Case Report

Pure mucinous carcinoma in male breast with axillary lymph node metastasis

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ABSTRACT

Male breast carcinoma is rare as compared to female counterpart accounting for <1% cancers in men. Various studies have shown that prognosis of breast carcinoma in males is poor than females. Moreover, mucinous carcinoma is an extremely rare histological subtype, and only ten cases are reported in literature. Metastasis to lymph nodes is rare event and also carries good prognosis. We hereby report a case of pure mucinous carcinoma in a 72-year-old male with metastasis to axillary lymph nodes. This case will add the rare reports in literature of this rare tumor.

Key words: Lymph node, male breast carcinoma, mucinous type

INTRODUCTION

Male breast cancer (MBC) is an uncommon neoplasm, accounting for 0.6% of all breast carcinomas and <1% of malignancies in men.[1] Although it is an extremely rare tumor, its incidence is increasing and has significant morbidity and mortality. It usually occurs in old age, with a peak incidence at around 60 years.[2] Mucinous carcinoma is a subtype of breast carcinoma extremely rare tumor in males.[2] Mucinous carcinoma is histopathologically subclassified into pure and mixed types. The pure mucinous form is defined as a lesion with a mucinous component of >90% of the tumor, and the mixed type is defined as having both mucinous and conventional invasive ductal carcinoma components.[3] Pure mucinous carcinoma is associated with low rates of recurrence and excellent survival rates.[3,4] There are 30 cases of mucinous carcinoma reported in literature, with only ten cases of pure mucinous carcinoma reported in literature.[5] We hereby report a case of pure mucinous carcinoma in a 72-year-old male, with metastasis to axillary lymph nodes. The present case was diagnosed as pure mucinous carcinoma because there was no component of conventional ductal carcinoma even after extensive sampling.

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CASE REPORT

A 72-year-old male presented with swelling right breast for 8 months. There was no family history of breast cancer. There was no history of predisposing factors such as gynecomastia, drug history (treatment for prostate cancer), and testicular disorder. On examination, there was a lump in right breast measuring 10 cm × 6 cm, soft to firm in consistency with retraction of nipple was present. There was an enlargement of right axillary lymph nodes, largest measuring 0.5 cm × 0.8 cm. The patient had already undergone whole body scan for metastasis which was normal. The patient had already undergone fine needle aspiration cytology (FNAC) from a private laboratory in other place. FNAC report was positive for malignancy and advised for histopathological confirmation. We received a specimen of breast with skin, nipple, and areola (12 cm × 7 cm × 5 cm) along with axillary tail [Figure 1a]. On cut section, there was

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a well-circumscribed growth measuring 10 cm × 6 cm × 4 cm, firm in consistency, and mucoid in texture [Figure 1b]. Totally, 10 lymph nodes identified largest measuring 0.8 cm × 0.6 cm. Histopathological examination revealed tumor cells arranged in nests, trabeculae and micropapillae in the background of abundant mucin [Figure 1c and d]. Conventional breast carcinoma component was absent even after extensive sampling. Five lymph nodes showed metastatic tumor deposits and rest five showed nonspecific reactive hyperplasia. Hence, diagnosis of pure mucinous carcinoma (Stage 3) was made. All resection margins were free from the tumor invasion, whereas overlying skin, nipple, and areola were involved by the growth. Immunohistochemistry was negative for Estrogen receptor (ER)- progesterone receptors (PR)-HER-2/neu (triple negative) [Figure 2]. The patient came for radiotherapy for 3 months then suddenly lost his follow-up.

DISCUSSION

Male breast carcinoma is a rare malignancy. The underlying pathogenesis is not completely understood, yet, but both genetic and hormonal causes have been described in the literature. Associated genetic factors are BRCA2 mutations and Klinefelter syndrome. In addition, obesity, radiation exposure, and testicular malignancies also included as risk factors. In addition, there are suspected predisposing factors such as prostate malignancies and gynecomastia.[2]

It is suggested that for pure mucinous carcinomas, the size of tumor does not correlate with the incidence of metastasis to axillary lymph nodes although smaller tumors carry an excellent prognosis. Some authors suggest that there will be improval in prognosis, if cellularity decreases and extracellular mucin increases, because mucin act as a barrier for tumor cells and decreases tumor cells in at the site of invasive margins.[4,6] However, in the present case, there was metastasis to axillary lymph nodes in spite of presence of abundant mucin.

This case was presented with lymph node metastasis and was undergone modified radical mastectomy with axillary lymph node dissection. MBC has a more aggressive clinical behavior than female breast cancer with a worse outcome when compared stage to stage.[7] The reason for worse prognosis in men mainly is due to anatomic factors, i.e., paucity of breast tissue and close tumor proximity to skin and nipple, facilitating dermal lymphatic spread and early regional and distant metastasis.[6] It has been reported that the prognosis of pure mucinous carcinoma is more favorable than that of mixed type. 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%.[3] Therefore, certain researchers have suggested that axillary lymph node dissection may be unnecessary for pure mucinous carcinoma, and they recommend sentinel lymph node dissection. However, there have been reports of pure mucinous carcinoma with axillary lymph node metastasis in the male breast.[3,4] Thus, sentinel lymph node technique and clinical follow-up are considered necessary for patients with mucinous carcinoma. The management algorithm is given in Figure 3.[8]

