

# Breast Tubular Adenoma in a Man with Alcoholic Cirrhosis: A Case Report

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**Abstract:** Tubular adenomas are rare, benign breast tumors primarily found in postmenarchal, premenopausal women. We report a case of tubular adenoma in a 56-year-old man with a history of alcoholic cirrhosis. The breast mass was incidentally discovered on computed tomography imaging performed as part of a patient liver transplant evaluation. Dedicated breast imaging and ultrasound-guided biopsy confirmed the diagnosis of tubular adenoma.

**Keywords:** *tubular adenoma, breast imaging, cirrhosis*

## Case Presentation

A 56-year-old man with a history of alcoholic cirrhosis underwent computed tomography (CT) of the chest, abdomen, and pelvis to evaluate him for orthotopic liver transplantation. A CT image revealed a 9 mm enhancing mass in his right breast (Figure 1). The patient was asymptomatic for breast cancer and reported no known family history of the disease. Further imaging was pursued to diagnose the incidental finding.

A bilateral diagnostic mammogram performed roughly three months later illustrated marked bilateral gynecomastia. Craniocaudal digital breast tomosynthesis (DBT) with spot compression (Figure 2) revealed a 10 mm oval mass with partially obscured margins in the upper inner quadrant of the patient's right breast, which corresponded to the previous CT finding. No abnormalities were seen in the left breast.

Targeted correlative breast ultrasound (Figure 3A) showed a discrete, solid oval parallel hypoechoic mass with circumscribed margins 1 cm from the nipple at 1 o'clock, corresponding to the mammographic and CT findings. No axillary

## Key Points

- Although extremely rare, tubular adenomas should be considered in male patients presenting with a breast mass, especially in the setting of androgen imbalance.
- Given the prevalence in premenopausal, postmenarchal women, it is possible that there is a relationship between reproductive hormones and the development of tubular adenomas.
- Tubular adenomas cannot be distinguished from other benign breast masses, such as fibroadenomas, with imaging alone. Establishing concordance between imaging and histopathologic findings is crucial for the diagnosis of this entity.

lymphadenopathy was noted on the ultrasound images.

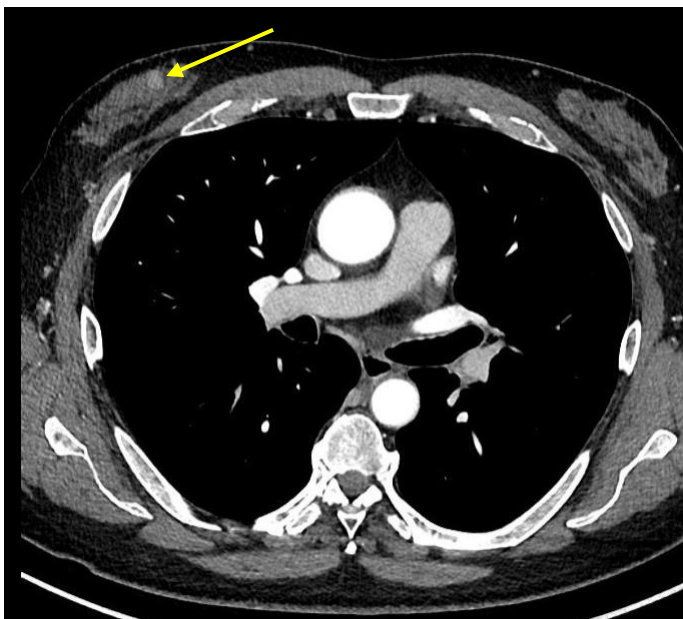
Despite the mass displaying imaging features that are associated with benign entities, the lesion was classified as BI-RADS category 4A (suspicious) for three primary reasons:

1. The mass was an incidental and unexpected finding on CT.

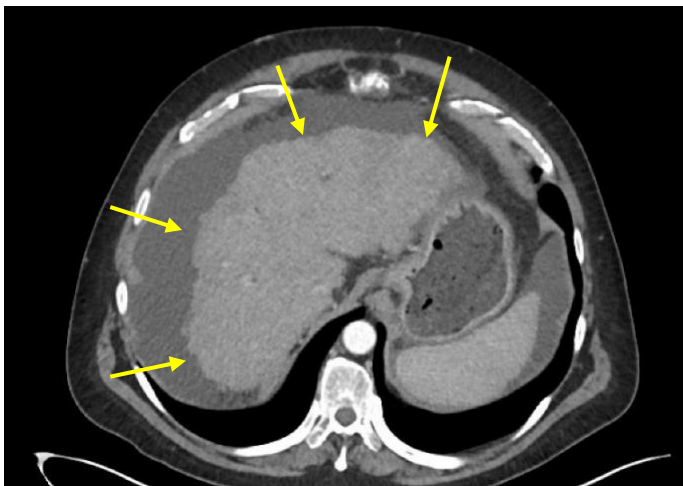
2. The patient was on a transplant list, and tissue sampling would provide a definitive diagnosis and avoid delaying a possible transplant.
3. Cirrhosis and resulting hormone imbalances can increase the risk of male breast cancer, increasing suspicion for this mass.

