Acta Scientific ANATOMY

Volume 3 Issue 5 May 2024

Editorial

Pipette and Pipeline-Tubular Adenoma Breast

Anubha Bajaj*

Department of Histopathology, Panjab University/A.B. Diagnostics, India

***Corresponding Author:** Anubha Bajaj, Department of Histopathology, Panjab University/A.B. Diagnostics, India.

Received: April 30, 2024

Published: May 01, 2024

Tubular adenoma emerges as a benign neoplasm arising within mammary tissue. Essentially a fibro-epithelial tumour, the well circumscribed, nodular tumefaction is composed of compact, densely aggregated tubular articulations coated by dual layer of epithelial cells disseminated within sparse fibro-connective tissue stroma. Designated as tubular adenoma, an alternative terminology of fibro-adenoma variant-pericanalicular subtype is not recommended. Tubular adenoma is commonly encountered within young female subjects between 20 years to 40 years. Women within postmenopausal age group are exceptionally implicated [1,2]. Tubular adenoma commonly arises within upper, outer quadrant of the breast. Additionally, accessory breast tissue may delineate the tumour nodule. Of obscure aetiology, tubular adenoma is posited to arise from terminal duct lobular units. As the condition demonstrates enhanced disease incidence within females of reproductive age group, tumefaction is postulated to be concordant with serum levels of reproductive hormones [1,2]. Next generation sequencing adopted for categorizing tubular adenoma delineates a mutation profile variant from fibroadenoma [1,2].

Clinically, tubular adenoma breast frequently manifests as a painless, firm, mobile, well demarcated tumefaction. Physical features as irregular tumour margins, adherence to adjacent tissue and focal ulceration are infrequently observed. Exceptionally, tubular adenoma represents with nipple discharge. Generally, concurrent axillary lymphadenopathy is absent [2,3].

Cytological smears characteristically exhibit tissue fragments comprised of multiple tubular structures with adherence of or devoid of fibro-connective tissue stromal fragments. Epithelial cells configure three dimensional, ball-like structures with possible configuration of acinar articulations. Epithelial cells are imbued with bland nuclei. The cellular component is admixed with naked nuclei and myoepithelial cells with sparse fibrous tissue fragments. Notwithstanding, determination of tubular adenoma breast singularly upon cytological features may be challenging [2,3]. Grossly, the lesion expounds a well defined perimeter. Cut surface appears tan to whitish/grey. Upon microscopy, neoplasm is composed of miniature, uniform, densely aggregated, spherical tubular articulations circumscribed by sparse fibro-vascular stroma. The tubular configurations are coated by an intrinsic layer of luminal epithelial cells and an extraneous layer of myoepithelial cells. Neoplasm exhibits a well demarcated perimeter. Luminal eosinophilic secretion is occasionally observed. Cytological and nuclear atypia is mild and exceptionally encountered. Few mitotic figures may be discerned [3,4].

Myoepithelial cells configuring tubular adenoma appear immune reactive to CK5/6, p63, S100 protein, smooth muscle actin (SMA) or diverse myoepithelial immune markers. Luminal secretions may be highlighted by diverse mucin stains and Periodic acid Schiff's (PAS) stain. Luminal secretions appear immune non reactive to α-lactalbumin [4,5]. Tubular adenoma breast requires segregation from neoplasms as fibroadenoma, lactating adenoma, nipple adenoma, adenomyoepithelioma, sclerosing adenosis, collagenous spherulosis, microglandular adenosis or tubular carcinoma [5,6]. Cytological smears and radiological evaluation may be suitably adopted for categorizing the benign lesion although appears insufficient for obtaining precise differential diagnoses of the neoplasm. Upon imaging, a well defined, well circumscribed lesion is observed. Ultrasonography expounds a hypoechoic neoplasm with occasional posterior acoustic enhancement [5,6]. Mammography exhibits tiny, punctate and irregular foci of micro-calcification, especially discerned within lesions arising within elderly subjects. Tubular adenoma breast may be appropriately ascertained by cogent histological assessment of core needle biopsy or surgical tissue samples [6,7]. Comprehensive surgical resection of the tubular adenoma may be appropriately adopted with curative intent. Alternatively, simple observation may be beneficially employed for asymptomatic lesions with minimal possible occurrence of malignant metamorphosis. The essentially benign tubular adenoma breast is accompanied by indolent clinical course. Generally, enhanced possible emergence of subsequent invasive carcinoma breast is absent. Exceptionally, in situ and invasive carcinoma breast may emerge as incidentally discovered lesions [6,7].

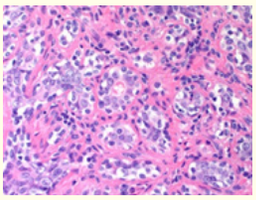

Figure 1: Tubular adenoma depicting miniature, uniform, densely aggregated, spherical tubular articulations circumscribed by sparse fibro-vascular stroma. Tubular structures are lined by inner luminal epithelial cell layer and outer myoepithelial cell layer [8].

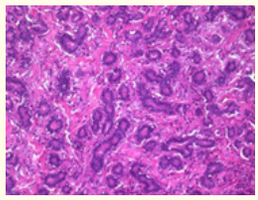

Figure 2: Tubular adenoma delineating miniature, uniform, densely aggregated, spherical tubular structures surrounded by sparse fibro-vascular tissue stroma. Tubular structures are lined by inner luminal epithelial cell layer and outer myoepithelial cell layer [9].

Parameter	Description
Epithelium	
Cellularity	Area occupied by epithelial cells, averaged ~5 representative low-power fields (×100 magnification) with highest cellularity (%)
Cohesiveness	Area occupied by cohesive epithelial structures and singly scattered cells (%)
Fragment size	Small: area of epithelial fragments< 1 mmm (%) Medium: area of epithelial fragment ≥ 1mm and < 2 mm (%) Large: area of epithelial fragment ≥2 mm (%)
Tubule	Area of epithelial fragments in tubular formation (%)
Tubular fragments	Tissue fragments containing multiple tubular structures with or without stroma. May be absent or present.
Stroma	
Stromal cellularity	Area occupied by fibrous tissue, along with or devoid of accompanying epithelial cells averaged ~5 representative low-power fields (×100 magnification) with highest cellularity (%)
Naked stromal fragments	Area of fibrous tissue fragments with absent /minimal accompanying epithelial cells (%)
Fragment magnitude	Small: area of stromal fragments< 1 mm (%) Medium: area of stromal fragments ≥ 1mm and <2 mm (%) Large: area of stromal fragments ≥2 mm (%)
Background features	
Calcification	Absent/Present
Histiocytic cells	Absent/ Present
Multinucleated giant cells	Absent/Present
Apocrine metaplastic cells	Absent/Present
Debris	Absent/ Present
Myoepithelium	
Bipolar nuclei and background	Absent/ Present
Within epithelial structures	Absent/ Present
Cytomorphology	
Average nuclear magnitude	Lymphocyte magnitude x
Variation in nuclear magnitude	Diameter of largest nucleus/smallest nucleus
Membrane irregularity	Smooth/mildly/markedly irregular
Nucleoli	Absent/small/large
Chromatin character	Fine/speckled/coarse
Nucleo-cytoplasmic ratio	Diameter of nucleus/ cytoplasm (0.1-1)
Mitosis	Absent/ Present

Table 1: Morphological parameters of Tubular Adenoma [2].

Bibliography

1. Joo GJ., *et al*. "Tubular Adenoma of the Breast: Radiologic-Pathologic Correlation". *Journal of Breast Imaging* 5.6 (2023): 703-711.

2. Li JJX., *et al*. "Tubular Adenomas of the Breast Are Cytologically Distinct from Fibroadenomas". *Acta Cytologica* 67.3 (2023): 219-229.

3. Daly C and Puckett Y. "New Breast Mass. Stat Pearls International". Treasure Island. Florida (2024).

4. Alfehaid M., *et al*. "Tubular Adenoma of the Breast Mimicking Fibroadenoma". *Cureus* 14.11 (2022): e31002.

5. Chang HY., *et al*. "MED12 TERT and RARA in fibroepithelial tumours of the breast". *Journal of Clinical Pathology* 73.1 (2020): 51-56.

6. Li JJX and Tse GM. "Spindle cell lesions of the breast diagnostic issues". *Diagnostic Histopathology* 26.2 (2020): 76-87.

7. Efared B., *et al*. "Tubular Adenoma of the Breast: A Clinicopathologic Study of a Series of 9 Cases". *Clinical Medicine Insights: Pathology* 11 (2018): 1179555718757499.

8. Image 1 Courtesy: Wikimedia commons.

9. Image 2 Courtesy: Webpathology.com.