The majority of male breast carcinomas are estrogen and progesterone positive, and this finding does not correlate with better prognosis. However, these cancers less likely to overexpress p53 and erb-2, which are correlated with worse survival and increased proliferative activity.[8] However, this case was triple negative (ER-PR and HER-2/neu negative), was not a candidate for hormonal treatment. The patient was put on adjuvant radiotherapy after surgery. It is important to differentiate pure mucinous carcinoma from mixed mucinous carcinoma because treatment is

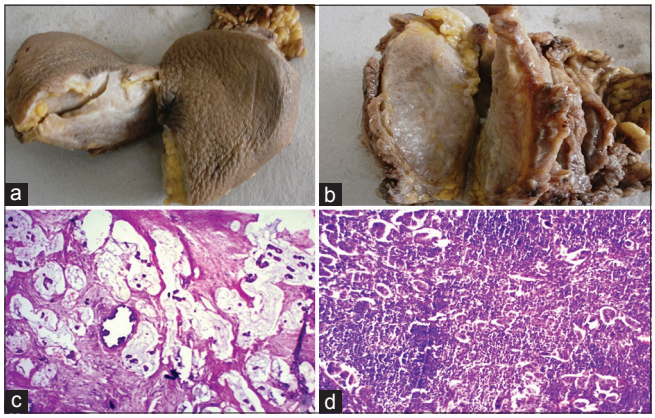

Figure 1: (a) Specimen of male breast showing retraction of nipple. (b) Well-circumscribed tumor with mucoid texture. (c) Nests of tumor cells surrounded by abundant mucin (H and E, ×100). (d) Tumor nests in axillary lymph node (H and E, ×100)

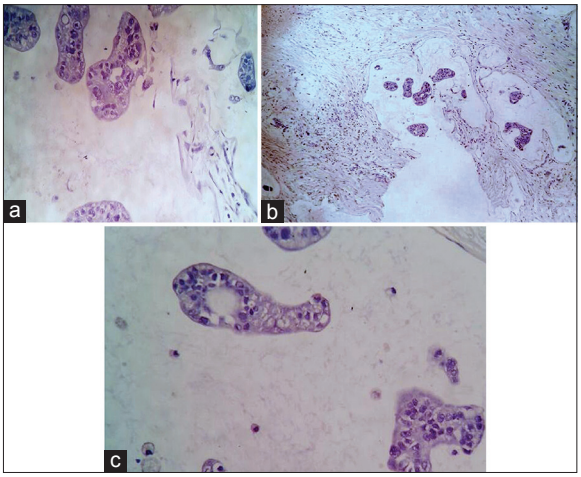

Figure 2: (a) Estrogen receptor negative (×400), (b) progesterone receptors negative (×100), (c) HER-2/neu negative (×400)

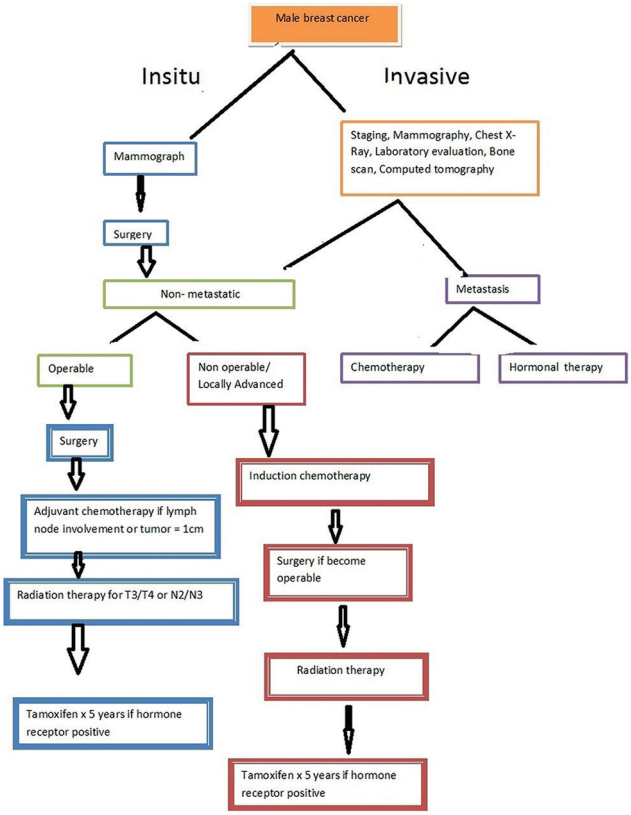

Figure 3: The management algorithm of male breast carcinoma

totally different. Pure mucinous carcinoma has minimal risk of local recurrence and minimal lymphatic or vascular involvement, and thus lumpectomy without lymph node dissection is required. However, mixed mucinous tumors are treated as conventional breast carcinoma.[8]

CONCLUSION

Overall, breast carcinoma in males has poorer prognosis than females. Pure mucinous carcinoma in males is an extremely rare entity. Despite its invasive character, it carries a good prognosis. Although metastasis to lymph nodes is less as compared to other types of cancers, it is important to perform clinical examination preoperatively very cautiously because their presence alters the treatment considerably. This case will add the literature of this rare entity, and more research is still needed for better understanding and improved survival.

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Conflicts of interest

There are no conflicts of interest.

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