**Figure 1.** Computed Tomography (CT) of the Chest of a 56-Year-Old Man.

**A** CT of the chest, axial plane



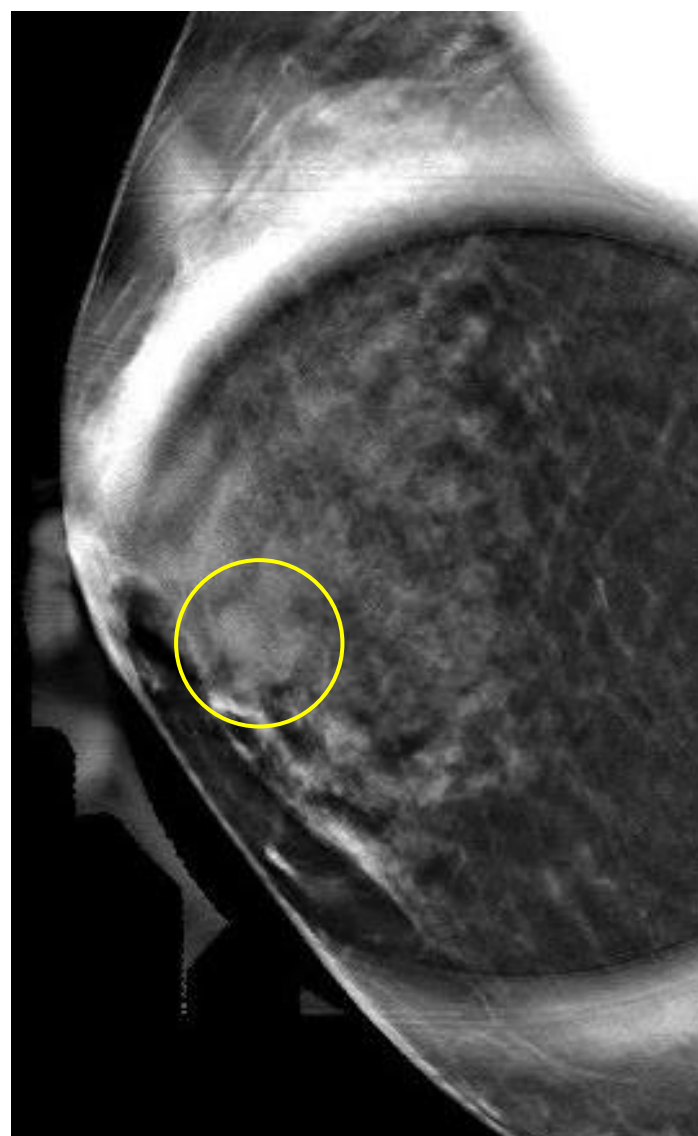
**B** CT of the abdomen and pelvis, axial plane



(A) Axial CT of the chest with contrast shows an enhancing mass in the right breast (A, yellow arrow). (B) CT of the abdomen and pelvis with contrast shows a cirrhotic and shrunken liver with signs of portal hypertension, including mild splenomegaly, moderate ascites, and varices (B, yellow arrows).

The patient returned two and a half weeks later for an ultrasound-guided biopsy (Figures 3B and 3C). Histopathologic examination (Figure 4) ruled out atypical hyperplasia and in situ or invasive carcinoma and confirmed a diagnosis of tubular adenoma. Because tubular adenoma is benign and the results of the histopathologic examination were concordant with the previous imaging findings, no additional follow up or surgical treatment was pursued for the mass.

**Figure 2.** Craniocaudal Digital Breast Tomosynthesis (DBT) with Spot Compression of the Right Breast of a 56-Year-Old Man.



A 9 mm asymmetrical mass with circumscribed and obscured margins (yellow circle) can be seen in the upper inner quadrant of the right breast.

