|| ISSN(online): 2589-8698 || ISSN(print): 2589-868X ||

Available online on http://www.ijmbs.info

International Journal of Medical and Biomedical Studies; 2025; 9(1); 70-73

Original Research Article

Pure Tubular Carcinoma of Breast: A Rare Case Report

Dr. Arsha Narayanan[1], Dr. Jiya Jaleel[2], Dr. Aswathy Gopalakrishnan[3]

[1,2,3]Department of Pathology, Kannur Medical College, Anjarakkandy, Kannur, Kerala

Received: 10-12-2024 / Revised: 11-01-2025 / Accepted: 29-01-2025
DOI: https://doi.org/10.32553/ijmbs.v9i1.2949
Corresponding author: Dr. Arsha Narayanan
Conflict of interest: Nil

Abstract:

Tubular carcinoma is one of the rare subtypes of invasive carcinoma breast. We report a case of pure tubular carcinoma of breast, in a 40-year-old female. The patient had complaints of breast lump and was diagnosed with pure tubular carcinoma on histopathological examination. There are minimal reported cases of pure variants of tubular breast carcinoma in literature prior to this. It is imperative that these cases are accurately diagnosed as they have favorable prognosis and better response to therapy.

Keywords: Tubular carcinoma, Breast cancer.

Introduction

Tubular carcinoma (TC) is a rare subtype of invasive breast carcinoma with particularly favourable prognosis. Pure tubular carcinoma accounts to 1-4% of all invasive breast cancers. These tumors tend to be of low grade, with >90% of tubular formation and relatively normal appearing cells. Clinical presentation of TC is rather diverse. Diagnostic imaging (mammography, ultrasound, and magnetic resonance imaging) and core needle biopsy from the breast lesion can be used for assessment. Majority of these tumors are hormone receptor

positive and HER2 negative, which further indicates favourable outcome.[1] Accurate preoperative pathological diagnosis allows for correct surgical planning and avoidance of reoperation for these breast neoplasms. Here, we share one case of pure tubular carcinoma of breast reported in a tertiary care centre.

Case Report

A 40-year-old female presented in the General Surgery outpatient department with complaints of right breast lump for 6 months. On palpation, a non-mobile well-defined firm to hard lump measuring approximately 1.5 x 1.5 cm was identified in the upper outer quadrant of right breast. Ultrasonography and mammography were performed as per standard protocol. A lobulated mass with sharp spiculated margins measuring 1.7 x 1.6 cm was identified in the upper outer quadrant of right breast. No conspicuous axillary lymph nodes were identified. Core needle biopsy was inadequate and the patient then underwent a lumpectomy for the same.

The gross examination of specimen (lumpectomy) sent for histopathology revealed a firm to hard mass measuring 3 x 2 x 1 cm. External surface was grey yellow and fibrofatty in appearance. Cut surface revealed a grey white tumor measuring 1.6 x 1.5 cm. Representative histopathology

sections from the mass revealed a well differentiated tumor with predominance of tubules, composing more than 90% of tumor area. These tubules were oval, round and angulated and composed of a single layer of epithelial cells enclosing a clear lumen. The cells were small to medium in size and revealed mild nuclear pleomorphism, inconspicuous nucleoli and scanty mitotic figures. Myoepithelial cells were absent around the tubules. Immunohistochemical studies revealed positive ER, PR and negative HER2. The case was then diagnosed to be pure tubular carcinoma breast. Post operative chemotherapy was started and the patient was kept on follow up.

