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Editorial

Stream and Seepage - Lactating Adenoma

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Lactating adenoma emerges as a benign, gradually progressive, well circumscribed tumefaction arising in concurrence with gestational period. Additional designations as adenomatous lactational hyperplasia or nodular lactational hyperplasia are not recommended by World Health Organization (WHO).

Neoplasm is constituted of densely adherent glandular articulations layered by cuboidal epithelial cells. Constituent epithelial cells display active secretion of milk. The neoplasm requires distinction from invasive carcinoma breast as the malignant breast lesion is commonly encountered within gestation and pregnancy. Possibility of malignant metamorphosis remains undocumented.

Lactating adenoma is preponderantly discerned within the third decade or between 19 years to 34 years. Lactating adenoma is a prevalent within breasts of pregnant females, especially within the third trimester, postpartum period or puerperium [1,2].

Predominantly emerging within the breast, neoplasm may be engendered within ectopic breast tissue situated along the milk line which extends from axilla to vulva [1,2].

Of obscure aetiology, neoplasm may appear as a de novo neoplasm or hyperplastic condition. Alternatively, it is postulated that the neoplasm may arise within a pre-existing adenoma as tubular adenoma or fibroadenoma with concordant lactational modifications [1,2].

Tumefaction appears devoid of exon 2 mutations within MED12 genes.

Lactating adenoma subjected to fifty gene evaluation by next generation sequencing (NGS) demonstrates lack of genetic mutations. Besides, exon 2 mutations within MED12 gene appear absent.

Neoplasm may be associated with elevated levels of serum oestrogen, serum progesterone or serum prolactin [2,3].

Clinically, neoplasm appears a painless, solid, soft, mobile, palpable discrete tumour mass. Alternatively, tumefaction may be bilateral or multifocal. Tumour infarction may induce pain or tenderness. Besides, infarction may engender rapid tumour enlargement [2,3].

Cytological examination exhibits loosely cohesive clusters of monomorphic ductal epithelial cells or singularly disseminated ductal epithelial cells. Tumour cells are pervaded with foamy or finely vacuolated cytoplasm, uniform spherical nuclei, fine nuclear chromatin and miniature nucleoli. The cellular component is commingled with foamy substance [2,3].

Grossly, lactating adenoma appears to lack a true capsule. The well circumscribed, lobulated, firm, rubbery tumefaction may appear as a solitary lesion or configure multiple nodules. Tumour magnitude appears < 5 centimetres. However, giant lactating adenomas of up to 25 centimetre diameter may be observed. Cut surface is tan to grey/white. Foci of necrosis or infarction may ensue [3,4].

Upon microscopy, the hyperplastic, well circumscribed neoplasm represents with a proliferation of densely adherent lobules comprised of epithelial cells and myoepithelial cells traversed by attenuated strands of delicate fibro-connective tissue septa.

The glandular articulations are layered by cuboidal epithelial cells or hobnail shaped cells impregnated with granular to clear, vacuolated cytoplasm, miniature, spherical nuclei and variable, miniature, pinpoint nucleoli. Layering epithelial cells actively secrete milk [3,4].

Tumour cells appear to lack cytological atypia. Mitotic figures are occasionally discerned.

Neoplasm appears reminiscent of pregnancy-like or pseudo-lactational morphological alterations. Alternatively, tumefaction may simulate a fibroadenoma or tubular adenoma with lactational change [3,4].

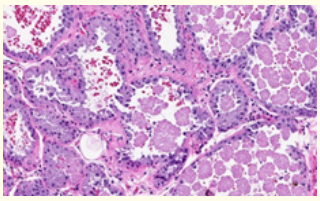

Figure 1: Lactating adenoma depicting glandular articulations layered by cuboidal epithelium impregnated with granular, vacuolated cytoplasm, uniform nuclei and miniature nucleoli. The hyperplastic lobules are traversed by delicate fibro-connective tissue septa [7].

