ~90%. Mucinous carcinoma, also referred to as colloid carcinoma or gelatinous carcinoma, is histopathologically characterized by the presence of clusters of neoplastic cells suspended in extensive extracellular mucin, and accounts for ~2% of female breast carcinomas.1 However, its occurrence in the male breast is extremely rare.2-4 Mucinous carcinoma is histopathologically subclassified into pure and mixed types. The pure form is defined as a lesion with a mucinous carcinoma component of >90% of the tumor. The pure mucinous carcinomas are further subdivided into cellular and hypocellular variants. The mixed type is defined as having mucinous and conventional invasive ductal carcinoma components.3 Pure mucinous carcinoma is associated with low rates of recurrence and excellent survival rates. In the present study, we report a case of pure mucinous carcinoma occurring in a male breast and review the clinicopathological features of this extremely rare tumor.

2. Case Presentation
A 70-year-old male presented with a subareolar firm to hard mass in the left breast, fixed to the overlying skin for 6 months duration. Physical examination revealed a well-circumscribed nodule, measuring 10x10 cm in diameter, in the left breast. There was a discharging ulcer over areolar region. Axillary lymph nodes were not palpable. The provisional diagnosis of carcinoma of breast was made and fine-needle aspiration cytology (FNAC) was advised. Subsequently FNAC was done using 22G needle. Haematoxylin- eosin and Papanicolaou staining were done. Smears showed abundant mucinous stroma in background with atypical cells lying in groups and also individually dispersed showing round to oval nuclei with regular nuclear margins and 1–2 prominent nucleoli (Fig-1). Possibility of mucinous carcinoma of breast (pure type) was given and biopsy was sent for histopathological examination. Grossly the mastectomy specimen was measuring 12x7x5cm, nipple and areola was ulcerated. C/S showed a well circumscribed tumour measuring 10x6x5cm having gelatinous appearance (Fig-2). Histopathology showed tumor cells arranged in nests and solid pattern floating in abundant extracellular mucin and thus confirmed the diagnosis of mucinous breast carcinoma (Fig-3). The cell clusters are variable in size and shape sometimes with a tubular arrangement rarely, they assume a papillary configuration. Atypia, mitotic figures and microcalcifications are not common, but occur occasionally. In our case microcalcifications are seen (Fig-4). Immunohistochemical staining for hormonal study were negative for estrogen and progesterone receptors.

Fig-1: Smears show sheets of atypical cells with round to oval nuclei with regular nuclear margins against mucinous background (H&E 40X)
Fig-2: Excised specimen measuring 10x6x5cm, C/s showed a well circumscribed tumour with gelatinous appearance.

Fig-3: Section showing tumor cells in nests and solid pattern floating in abundant extracellular mucin (H&E 40X)

Fig-4: Section showing microcalcifications (Psammoma bodies) (H&E 40X)

3. Discussion

Male breast carcinoma (MBC) is an uncommon neoplasm, accounting for 0.6% of all breast carcinomas and <1% of malignancies in men. Men present at an older age than women (median age of 64.5 years) and MBC incidence increases with an advancing age. The most frequent type (about 90%) is invasive ductal carcinoma. Pure mucinous carcinoma of the male breast is an extremely rare neoplasm. Very few cases of primary mucinous carcinoma have been reported in male breast.

Mucinous carcinoma is histopathologically subclassified into pure and mixed types. The pure form is defined as a lesion with a mucinous carcinoma component in more than 90% of the tumor, and the mixed type has both mucinous and conventional invasive carcinoma components. In the present case, a diagnosis of pure mucinous carcinoma was made since no conventional invasive ductal carcinoma component was present. It has been reported that the prognosis of pure mucinous carcinoma is more favorable than that of mixed type in females. Pure mucinous carcinoma in females is associated with a low incidence of nodal metastasis (2–4%) and the 10-year overall survival ranges from 80 to 100%.

Fine needle aspiration cytology (FNAC) is an easy and useful procedure for the diagnosis of breast tumors. The cytological features of mucinous carcinoma include the presence of relatively uniform neoplastic cells with slightly enlarged round to oval nuclei containing small nucleoli arranged in cords or small nests, within a rich mucinous material. A few cases of mucinous carcinoma of the male breast successfully diagnosed by FNAC have been reported. In our case mucinous carcinoma has been diagnosed primarily on FNAC. Recently, Ingle et al. documented a case of pure mucinous carcinoma with axillary lymph node metastasis in a 75-year-old male. Large studies done on male breast aspirates have found a very good diagnostic accuracy of FNAC in diagnosing male breast carcinoma, reaching more than 90%.
4. Conclusion

Pure mucinous carcinoma of the male breast is an extremely rare entity, it remains an important disease which should be recognized and managed timely. Any delay in management can affect the patient's survival. Even though mucinous carcinoma is an invasive breast cancer, it tends to be a less aggressive type that responds well to treatment. Mucinous carcinoma is less likely to spread to the lymph nodes than other types of breast cancer. FNAC is a useful tool for diagnosis with a very high sensitivity and specificity but the gold standard is histopathology.

References