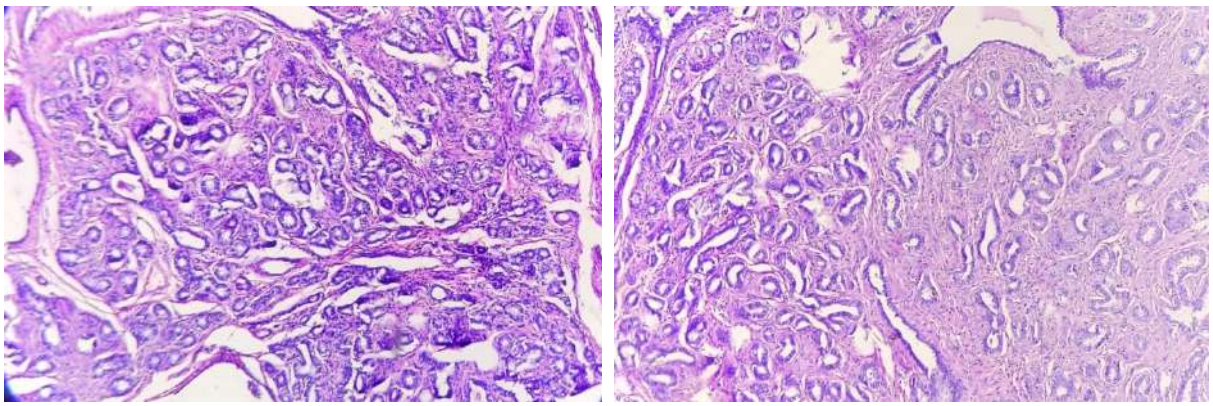

Figure 1 : (A)(B) Atypical cells arranged in tubular pattern (H & E, 200X)

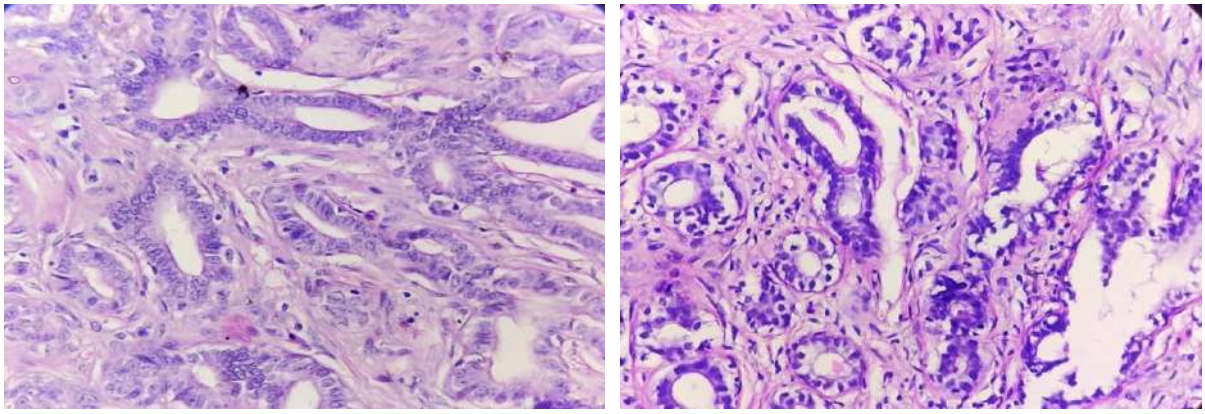

Figure 2 : (A) (B) Tumor cells revealing mild pleomorphism and atypia (H & E, 400X)

Discussion

Tubular carcinoma of breast is a special type of invasive breast carcinoma and are divided into mixed and pure tubular variants. Pure tubular carcinoma is a rare entity and accounts for around 1-4 % of all invasive breast cancers. The clinical features are invariable and similar to invasive carcinoma of no special type.[2] The patients usually present with slow growing small breast lumps. Imaging findings of tubular carcinoma are often characteristic: the size of the tumor ranges from 1-2 cm and are most commonly high-density, irregular-shaped small masses with long spicules along the edges. They can be accompanied by microcalcifications. Axillary lymph nodes are usually negative. Tumor size correlated with axillary status, with tumors less than 15 mm having no axillary nodal involvement. No other factor influenced nodal status.[3]

