Pure Mucinous Carcinoma of Breast - A Rare Case Report

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ABSTRACT

Mucinous carcinoma is a type of ductal carcinoma with a low malignant potential. These tumors account for 2% of the breast carcinomas. These neoplasms are characterized by tumor cells floating in the pools of mucin. The prognosis of pure mucinous carcinoma is favourable when compared to the invasive ductal carcinoma, not otherwise specified. We report a case of 80 years female patient presenting with right breast lump, which was diagnosed on cytology as mucinous carcinoma. Further on histopathology the diagnosis was confirmed.

Key words : Mucinous, breast carcinoma, low malignant potential.

Introduction:

Mucinous carcinoma is a rare malignant tumor, mostly occurring in post menopausal women. It accounts for 2% of all the breast carcinomas[1]. Pure mucinous carcinomas have favourable prognosis than the mixed mucinous carcinoma and invasive ductal carcinoma, not otherwise specified. The survival rate and prognosis is similar in both mixed mucinous and invasive ductal carcinoma, not otherwise specified. On cytology, these tumors are diagnosed by the presence of copious amount of mucin in the background and tumor cell clusters with mild atypia. Our report describes a case of 80 years female patient presenting with right breast lump which was diagnosed on cytology and histopathology as pure mucinous carcinoma.

Case report

A 80-year old-female patient presented with a firm lump in the right breast in the upper and outer quadrant which was measuring 3x3cms. It was firm in consistency and mobile, not attached to the deeper structures. On fine needle aspiration cytology smears revealed clusters of pleomorphic ductal epithelial cells having hyperchromatic nuclei and moderate amount of cytoplasm. Few foci showed cells arranged in acinar pattern. These cells were seen in the background of abundant mucin (Figure 1). Diagnosis of mucinous adenocarcinoma was made on cytology. Patient underwent modified radical mastectomy and we received the specimen measuring
18x12x7cms. Cut section showed well circumscribed grey brown tumor with mucoid areas measuring 3x2.5x2.5cms (Figure 2). Microscopic examination of the tumor showed tumor cells arranged in clusters, cribriform pattern and papillary pattern. These tumor cells were seen floating in the pools of mucin (Figure 3). 13 lymphnodes were identified in the axillary pad of fat which did not show tumor deposits. Adjacent breast parenchyma showed in situ component. Histopathological diagnosis of pure mucinous carcinoma was made.

Discussion

Mucinous carcinoma is also called as colloid carcinoma, mucoid carcinoma or gelatinous carcinoma. This is a rare invasive ductal carcinoma occurring in postmenopausal women. These tumors account for 2% of all breast carcinomas [2].

Mucinous carcinomas are classified as pure mucinous or mixed type. Pure mucinous carcinoma has 90% of tumor area exhibiting extracellular mucin with neoplastic cells floating within. In the mixed type 10-90% of tumor area is mucinous and remaining component is formed by ductal carcinoma, not otherwise specified. Pure mucinous carcinomas have better prognosis than mixed type. On fine needle aspiration cytology, the tumor yields abundant mucin and clusters of
monotonous tumor cells with mild atypia. Grossly mucinous carcinomas are well circumscribed with pushing borders and gelatinous cut surface. Microscopically Capella et al further classified them as Type A, Type B and Type AB which are useful in establishing histogenesis, but do not have prognostic importance [3].

Type A mucinous carcinomas has 60-90% of mucin and neoplastic cells are arranged in rings, ribbons, festoons and micropapillae. Nuclei of these tumor cells have irregular borders and are of grade 1 and grade 2. Immunohistochemically tumor cells in type A are MUC 2 positive. Type B tumors have mucin content of 33 to 75% and neoplastic cells are present as anastomosing sheets with peripheral palisading. Nuclei of these tumor cells are regular and is of grade 1. Type B tumors have argyrophilic cells which react with chromogranin. Immunohistochemically Type B tumor cells are CEA positive. Type AB mucinous carcinomas have both subtype features.

Histogenesis of mucinous carcinoma is considered to be associated with mucocele like tumor as these lesions are closely associated with ductal hyperplasia, atypical ductal hyperplasia and cribriform carcinomas [4]. In many cases flattened epithelium of the mucin filled ducts hides the ductal carcinoma-insitu component. Neoplastic cells detach from the stroma due to the overproduction of mucin by tumor cells. Solid papillary carcinomas which have cells with endocrine differentiation are proposed to be the precursors for type B mucinous carcinoma.

Mucinous carcinoma should be differentiated from fibroadenoma with abundant myxoid stroma and mucinous cystadenocarcinoma. Fibroadenomas show benign ductal epithelial cells lining the compressed ducts and pleomorphism will be absent. Mucinous cystadenocarcinoma is characterized by mucin filled cystic spaces which are lined by neoplastic cells. Cystic lumens show squamoid elements in the centre which is not seen in mucinous carcinoma.

As the mucinous carcinoma are tumors with low malignant potential, some authors advocate that there is low incidence of axillary metastasis and unnecessary nodal staging is not required [5].

Conclusion

Mucinous carcinoma is a rare tumor with low malignant potential and favourable prognosis. As the incidence of axillary metastasis is less in these tumors, axillary staging is a controversial issue.

References:


