

**CYTOLOGY BASED DIAGNOSIS OF LOBULAR CARCINOMA OF BREAST: A CASE REPORT****Dr. Sapam Chingkhei Lakpa<sup>1\*</sup> and Dr. Ponnuswamy Karkuzhali<sup>2</sup>**<sup>1</sup>Post graduate, Department of Pathology, Sree Balaji Medical College and Hospital, Chennai, Tamil Nadu.<sup>2</sup>Professor and HOD, Department of Pathology, Sree Balaji Medical College and Hospital, Chennai, Tamil Nadu.**\*Corresponding Author: Dr. Sapam Chingkhei Lakpa**

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**ABSTRACT**

Breast cancer is the most common cancer in women worldwide with more than 1.7 million new cases diagnosed each year, amounting to 25% of all cancers in women. Invasive lobular carcinoma (ILC), sometimes called as infiltrating lobular carcinoma, is the second most common subtype of invasive breast cancer after invasive ductal carcinoma. Fine needle aspiration (FNA) is a minimally invasive, safe and a rapid procedure for cytologic diagnosis of various lesions in breast. Breast malignancies are routinely diagnosed with FNA cytology, facilitating preoperative diagnosis for effective chemotherapy and surgery. Cytologic features of classic form of ILC are variable and often show poor cellularity, monomorphous small cells with mild atypia, arranged in single file pattern or in small loose clusters. Occasional findings include isolated cells, plasmacytoid cells and intracytoplasmic vacuoles. Cytodiagnosis of ILC is often difficult, because of the low cell yield and variable pattern of small cells mimicking benign proliferative lesions. Hence, ILC is often diagnosed in more advanced stages than IDC. Awareness about cytological features and prompt cytodiagnosis of ILC, helps early treatment and improves prognosis of the disease.

**KEYWORDS:** Breast carcinoma, Invasive lobular carcinoma, cytodiagnosis.**INTRODUCTION**

Breast cancer is the most common cancer in women worldwide with more than 1.7 million new cases diagnosed each year, amounting to 25% of all cancers in women.<sup>[1]</sup> Breast cancer is also the most common cause of cancer death among women and the most frequently diagnosed cancer among women in 140 of 184 countries worldwide.<sup>[1]</sup> Breast cancer has significantly high death rates in the less developed countries because of change in life style and unavailability of advanced health care services in the region. Though the incidence of breast cancer is higher in more developed countries, their mortality rate is relatively lower than the less developed countries.

Invasive lobular carcinoma (ILC), sometimes called as infiltrating lobular carcinoma, is the second most common subtype of invasive breast cancer after invasive ductal carcinoma. About 10% of all invasive breast cancers are invasive lobular carcinomas.

Fine needle aspiration (FNA) is a minimally invasive, safe and a rapid procedure for cytologic diagnosis of various diseases. Breast tumours are routinely diagnosed with FNA cytology. Invasive lobular carcinoma, after ductal carcinoma, is the most frequent type of breast

cancer and accounts for approximately 5% to 15% of all breast malignancies.<sup>[2]</sup>

**CASE REPORT**

A 60 year old female patient came to the department of General Surgery, at Sree Balaji Medical College and Hospital, presenting with complaints of lump in the right breast of 1 year duration with no history of nipple discharge or pain. On examination swelling was found to be of 5 x 4 cm size and was located at retro areolar region of right breast.

FNA was done on the patient on request. Microscopic examination, revealed small, mildly atypical cells arranged in loose clusters, single files and as isolated cells in a hemorrhagic background. Cells showed increased N:C ratio, scanty to moderate eosinophilic or occasionally, vacuolated cytoplasm, dark nuclei with irregular nuclear membranes. Some nuclei were angular, triangulated, indented and few showed budding. Some cells showed plasmacytoid appearance. A tentative diagnosis of ILC was given and was later confirmed by histopathological examination.