## Discussion

Tubular adenomas are types of benign epithelial tumors that rarely appear as breast masses. While they are more common in other locations, such as the colon, tubular adenomas represent only 0.13% to 1.7% of all benign breast tumors.<sup>1</sup> Tubular adenomas of the breast are most commonly found in postmenarchal, premenopausal women,<sup>1,2</sup> with 90% occurring in women younger than 40 years old.<sup>3</sup>

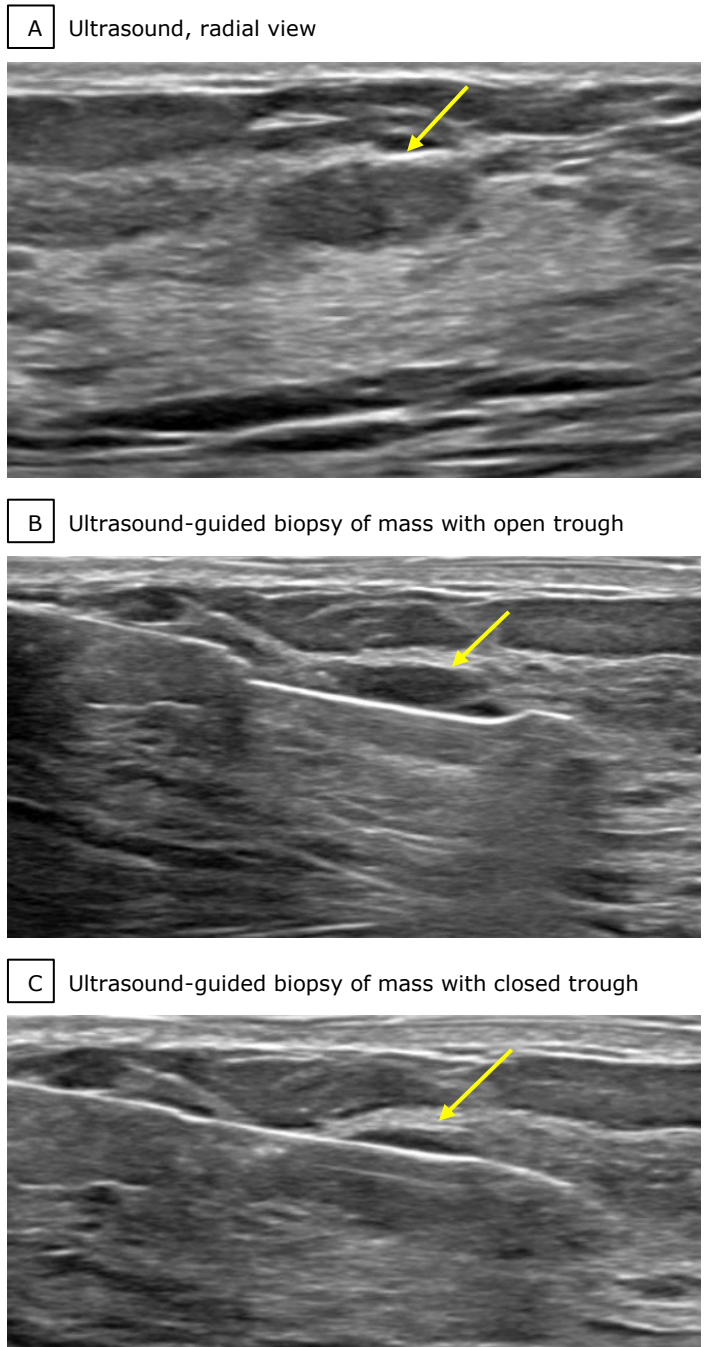
Patients with a tubular adenoma in the breast often present with a painless, well-circumscribed, mobile mass without concerning clinical symptoms such as nipple retraction, nipple discharge, or skin changes.<sup>3</sup> This clinical appearance is similar to that of fibroadenomas, which are common, benign fibroepithelial breast masses often found in premenopausal women.<sup>1</sup>

In reported cases, tubular adenomas in the breast appear on ultrasound as well-circumscribed, hypoechoic masses.<sup>1,2</sup> On mammograms of young women, tubular adenomas are well-circumscribed and lack calcification, often leading them to be misidentified as fibroadenomas.<sup>1,2</sup> However, mammograms performed on older women sometimes visualize calcifications and lead to the misinterpretation of tubular adenomas as malignant tumors.<sup>1</sup>

