A Review of Triple Negative Marker of IHC in Medullary Carcinoma Breast – An Uncommon Subtype with Good Prognosis

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ABSTRACT

Medullary carcinoma of breast is an uncommon variant of invasive ductal carcinoma, which constitutes nearly 5% of all breast cancers in men and women. These tumours are often associated with favourable prognosis despite showing aggressive behaviour. In this study a patient presented with history of breast lump aged 48 years in left breast since one year. In mammography it was described as BIRADS II and fine needle aspiration cytology showed suspicious for malignancy. Histopathology report showed medullary carcinoma breast lesion. Immunostaining was also done for ER, PR and Her-2 neu and it showed negative for ER, PR and HER 2 Neu.

Keywords: Medullary Carcinoma Breast, BIRADS II, Triple Negative IHC Markers

Introduction-

There are several frequent histological types of breast carcinomas: ductal carcinoma in situ, lobular carcinoma in situ, in one hand, and rarely, medullary carcinoma, mucinous carcinoma and tubular carcinoma. Ductal carcinoma in situ (DCIS) is a noninvasive neoplasm originating in the duct, which in some cases can become invasive.

Medullary carcinomas has both typical (MBC) and atypical (AMBC) and are rare breast tumours that comprise of <5% of invasive breast carcinomas. The diagnosis of medullary carcinoma is usually defined by histologic diagnostic criteria proposed by Ridolfi et al.11. These histomorphological features which include: syncytial growth pattern (>75%), absence of glandular structures, diffuse lympho-plasmacytic infiltrate, highly pleomorphic and enlarged nucleus and complete histological circumscribed. Atypical MBC has an infiltrative margin, mild to moderate mononuclear infiltration, a low nuclear grade, and presence of an intra-ductal constituent.

Case Report

A 48 year old female presented with a lump on her left side of breast present in medial upper outer quadrant measuring 3x2 cms non-mobile, non-tender, firm in consistency and not fixed to chest wall and skin with no other swelling and no lymph nodes are palpable. No swelling was present in contralateral breast and no lymph palpable nodes were palpable. There was no similar history in her family and she is a known case of hypertension. Routine investigations was done and biochemistry investigation such as uric acid, LDH and creatinine was normal. Her Hba1c, postprandial blood sugar and fasting blood sugar was raised. Mammography examination showed an ill-defined homogenous lesion approximately 2 cms in left breast with few macrolobulations suggestive of BIRADS II in her left breast and BIRADS I in her right breast. Ultrasound shows well defined hypo echoic lesion measuring 1.3x1x1.4 cms. Lesion is wider than taller and shows few macrolobulation. Margins are smooth and. No calcification is noted. Fine needle aspiration was done and shows a highly cellular smear and malignant ductal epithelial cells arranged in sheets, singles and in clusters having irregular nuclear membrane and prominent nucleoli. Wide local excision was done. The excised specimen was received in department of pathology in 10% buffered formalin and tissue bits were given from the grey white area along with normal breast tissue and IHC was done for ER, PR and HER 2 Neu.

Discussion

Medullary breast carcinoma is a rare breast tumours that account for <5% of invasive carcinoma. The diagnosis of medullary carcinoma is usually defined by histologic diagnosis criteria proposed by Ridolfi et al. These histopathological features includes lymphoplasmacytic infiltration, non-invasive microscopic circumscribed and syncytial growth pattern >75% and grade 2 or 3 nuclei.

In a study done by Sunil Jagtap in a 49 year old female having single, large well circumscribed mass in right breast since 6 months. Sunil et al have seen tumour cells arranged in syntitial pattern having pleomorphic nucleus...
with cosinophilic cytoplasm .It is stated that prominent inflammation comprising of lymphoplasmytic infiltrate is associated with good prognosis.

Immuenochemistry showed oestrogen, progesterone and her 2 neu negative .

Another study done by Sajjan et al⁴ on 12 Medullary breast carcinoma and 319 intraductal carcinoma they conducted cytoremorphological study of MBC and IDC and compared to each other with the help of chi square test and test ratio . On comparison of various cytological characters such as syntitial growth pattern and lymphoplasmytic infiltrate , the number of positive category was higher in medullary carcinoma breast that intraductal carcinoma .In contrast parameters like necrosis, three dimensional structure , acinar structure was higher in Intraductal carcinoma breast with 91% , 67% and 100% . These values were statistically significant with a p value of < 0.001% .

In the present study we had studied one case in which we had syntitial growth pattern of tumour cells with areas of necrosis and haemorrhage and lymphoplasmytic infiltrate which is consistent with findings seen by Sajjan et al⁴ and Sunil et al⁵ although this is one case series study we had seen almost same characteristics features seen by other authors and therefore this is proved that medullary carcinoma a subtype of intraductal carcinoma could have good prognosis based on the assumption of lymphoplasmyatic infiltrate in the medullary carcinoma breast.

From both the studies it is evident that lymphoplasmytic infiltrate and syntitial growth patterns are significant characteristics features of medullary carcinoma breast.
which is also seen in our case. IHC showed triple negative 75% in Medullary carcinoma and 50% with atypical features, whereas it is triple negative in our case.

**Conclusion**
Differentiating these tumour such as intraductal carcinoma not otherwise specified type from medullary carcinoma breast is necessary as medullary carcinoma breast carries good prognosis when compared to Intraductal carcinoma breast.

**Key Message**
Constellation of five histological features as described by Ridolfi et al. characterizes MBC, one among which is moderate to severe lymphoplasmacytic cellular infiltrate. MBCs on immunohistochemistry (IHC) often displays triple negativity (ER, PR, Her2/neu) with grade 3 Nottinghams criteria and exhibits basal phenotype. Though few variants of breast carcinoma contain lymphoplasmacytic infiltrate, the intensity and pattern of distribution of these lymphocytes and plasma cells in relation to tumour cells helps in distinguishing MBC from other breast carcinomas commonly IDC NOS on cytology. Also MBCs have a better prognosis when compared to IDC NOS.

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