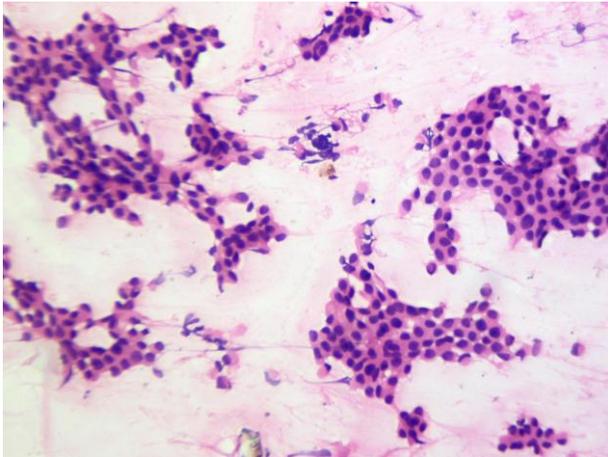


Figure 1: H & E 10x. Smear shows less cohesive clusters of malignant epithelial cells.

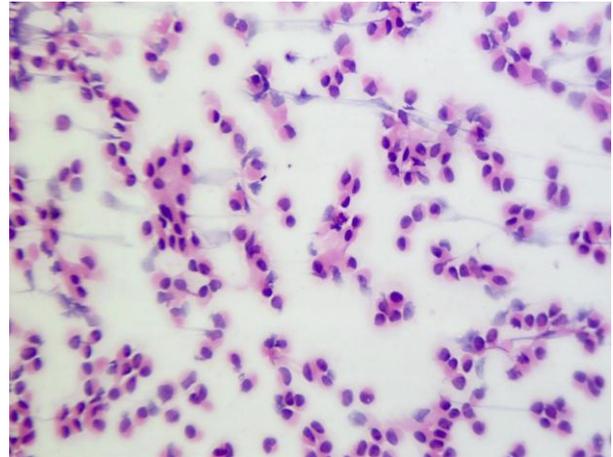


Figure 4: H & E 10x. Plasmacytoid cells in loose clusters and predominantly in single files.

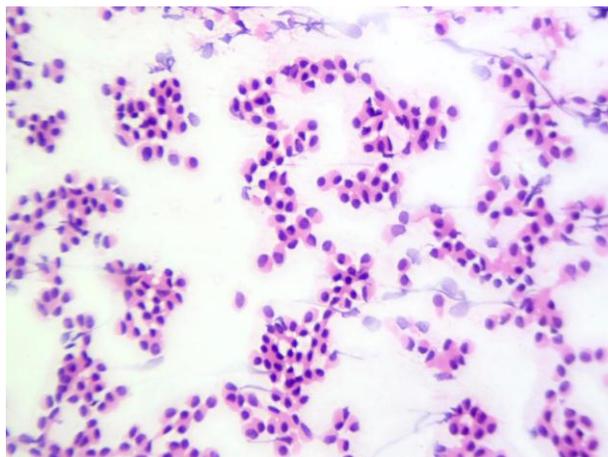


Figure 2: H & E 10x. Smear shows tumor cells in loose clusters and single files.

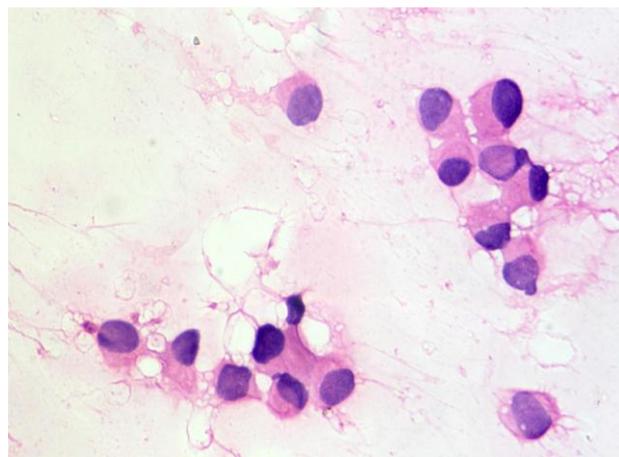


Figure 5: H & E 40x. Smear shows plasmacytoid cells with presence of intracytoplasmic vacuoles.

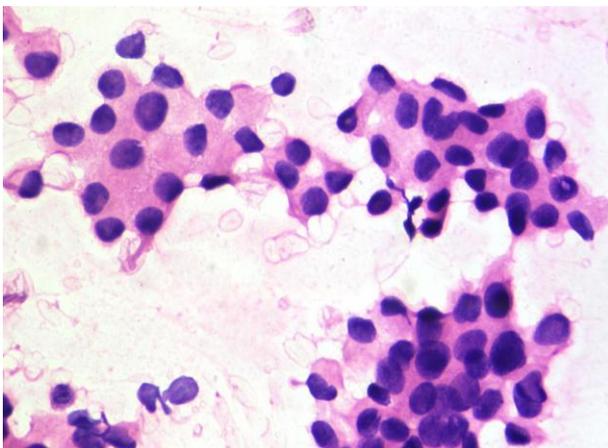


Figure 3: H & E 40x. Nuclei show mild to moderate degree of pleomorphism and nuclear membrane irregularities.

