Case Report

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Pathology Section

Concurrent Lactating Adenoma and Infiltrating Ductal Carcinoma: A Case Report

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ABSTRACT

A lactating adenoma is a benign tumour which usually occurs in younger women who are either pregnant or breast feeding. In some instances these lactating adenomas can occur simultaneously with breast carcinoma, so they have to be carefully evaluated. We report an unusual case of simultaneous occurrence of a lactating adenoma and infiltrating ductal carcinoma occurring in a 25-year-old lactating mother.

Keywords: Breast carcinoma, Cytology, Histopathology

CASE REPORT

A 25-year-old female patient presented to the surgical OPD of our institution with complains of lump in the right breast since 2 months, which was insidious in onset. Patient delivered a baby 9 months back and was breast feeding. On examination a mobile, hard, nodular, lump measuring 4 x 5cm was palpated in the upper outer quadrant of right breast. The lump was non tender. There was no discharge from nipple or palpable lymph nodes. There was no history of sudden increase in breast lump/pain or any other related symptoms noted during her lactational period. Fine needle aspiration performed, yielded 0.5 ml of grey white material.

Cytology Findings

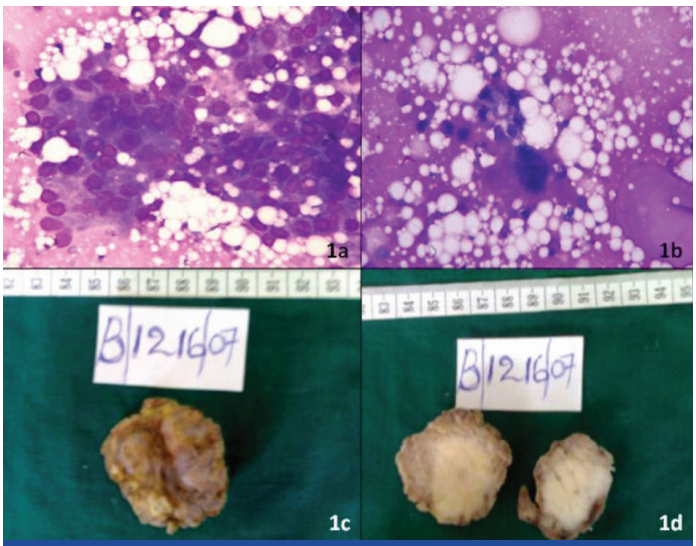
Highly cellular smear showed ductal epithelial cells arranged in loose cohesive clusters, sheets, ductal pattern and in singles [Table/Fig-1a], having anisokaryosis, coarse granular chromatin and moderate cytoplasm. Few ductal epithelial cells showed cytoplasmic vacuolations suggestive of secretory activity [Table/Fig-1b]. A diagnosis of lactating adenoma was conferred. Based on the above findings a lumpectomy was performed and specimen sent for histopathology.

Gross Findings

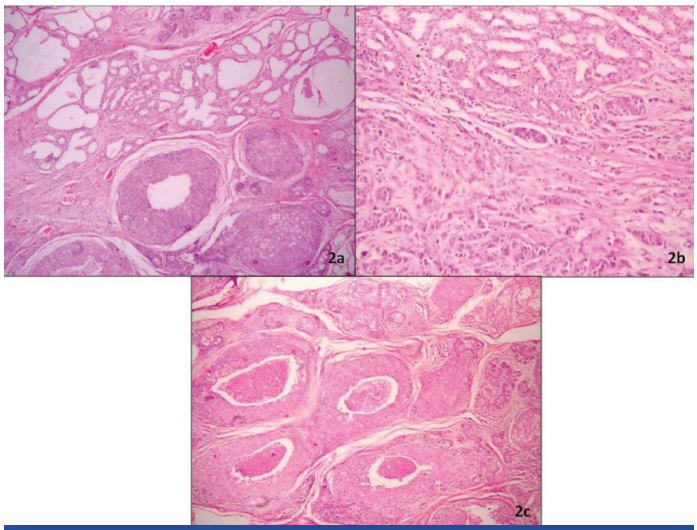
Received a single irregular grey white to grey yellow soft tissue mass measuring 4x3.5x2.4 cm [Table/Fig-1c]. Cut section: revealed diffuse grey white areas with focal necrosis [Table/Fig-1d].

Histopathology Findings

Sections studied showed densely packed lobules lined by actively secreting epithelial cells with lumen showing eosinophilic secretions [Table/Fig-2a]. Cytoplasm showed vacuolations. The cells have hyperchromatic nuclei with inconspicuous myoepithelial cell layer. Adjacent areas showed tumours cells arising from the ducts and infiltrating the stroma. The tumour cells were seen arranged in predominantly glandular pattern as well as in Indian file patterns at some places [Table/Fig-2b] The tumour cells show mild nuclear pleomorphism, having round to oval vesicular nuclei, few cells show prominent nucleoli. Mitotic activity is present (0-5/HPF). Foci of high grade ductal carcinoma in-situ with central necrosis (comedo carcinoma) were observed [Table/Fig-2c]. A diagnosis of lactating adenoma with in-situ carcinoma (comedo carcinoma) and infiltrating ductal carcinoma –NOS type (Grade I) (Bloom Richardson score -5). IHC was not performed. The patient was however lost for follow up.