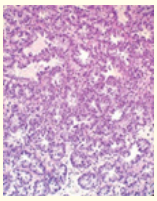

Figure 2: Lactating adenoma delineating glandular articulations layered by cuboidal epithelium impregnated with granular, vacuolated cytoplasm, miniature nuclei and pin point nucleoli. The hyperplastic breast lobules are traversed by delicate fibro-connective tissue septa [8].

Breast Imaging-Reporting and Data System (BI-RADS) score is applicable to breast lesions detected by mammography, ultrasonography and magnetic resonance imaging (MRI) and adopted for assessment of possible malignant metamorphosis and quality assurance.

Mammary gland lesions are qualified as

- BI-RADS 0: Comprised of incompletely evaluated lesions necessitating additional imaging or assessment with mammography or ultrasonography wherein preceding images obtained with mammography are unavailable.
- BI-RADS I: Comprised of symmetrical breasts with absence of breast mass, architectural distortion, calcification of breast parenchyma indicative of malignant lesions or distinct malignant neoplasms
- BI-RADS II: Comprising of benign breast lesions devoid of possible malignant metamorphosis
- BI-RADS III: Comprised of probably benign breast lesions with <2% probability of malignant metamorphosis. Frequent monitoring within brief interval is recommended
- BI-RADS IV: Comprised of breast lesions suspicious for malignant metamorphosis with 2% to 95% probability of malignant metamorphosis.

Upon mammography and ultrasonography, lesions are subdivided as

- BI-RADS 4A: Minimal possibility of malignancy between 2% to 9%
- BI-RADS 4B: Moderate possibility of malignancy between 10% to 49%
- BI-RADS 4C: Enhanced possibility of malignancy between 50% to 94%.

Surgical tissue sampling with histological evaluation for ascertaining malignant metamorphosis is recommended

- BI-RADS V: Comprised of lesions significantly indicative of malignant metamorphosis. Appropriate therapeutic intervention is recommended
- BI-RADS VI: Comprised of malignant breast lesions as discerned by histological evaluation of surgical tissue samples.

Lesions discerned upon screening mammography are categorized as BI-RADS score I or BI-RADS score II.

Screening mammograms with suspicious lesions or features suspicious for malignancy are classified as BI-RADS 0 and necessitate additional evaluation with assessment of imaging manifestations [4,5].

Myoepithelial cells configuring lactating adenoma appear immune reactive to p63, p40, smooth muscle myosin heavy chain (SMMHC) and CK5/6 [5,6].

Lactating adenoma breast requires segregation from neoplasms as lobular hyperplasia breast, delayed involution of lactation induced breast or fibroadenoma breast with secretory activity [5,6].

Upon ultrasonography, neoplasm exhibits increased density of breast tissue, as encountered within pregnant females or lactating breast tissue. Besides, imaging manoeuvers as mammography and magnetic resonance imaging (MRI) may beneficially adopted for cogent diagnosis.

Upon imaging, a homogeneous, well circumscribed, hypoechoic tumefaction with accompanying posterior acoustic enhancement may be observed. The mildly lobulated lesion may expound foci of hyper-vascularization. Besides, neoplasm may appear hyperechoic or display focal radiolucent zones due to fatty constituents of milk [5,6].

Irregular tumour margins may be exceptionally exemplified, reminiscent of a malignant lesion.

Neoplasm may be appropriately ascertained by fine needle aspiration cytology (FNAC) or surgical tissue sampling [5,6].

The gradually progressive neoplasm may be suitably subjected to watchful waiting and simple observation. Following cessation of breast feeding, neoplasm may spontaneously retrogress.

Notwithstanding, enlarged neoplasms with specific clinical features or problematic morphological manifestations may warrant simple enucleation or surgical eradication of the neoplasm [5,6].

The gradually progressive tumefaction may undergo spontaneous retrogression. Upon extended monitoring, tumefaction appears to lack malignant metamorphosis or tumour progression.

Factors contributing to malignant transformation appear undetermined or obscure. However, concurrence of lactating adenoma with carcinoma breast or malignant mammary gland neoplasms is documented [5,6].

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7. Image 1 Courtesy: Pathology outlines.

8. Image 2 Courtesy: Sage journals.