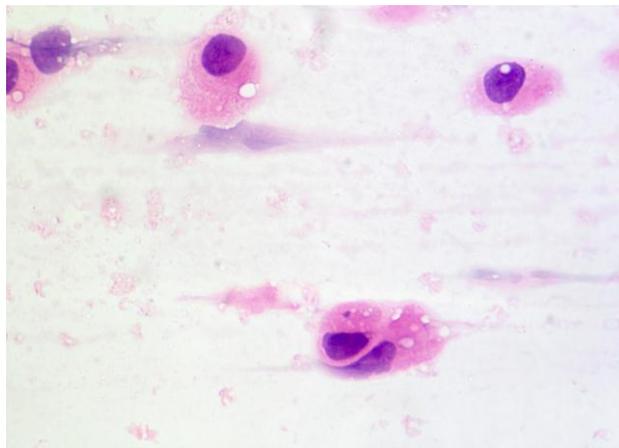
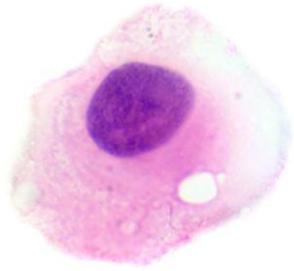
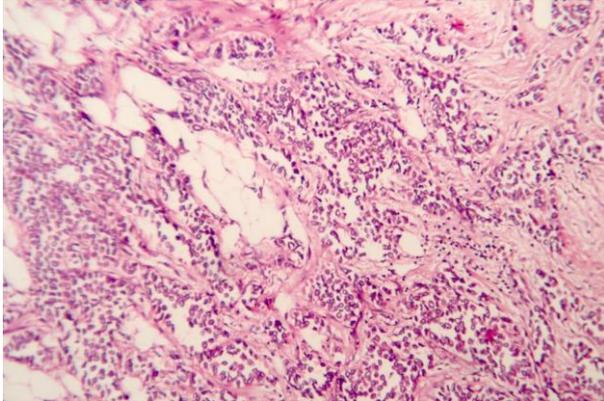


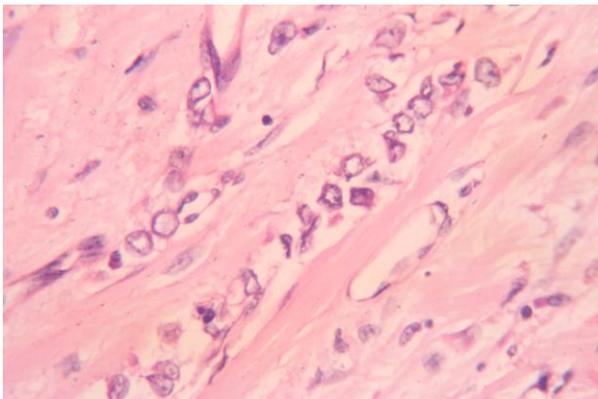
Figure 6: H & E 40x. Plasmacytoid cells with presence of intracytoplasmic vacuoles.



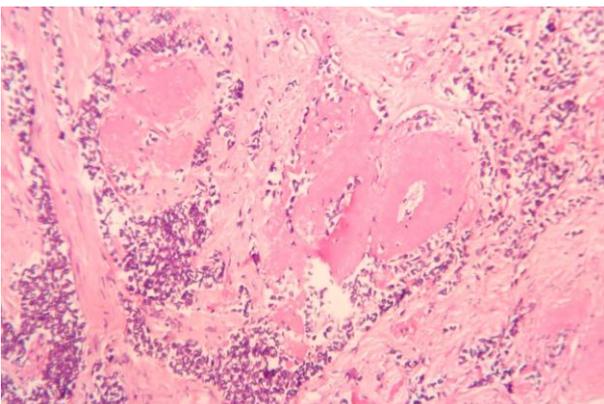
**Figure 7: H & E 100x magnification shows plasmacytoid cell with cytoplasmic vacuoles.**