[Table/Fig-1a-d]: a) Ductal epithelial cells arranged in loose cohesive clusters, sheets and in singles (H&E, X400); b) Cells having anisokaryosis, coarse granular chromatin and moderate cytoplasm, with cytoplasmic vacuolations (MGG, X400); c) Gross photograph showing a single irregular grey white to grey yellow soft tissue mass; d) cut section showing diffuse grey white areas with focal necrosis



[Table/Fig-2]: Microphotograph showing a) densely packed lobules with lumen showing eosinophilic secretions (H&E, X40); b) Tumours cells arranged in glandular and Indian file patterns infiltrating the stroma (H&E, X100); c) High grade ductal carcinoma in-situ with central necrosis (comedo carcinoma); (H&E, X40)

DISCUSSION

Pregnancy and lactation in women may be accompanied by spectrum of lesions occurring in the breast such as breast abscess, mastitis, galactocele, lactating adenoma, breast cancer etc [1]. A lactating adenoma is defined as a localized focus of lobular hyperplasia occurring in the lactating breast, presents as a distinct mass in pregnant or lactating women. Ectopic sites such as axilla, chest wall and vulva have been reported in literature [2].

Lactating adenomas are rare entities occurring during pregnancy and their aetiology remains unclear [3]. They present as solitary or multiple, discrete, palpable, free mobile breast lumps that may be small (< 3cm) [4]. They are usually diagnosed by fine needle aspiration and since they tend to regress spontaneously they are not often examined by biopsy [5].

The cytological features of lactating adenoma on fine needle aspiration (FNA) as observed by Grenko et al., [5] included a moderately cellular aspirates showing intact epithelial lobules or acini, small groups and solitary epithelial cells with uniform nuclei, fine chromatin nucleoli against an abundant foamy background. Many nuclei were bare. Some cells showed fine vacuolated and wispy cytoplasm.

Grossly they are well circumscribed and lobulated. Cut surface appears gray or tan with frequent foci of necrosis [4]. Our case also showed similar cytological features. However, it wasn't a well circumscribed mass as the gross features showed diffuse grey white areas with focal nodularity. This could be due to the co-existent infiltrating ductal carcinoma which was noted on histopathology.

Microscopically lactating adenomas are characterized by hyperplastic lobules showing proliferated acini lined by actively secreting cuboidal cells [6]. In present case we did have similar picture but the other interesting feature seen in our case was the presence of infiltrating ductal carcinoma showing single file pattern along with in-situ carcinoma with central necrosis (comedo carcinoma). This finding was not shown on cytology, probably we may have missed the malignant site while aspirating. This can be considered as a diagnostic pitfall/limitation of fine needle aspiration cytology. Hence the assessment of breast lumps should be accompanied by other diagnostic modalities such as ultrasound (U/S), mammogram or MRI.

Though lactating adenomas are not prone to carcinomas, Hertel et al., reported a case which developed invasive ductal adenocarcinoma in the previous excision site of a lactating adenoma [7]. Similarly Geschicker and Lewis have reported lactating adenoma containing an associated infiltrating carcinoma [8]. In our case the question is whether there was transformation of adenoma to carcinoma or infiltration of the adenoma by the adjacent adenocarcinoma.

Hormones play an important role in regulation and development of breast cancers. Oestrogen, progesterone and prolactin are produced in high concentrations during pregnancy and they promote growth of ducts and the formation of tubuloalveolar structures [9]. The role of oestrogen and progesterone in development of breast cancer is well defined. Prolactin receptors are expressed in high amounts by lactating adenomas [10]. Recent evidence by Wennbo et al., have proven the role of prolactin in development of breast cancer, where excess prolactin was used to induce breast cancer in mice in his experiments [11]. So, the possible explanation as proposed by Saglam [6] is that high concentrations of prolactin and progesterone in lactating breast have initiated carcinogenesis in lactating adenoma. This could have been the possible mechanism for cancer occurring in present case also in a lactating breast. Hence, close follow-up is essential in such cases.

As lactating adenomas are caused due to hormonal imbalances and as they regress spontaneously following pregnancy and lactation, no treatment is required. However, some patients are given dopamine agonists or bromocryptine. But if lactating adenomas present with co-existent carcinomas, then surgical intervention is needed [3].

CONCLUSION

Lactating adenomas are usually not associated with carcinomas. But the occurrence of findings such as in our case should caution the clinician in having regular follow–up of patients presenting with lactating adenomas.

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