Histopathologically, the characteristic feature is the predominance of tubules composed of single layer of epithelial cells enclosing a clear lumen. The tubules account for 50-90% of total tumor area (Mixed tubular carcinoma) or 90-100% of total tumor

area (Pure tubular carcinoma). The tumor cells are small to moderate in size with mild nuclear pleomorphism, regular nuclear outline, inconspicuous nucleoli and scanty mitotic figures. Myoepithelial cells are absent around the tubules. In some cases, a prominent desmoplastic stroma surrounds the tubular structures.[4] These tumors belong to Luminal A molecular class of breast cancer. Microscopically, these lesions have to be differentiated from low grade invasive breast tumors, complex sclerosing adenosis and tubule-lobular carcinoma. Multilayering of nuclei, marked nuclear pleomorphism or high mitotic activity are considered as contraindications for the diagnosis.[5]

Since tubular carcinomas have a relatively favorable prognosis, efforts have been made to reduce unnecessary treatment. The involvement of lymph nodes is rare in these cases. It is suggested that surgical staging of the axilla may not be necessary for tumors measuring less than 1cm. The tumor usually exhibits favorable clinical characteristics, such as small tumor size, high hormone receptor expression rate, and low HER2 overexpression rate.[6] Overall survival for patients with tubular carcinoma is quite good. Pure tubular carcinomas had the same behavior and overall prognosis as mixed tubular carcinomas and should be classified together.[3]

Some studies state that the increase in non-tubular component, increases the aggressiveness of the tumor. As a result, patients with pure tubular variant are expected to have better prognosis, good clinical outcome and high survival rate, which could be attributed to ER positivity and low tumor grade, this further leads to a good response to therapy.[7] Breast conservation treatment results in low rates of local recurrence for tubular carcinoma with or without the use of adjuvant radiation therapy.[8] Modified radical mastectomy is seldom advised in these cases due to rarity of recurrences or metastases. Accurate preoperative pathological diagnosis allows for correct surgical planning and avoidance of reoperation for these breast cancers.

Conclusion

Pure tubular carcinoma of breast is a rare subtype of invasive breast carcinoma and usually have a favorable prognosis, good clinical outcome and high survival rate with rare recurrences and metastases. It is imperative that these cases are accurately diagnosed.

Acknowledgement

All the authors have contributed to concept, literature search, data acquisition, data analysis, manuscript, editing and review.

Funding

There was no source of funding for our research.

Ethical Approval

Not applicable since it is a case report.

References

1. Emiroglu S, Abuaisha AM, Tukenmez M, Cabioglu N, Bayram A, Ozmen V, Muslumanoglu M. Pure Tubular Breast Carcinoma: Clinicopathological Characteristics and Clinical Outcomes. Eur J Breast Health. 2023 Apr 1;19(2):115-120.
2. İlhan B, Emiroğlu S, Türkay R. Report of Two Cases with Simultaneously Detected Tubular Carcinoma and Phyllodes Tumor of the Breast. Eur J Breast Health. 2020 Dec 24;17(1):80-83.
3. Cabral AH, Recine M, Paramo JC, McPhee MM, Poppiti R, Mesko TW. Tubular carcinoma of the breast: an institutional experience and review of the literature. Breast J. 2003;9:298–301.
4. Poirier É, Desbiens C, Poirier B, et al. Characteristics and long-term survival of patients diagnosed with pure tubular carcinoma of the breast. J Surg Oncol 2017;117:1137–43.
5. Zhang WW, Wu SG, Ling YH, et al. Clinicopathologic characteristics and clinical outcomes of pure type and mixed type of tubular carcinoma of the breast: a single-institution cohort study.

Cancer Management Res 2018; 10:4509–15.
6. Günhan-Bilgen I, Oktaky A. Tubular carcinoma of the breast: mammographic, sonographic, clinical and pathologic findings. Eur J Radiol 2007;61:158–62.
7. Romano AM, Wages NA, Smolkin M, et al. Tubular carcinoma of the breast: Institutional and SEER database analysis supporting a unique classification. Breast Dis 2015;35:103–11.
8. Ravza Y, Zuhal B, Selman E, et al. MR imaging features of tubular carcinoma: preliminary experience in twelve masses. Eur J Breast Health 2018; 14:39–45.