**Figure 8: H & E 10x. Histopathology section shows tumor cells in discohesive acini and clusters, infiltrating into fibrofatty tissue.**



**Figure 9: H & E 40x. Carcinomatous cells arranged in Indian file pattern.**



**Figure 10: H & E 10x. Lobular carcinomatous cells seen around areas of elastosis.**

## DISCUSSION

In few studies FNA reportedly diagnose malignancy correctly in 63% to 94% of all breast cancers depending on the expertise of the technical team and cytopathologists.<sup>[3,4]</sup> In case of lobular carcinoma, diagnosis by clinical examination and radiological imaging are found to be less accurate than for most other carcinomas,<sup>[5]</sup> making it mandatory for cytologists and histologists to make an accurate diagnosis.

Cytologic features of classic form of ILC are variable yet often show poor cellularity, monomorphous, small cells with mild atypia, often with intracytoplasmic vacuole. Tumor cells are arranged in loose clusters, single file fashion or occasionally as isolated cells.<sup>[6,7]</sup> Nuclear features include small size, hyperchromatism, irregularity of nuclear membrane and the shape may be angular, triangular, indented or budding. These cells can be distinguished from bipolar cells of benign proliferative breast lesions, by their characteristic nuclear outline irregularity, angularity, indentation and budding.<sup>[8]</sup> Usually in lobular carcinoma, the cell yield is poor which may affect the diagnosis. Moreover, cytologic characteristics are not fully specific for lobular carcinoma, as features such as small nuclei, intracytoplasmic vacuoles and plasmacytoid epithelial cells, are sometimes observed in other types of breast carcinoma, such as ductal carcinoma.<sup>[9]</sup> Some cytoplasmic lumina may contain a central globule of condensed secretion, which, if present, helps to distinguish true lumina from nonspecific vacuoles.<sup>[10]</sup> The FNA specimen obtained from pleomorphic invasive lobular carcinoma (PILC) is a "hybrid" between the appearances of ILC and IDC.<sup>[7]</sup>

Lobular carcinoma of breast is cytologically identified as classic, pleomorphic, solid and alveolar and also the rare tubulo-lobular carcinomatous variants.

Dabbs et al (1994) and Auger and Huttner (1997) described a pleomorphic variant of infiltrating lobular carcinoma as showing greater cellularity, more pleomorphic nuclei, multiple nucleoli and abnormal mitotic figures, requiring immunomarkers to distinguish from invasive ductal carcinoma. A so-called solid variant of this tumor, which is characterized by sheets and nests of dissociated cancer cells has been described in a study conducted by Fleming and Tang, 1994.<sup>[11]</sup> A "rosette-like" pattern may be found in the aspirate from the alveolar variant of ILC.<sup>[6]</sup> The rare variant of tubulo-lobular carcinoma, combines features of both lobular and tubular carcinomas.<sup>[12]</sup>

Cytologic diagnosis of malignancy is more difficult in lobular carcinoma than in ductal carcinoma, even by the experienced cytopathologists.<sup>[13]</sup>

The diagnosis of ILC can be made in the presence of these cytoarchitectural features even in the absence of in situ component. On the contrary, an invasive tumor

cannot be designated as ILC because it is associated with LCIS; rather, it should have the typical microscopic features of the invasive component.<sup>[14]</sup> The incidence of ILC appears to be increasing, particularly in postmenopausal women, and this finding may, at least partly, be related to hormone replacement treatment.<sup>[15]</sup>

## CONCLUSION

Although lobular carcinoma has some good prognostic factors, such as lower grades, lower mitotic indices, positive hormonal receptors and a lack of HER2 overexpression, there is no difference in the survival rates of patients with these two histological types,<sup>[16]</sup> which may be justified by the fact that, usually, ILC is diagnosed in more advanced stage than IDC.<sup>[17]</sup> Therefore, early detection and effective management of the disease is necessary to improve the clinical outcome of ILC patients. As mentioned before, there is some overlap of cytologic characters of lobular carcinoma and ductal carcinoma.<sup>[5]</sup> The use of immunohistochemistry such as E-cadherin may be helpful in distinguishing lobular carcinoma from ductal carcinoma, where lobular carcinoma shows loss of E-cadherin expression.

Hence, it is important to be aware of the cytologic criteria and pitfalls in cytodiagnosis of ILC, to facilitate accurate preoperative diagnosis for preoperative chemotherapy and for planning specific surgical treatment.

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