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Original Research Paper

Pathology

FINE NEEDLE ASPIRATION CYTOLOGY OF INVASIVE MICROPAPILLARY CARCINOMA OF THE BREAST. A REPORT CASES.

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ABSTRACT **Background:** - Invasive micropapillary carcinoma (IMP) of the breast is uncommon and has only recently been characterized. Knowing the cytological appearance of IMP is important to enable early diagnosis by fine needle aspiration cytology (FNAC). We describe a case of IMP diagnosed by preoperative FNAC .

KEYWORDS :

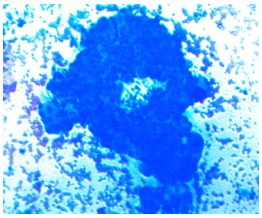
Case:- A 47 -year-old menopausal woman presented in surgery OPD in RIMS, Ranchi (Jharkhand) with history of painless lump in her left breast. The lump was detected seven months ago and had been increasing in size and bloody nipple discharge .

Local examination revealed a well-circumscribed lump in the upper outer quadrant of left breast. The lump measured 5 cm in diameter and was firm and mobile. No changes in the overlying skin and underlying muscle were free from the lump. Axillary lymphadenopathy was not present. No significant medical or surgical history could be elicited. Considering with the age, mammographic and ultrasound findings indicated that the tumor was malignant. Routine investigations like haemogram, Blood sugar, Blood urea, serumcreatinine and serum electrolyte were within normal range .

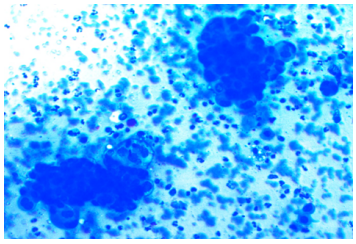
Fine-needle aspiration cytology (FNAC) performed in department of pathology .FNAC smears, stained by Leishman and Giemsa .

Cytological examination :- shows high cellularity composed of cohesive papillary clusters of cells with irregular and crowded nuclei but lacking papillary cores. No myoepithelial cells were seen and few singly dispersed cells. Numerous papillary fragments with finger-like branching also seen . Some of the papillary fragments were three dimensional with delicate fibrovascularcores . These cancer nests were morula- ball like seen. The cells were round to oval with moderate amount of basophilic cytoplasm ,hyperchromatic nuclei with prominent nucleoli . There was moderate degree of nuclear pleomorphism. Background showed few singly-lying intact tumor cells along with cystic macrophages and apocrine cells. A cytologic impression of papillary lesion highly suspicious for malignancy was rendered.(Figure 1 and 2)

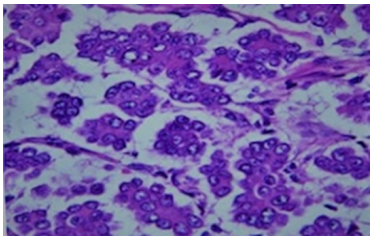
The patient underwent left simple mastectomy. On gross examination, a grey-white tumor, 5 × 4 × 3 cms was seen in the upper outer quadrant. The tumor was well circumscribed, unencapsulated and firm in consistency. No hemorrhage or necrosis was seen. Histologic examination showed features of a papillary carcinoma with microscopic foci of stromal invasion The polarity of each cancer nest was reversed, with the secretion border facing fibrocollagenous stroma. These pathological features occupied the invasive part of the primary tumor .The resected all margins are not involved by the tumor. (Figure 3)



Cohesive papillary cluster of cells irregular crowded nuclei (Fig. 1)



Tumor cells shows cluster of nests morula ball like (Fig. 2)



Micro-Papillary carcinoma with microscopic foci of stromal invasion (Fig. 3)

Discussion

The gross appearance is not specific and is similar to that of ordinary ductal carcinomas. All authors have described the pseudopapillary and tubuloalveolar arrangement of tumor cell clusters in sponge-like, clear empty spaces, mimicking extensive lymphatic invasiones. Papillary lesions of the breast encompass a complete spectrum including benign lesions (papilloma) to noninvasive (intraductal papillary carcinoma) to invasive papillary carcinoma. These lesions are characterized by epithelial proliferation overlying a fibrovascular core with the presence or absence of a myoepithelial cell layer.[1]

Accurate diagnosis of papillary lesions by FNA is fraught with complications largely, Because of the overlapping cytologic features of benign and malignant lesions as also between true papillary lesions and other entities with papillary component.[2] The latter include fibrocystic change, fibroadenomas, invasive ductal carcinoma and phyllodes tumor.[2]

The cytologic features of fibroadenoma, fibrocystic change and papilloma of the breast may be similar. However, the presence of numerous oval bare nuclei in the background, isolated stromal fragments (not associated with epithelial fragments) without fibrovascular cores and absence of columnar epithelial cells favor a cytological diagnosis of fibroadenoma.[2]

Fibrocystic change, on the other hand, shows lesser cellularity than papillomas. Three-Dimensional branched epithelial cell sheets may be seen, however fibrovascular cores arenot usually present. Benign columnar cells, if present in fibrocystic change, are less in quantity than papillomas.[2] In malignant lesions, ductal carcinoma-in-situ (papillary, micropapillary and cribriform), invasive duct carcinoma, intraductal papillary carcinoma and invasive papillary carcinoma need to be differentiated. Papillary and cribriform DCIS are low nuclear grade lesions that may or may not be associated withan invasive component. Invasive ductal carcinoma with focal papillary areas usually shows highly cellular smears with complex crowded epithelial cell sheets displaying nuclearatypia and irregularities. There is usually the absence of bare nuclei in the background. Micropapillary carcinoma, an uncommon histologic type, lacks true fibrovascular cores and shows angulated papillary and tubuloalveolar pattern of cellularaggregates with single atypical cells.[4] Smears from intracystic papillary carcinoma are highly cellular composed predominantly of discohesive epithelial cells with minimal to mild cytological atypia. Aspiration of cyst fluid may dilute the cellularity, leading to errors in diagnosis.[5] There have been studies to delineate the distinctive cytologic features of benign and malignant papillary lesions of the breast.[2,3] It has been suggested from these and other studies that malignant papillary lesions have high cellularity, complex branching papillary fragments, single intact atypical cells,. Though these features are said to be diagnostic of papillary carcinoma, single intact cells with moderate nuclear atypia may be seen in infarcted papilloma or cases of atypical papillomas.[2] The atypical papillomas, in addition, show high cellularity with complex papillae and single atypical cells, making the distinction from carcinoma difficult.[1] In addition, the differentiation of noninvasive intraductal papillary carcinoma from frankly invasive papillary carcinoma is problematic due to identical cytologic features.[7] Though the cytological features of papillary carcinoma are well described, distinction from papilloma may not be possible in some cases on cytology alone and histopathology offers the accurate diagnosis. In the present case, a papillary pattern was noted on FNA smears. A malignant lesion was considered due to the high cellularity with 3D papillary fragments, delicate fibrovascular cores and single intact tumor cells.

The lesion was confirmed as an invasive papillary carcinoma on histopathologic examination.

In conclusion, micropapillary carcinoma is an uncommon histologic subtype of breast Carcinoma .Cytologic diagnosis of the lesion is difficult due to overlap with benign entity and other mimics. Hence, cytopathologists need to be aware of the features helpful in distinction between benign and malignant papillary lesions. Also, all lesions seen as papillary on FNA should be excised completely to allow accurate classification.

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