

Case Report

**Mucinous Breast Carcinoma Mixed Type B:
Specialized Type of Invasive Breast Cancer**Sunil V Jagtap¹, Swati S Jagtap², Sonam Billawaria³, Abhjeet Phalke⁴

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Abstract

A 55 year post menopausal female presented to Onco Surgery unit for complaint of lump in right breast of 11 month duration along with right axillary lymphadenopathy. On palpation soft to firm, mobile, non tender lump in upper inner quadrant measuring 5 x 4 cm was noted. FNAC of lump was positive for carcinoma cells. On mammography right breast showed hypoechoic lesion with microcalcification and increased peripheral vascularity suggestive of neoplastic lesion (BIRADSV). USG abdomen and pelvis no abnormality detected. Right modified mastectomy was done. On histopathology reported as Mucinous carcinoma breast mixed type B with areas of neuroendocrine differentiation right breast. Immunohistochemistry was positive for ER,PR, and negative for Her-2 neu. We are presenting this case for its clinical, radiological histopathological and immunohistochemical findings.

Keywords: Breast tumors; Mucinous carcinoma, Mixed breast cancer.

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Introduction

Mucinous Carcinoma Breast (MCB) is a rare type of invasive breast cancer which constitutes 4% of primary breast cancers.¹ It has a good prognosis compared to the invasive breast carcinoma. On histopathology it contains large amounts of extracellular epithelial mucin surrounding and within tumor cells. Based on the cellularity of the tumor, mucinous carcinomas are divided into two subtypes: pure mucinous carcinoma (PMC) and mixed mucinous carcinoma (MMC). About 5% of invasive breast cancers appear to have a mucinous component within them.

Case Report

A 55 year post menopausal female presented to oncosurgery unit for complaint of lump in right breast of 11 month duration along with right axillary lymphadenopathy. On palpation soft, mobile, non tender lump in upper inner quadrant measuring 5 x 4 cm was noted. No any significant family/past history was noted. FNAC of lump showed positive for carcinoma cells with mucin background. On mammography right breast showed hypoechoic lesion with macro and microcalcification. An well defined, non tender lesion with hypoechoic areas microlobulation and macrolobulations, angulation



and speculated border in upper outer quadrant at 11-12 o'clock position was noted. Central and peripheral vascularity was increased on colour Doppler study. The surrounding breast tissue showed stiffness. On elastography lesion was infiltrating subcutaneous tissue with edema. On mammography right breast it was suggestive of neoplastic lesion (BIRADS-V). USG abdomen and pelvis there was no any abnormality detected.

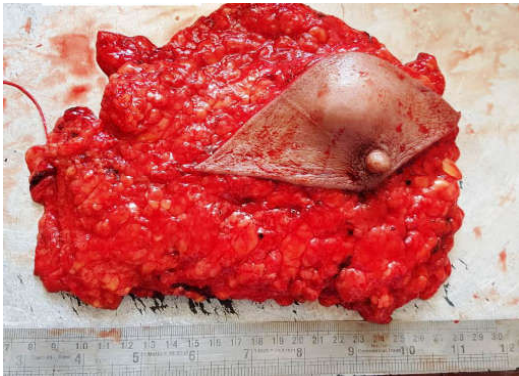


Fig. 1: Right modified radical mastectomy specimen.

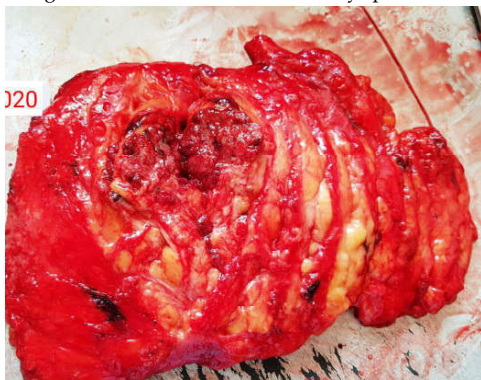


Fig. 2: Cut open mastectomy specimen showing a tumor.

We received right modified radical mastectomy specimen with right axillary dissection. On gross examination specimen was totally measuring 21.5 x 16 x 4.6 cm and weighing 480 gm. The nipple and areola were unremarkable. Serial cut sectioning revealed a tumor measuring 4.6 x 4.2 x 3.8 cm, with smooth margins, tumor was located in upper inner quadrant of right breast. (Figure-1,2) Tumor was soft in consistency. On cut section of tumor showed cystic and solid area, large pool of mucin separated by thick fibrous septa. Tumor was seen as gelatinous appearance with foci of hemorrhages. Tumor with pushing borders was noted. The cut section was soft, pale, grayish blue, gelatin-like and well circumscribed. Deep surgical margin was 1.5 cm away from the tumor. Right axillary dissection revealed 14 lymph nodes. Largest lymph node measured 1.8 x 1.2 x 0.7 cm. The cut section was unremarkable.

Multiple sections studied showed a breast tissue with a tumor composed of neoplastic cells floating in a large lakes of extracellular mucin. (Figure-3,4) In areas solid, acinar, and glandular areas were noted.

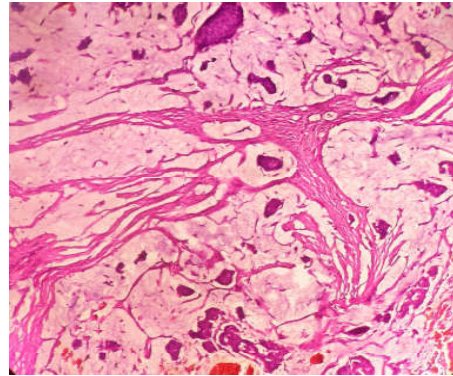


Fig. 3: Tumor composed of neoplastic cells floating in a large lakes of extracellular mucin. (H&E Stain,40x).

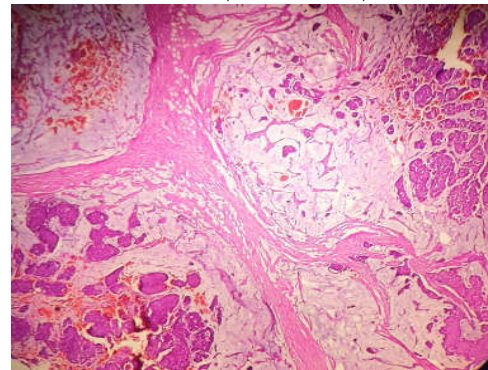


Fig. 4: tumor composed of neoplastic cells floating in a large lakes of extracellular mucin, separated by thick fibrous septa (H&E Stain, 40x).

Individual neoplastic cells were round having mild to moderate pleomorphic hyperchromatic nuclei with occasional inconspicuous nucleoli and ample amount of intracellular mucin. The large pool of extracellular mucin was noted, separated by thick fibrous septa. In areas neuroendocrine differentiation was noted. Surrounding breast tissue showed areas of fibrosis, congestion, hemorrhage and mild diffuse mononuclear cell infiltration. All surgical margins and 11 right axillary lymph nodes were free from tumor. On histopathology reported as Mixed mucinous carcinoma- Type B with invasive breast carcinoma of right modified radical mastectomy.

Discussion

Pure mucinous carcinoma- consists exclusively of tumor tissue with extracellular mucin production in over 90% of the tumor.² MCB are further classified as type A (pauci cellular /no neuroendocrine differentiation), type B

(hypercellular/neuroendocrine differentiation) or type AB (intermediate form). The mixed type mucinous carcinoma contains 50–90% of mucinous components.^{3,4} The in situ component may have a papillary, micropapillary, or cribriform pattern.

PMC	>90% of Mucinous Components	
		Growth pattern: papillary, micropapillary, tubular, cord-like or cribriform
PMC-A		
PMC-B		Growth pattern: solid nests
MMC	30-90% of mucinous components	
pMMC: partial mixed mucinous breast carcinoma		30-50% of mucinous components
mMMC: mixed mucinous breast carcinoma		50-90% of mucinous components

MCB is mostly noted in postmenopausal women with a median age of 70 years. MCB usually presents with a palpable breast mass, slowly growing and can reach a large size at the time of diagnosis. Gross examination of MCB shows a glistening gelatinous lesion with pushing margins and a soft consistency. Fixation to skin or chest wall is rare. Axillary lymph nodes are rarely involved. In our case all 11 right axillary lymph nodes were free from tumor.

On ultrasonography, MCB is usually a complex mass with cystic and solid components. Isoechoic masses are found in pure mucinous carcinoma, whereas hypoechoic masses are found in mixed mucinous carcinoma.⁵ On mammography, circumscribed and lobulated breast lesions are common findings for a mucinous carcinoma. MCB appears as a low-density, round or oval shaped mass, with clear edges. On histopathological examination MCB is characterized by nests of cells floating in lakes of mucin partitioned by delicate fibrous septae.

Mucinous carcinoma presenting with large cell clusters, reported by Capella as hypercellular or type B mucinous carcinoma, shows frequent neuroendocrine differentiation. The mucinous type B is part of a spectrum with neuroendocrine carcinoma.⁶ While Type A mucinous carcinoma has a larger quantity of extracellular mucin, it represents the classic non-endocrine variety. Our case was mixed MCB with solid component formed by IBC with neuroendocrine differentiation-Type B.

In our case immunohistochemical profile showed ER and PR moderate positivity and negative for Her 2 neu expression, while androgen receptors

are expressed at a low level. The neuroendocrine markers like chromogranin, synaptophysin, neuron specific enolase were positive in 15% - 50%.⁷ MCB carries a favorable prognosis with a low recurrence rate and a low incidence of lymph node metastasis.

The differential diagnosis to be considered are mucocele-like-lesion, metastatic mucinous carcinoma, invasive micropapillary carcinoma. In male invasive breast carcinomas of mucinous types are rare (1.8%) and bilateral are very uncommon.⁸ Pure and mixed mucinous carcinomas are reported to express WT breast carcinoma expresses predominantly MUC2 and MUC6 among the family of MUC genes.⁹

The treatment of mucinous breast carcinoma is surgical resection. Additional adjuvant radiotherapy and hormone therapy may be recommended. Mucinous carcinoma has a favorable prognosis and showed a lower incidence of lymph node metastasis than other types of invasive breast cancer. Axillary lymph node metastases occur in 12%-14% of the cases. Pure mucinous carcinoma has a better prognosis than mixed mucinous breast carcinoma.^{10,11}

Conclusion

Mucinous carcinoma of breast is a rare type of invasive breast cancer. We are reporting a rare case of mixed mucinous carcinoma- Type B for its clinical, radiological, histopathological and immunohistochemical findings.

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