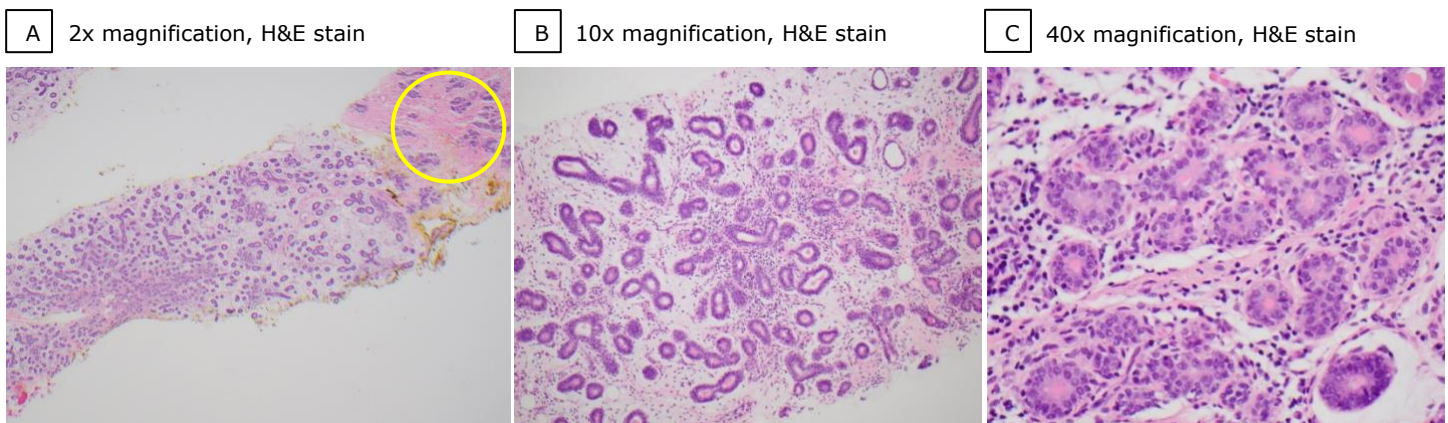
Histopathologic characteristics of tubular adenomas include well-defined borders and small, round, uniform, closely packed tubules with sparse intervening fibrovascular stroma.<sup>4</sup> The minimal stroma seen in tubular adenomas helps distinguish them histologically from fibroadenomas, which have a prominent stromal component.<sup>4</sup> Tubules are lined by an inner layer of luminal epithelial cells and an outer layer of myoepithelial cells.<sup>4</sup> Rare mild atypia and mitotic figures do not exclude the diagnosis.<sup>4</sup> There are also occasional luminal eosinophilic secretions, which are positive for mucin and negative for  $\alpha$ -lactalbumin on a periodic acid-Schiff stain.<sup>4</sup> Myoepithelial cells stain positive with CK5/6, p63, S100, and smooth muscle actin.<sup>4</sup> The etiology of tubular adenomas is unknown; however, there is a potential association with reproductive hormones due to the high relative incidence seen in women of reproductive age.<sup>4</sup> The authors are unaware of any previously published reports of tubular adenomas in male patients.

However, hepatic cirrhosis is commonly associated with gynecomastia in male patients due to an elevated free estrogen to androgen ratio resulting

**Figure 3.** Ultrasound Images of the Right Breast of a 56-Year-Old Man.



(A-C) Ultrasound of the right breast shows an avascular oval mass with circumscribed margins and hypoechoic internal echotexture 1 centimeter from the nipple at 1 o'clock (yellow arrows). There are increased posterior echoes.

**Figure 4.** Histopathologic Examination of a Biopsy Specimen from the Right Breast of a 56-year-old Man with Tubular Adenoma.

(A) A low-power image (2x magnification, H&E stain) of tissue shows a relatively well-circumscribed mass comprised predominantly of benign round to oval glands with mild edema but otherwise little intervening stroma. Note the presence of well-developed lobules and collagenous stroma in the background breast tissue, upper right (A, yellow circle). (B) A medium-power view (10x magnification, H&E stain) shows the mass is comprised of benign round to oval glands with little intervening myxoid stroma. In this view, a mild inflammatory component is seen. (C) A high-power view (40x magnification, H&E stain) of the mass shows an area of tightly packed tubular/acinar structures with conspicuous myoepithelial cells and little intervening stroma. There are mild edema and scattered chronic inflammatory cells.

from central hypogonadism.<sup>5</sup> This hormonal imbalance could predispose patients to both benign and malignant breast masses that are associated with reproductive hormones, including tubular adenoma.<sup>6</sup>

### Author Contributions

Conceptualization, AH, OL, KC; Acquisition, analysis, and interpretation of data, AH, OL, PS; Writing – original draft preparation, KC; Review and editing, AH, OL, PS, KC; Supervision, AH, OL. All authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. All authors had full access to all the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis.

### Disclosures

None to report.

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