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***Case Reports***

# Benign Breast Changes with Adenosis and Duct Ectasia: Diagnostic Challenges and Clinical Implications

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**Abstract:** *Rapidly enlarging breast masses during pregnancy pose significant diagnostic challenges. Physiologic breast changes can mask or mimic underlying pathology, and limited biopsy samples may reveal only benign elements such as adenosis, duct ectasia, or tubular adenoma despite an underlying fibroepithelial lesion.* ***Case Presentation:*** *A 34-year-old pregnant woman in her second to third trimester presented with a 1.5-year history of a progressively enlarging left breast mass that rapidly increased in size and became fungating during pregnancy. Earlier histopathology revealed adenosis and duct ectasia, while fine-needle aspiration cytology (FNAC) was reported as C3 ("atypical, probably benign"). Ultrasonography demonstrated an approximately 11 cm multilobulated, hypervascular, exophytic mass classified as BI-RADS 4 B. A wedge biopsy during pregnancy showed a tubular adenoma. Given the lesion's aggressive growth and clinicoradiologic–pathologic discordance, a total left mastectomy was performed. Final histopathology confirmed a benign phyllodes tumour with skin ulceration and a deep margin of 1 mm.* ***Intervention and Outcome:*** *The patient underwent a total mastectomy with complete tumour removal and no perioperative complications. Considering the close deep margin, structured postoperative surveillance was advised.* ***Conclusion:*** *In pregnancy, rapidly growing breast masses with benign or indeterminate histology warrant escalation to complete excision, especially when clinical, radiologic, and histopathologic findings are discordant. This case underscores diagnostic overlap among adenosis, duct ectasia, tubular adenoma, fibroadenoma, and phyllodes tumour and highlights the importance of margin-oriented surgery and long-term follow-up.*

**Keywords:** Phyllodes Tumor, Breast Neoplasms, Pregnancy Complications, Neoplastic, Ultrasonography, Mastectomy

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## Introduction

Benign breast alterations such as adenosis and duct ectasia are common histological findings and may coexist with other lesions, sometimes obscuring a dominant pathology. Tubular adenoma is a rare benign epithelial tumour, representing only 0.13–1.7% of all benign breast tumours. It is most commonly diagnosed in women under 40 years of age and occasionally observed in men and postmenopausal women (1–3).

Clinically and radiologically, tubular adenomas closely resemble fibroadenomas and, in rare cases, may simulate ductal carcinoma in situ (DCIS) or invasive carcinoma, complicating preoperative Diagnosis (4, 5). Accurate Diagnosis is histologic and often established only after complete excision, as small biopsy samples may misrepresent the lesion (2, 6).

Pregnancy further complicates evaluation due to hormonal influences that cause physiological hypertrophy and hypervascularity, which may accelerate the growth of benign and fibroepithelial lesions (1, 7). Consequently, rapidly enlarging or fungating masses during pregnancy require prompt surgical management, as radiotherapy is contraindicated and incomplete excision predisposes to recurrence (1, 8).

This report describes a pregnancy-associated rapidly enlarging breast mass sequentially diagnosed as adenosis with duct ectasia and tubular adenoma, but ultimately confirmed as a benign phyllodes tumour after definitive excision. The case highlights the limitations of partial sampling, the significance of clinicoradiologic–pathologic discordance, and the importance of achieving adequate surgical margins.

A 34-year-old gravida presented with a recurrent, progressively enlarging left breast mass for approximately 18 months. During her pregnancy (26–31 weeks), the lump grew rapidly, developing exophytic and fungating features with intermittent bleeding. There were no constitutional symptoms or axillary lymphadenopathy.

**Prior pathology (2021):**

- **FNAC:** Atypical, probably benign," with a suggestion of phyllodes tumour and recommendation for excision.
- **Core biopsy:** Benign breast tissue exhibiting marked adenosis and duct ectasia with mild chronic inflammation.

**Pregnancy evaluation (2023):**

- **Ultrasound (25 Sept 2023):** A large multilobulated, heterogeneous, solid mass measuring 9.2 × 9.3 × 11.5 cm, showing prominent internal Doppler vascularity and exophytic growth (BI-RADS 4B). Differential Diagnosis included giant phyllodes tumour, atypical fibroadenoma, or another neoplasm.
- **Wedge biopsy (Oct 2023):** Histopathology suggested tubular adenoma.
  Given the discordance between aggressive clinical behaviour and benign histology, and considering pregnancy-related treatment limitations, a left total mastectomy was performed on 22 October 2023 without axillary sampling.

**Final histopathology (31 Oct–6 Nov 2023):**

- **Diagnosis:** Benign phyllodes tumour with ulcerated skin.
- **Size:** 113 × 94 × 78 mm.
- **Stroma:** Mild cellularity and atypia with focal stromal overgrowth, no mitoses or heterologous elements.
- **Margins:** Closest deep margin 1 mm; other margins ≥10 mm.
- **Nodes:** None submitted.

Postoperative recovery was uneventful. Because of the close deep margin, the patient was enrolled in a structured follow-up plan with clinical and ultrasound evaluations every 3–6 months for the first year, then annually thereafter. (Figure 1)

**Figure 1.** *Gross photograph of the resected left-breast mass demonstrating a large exophytic/fungating surface—final histology benign phyllodes tumour*

**Investigations**

High-resolution ultrasonography with colour Doppler revealed marked vascularity and lobulated exophytic configuration—features overlapping between tubular adenoma, fibroadenoma, and phyllodes tumour (4, 5, 8). Serial biopsies captured benign epithelial components (adenosis, duct ectasia, and tubular adenoma), whereas final excision revealed stromal overgrowth characteristic of a phyllodes tumour, exemplifying sampling variability in heterogeneous fibroepithelial lesions (6, 9).

**Differential Diagnosis**

1. **Phyllodes tumour** – Suggested by rapid growth, lobulated contour, and hypervascularity; confirmed on final histopathology.
2. **Giant fibroadenoma** – Radiologically similar but histologically excluded.
3. **Tubular adenoma** – Wedge biopsy Diagnosis; known mimic of fibroadenoma and carcinoma (3, 4, 6).
4. **Pregnancy-associated/lactating adenoma** – Considered but ruled out due to atypical imaging and fungation.
5. **Carcinoma (including DCIS)** – Excluded following definitive excision and histology (5, 10).

**Therapeutic Intervention**

Surgical excision remains the **treatment of choice** for large or rapidly growing breast tumours during pregnancy. In this case, **mastectomy** ensured complete tumour removal with minimal fetal risk. Radiotherapy was avoided because it is contraindicated in pregnancy and unnecessary for benign phyllodes tumours (1, 7).

**Outcome and Follow-Up**

The patient's postoperative course was uneventful. Histology confirmed benign phyllodes with a close, deep margin. A structured follow-up plan was instituted, including physical examination and targeted ultrasonography at regular intervals. Long-term surveillance is warranted due to the potential for **local recurrence** associated with narrow surgical margins.

## Discussion

This case demonstrates the diagnostic pitfalls of partial sampling in large fibroepithelial breast lesions. Needle or wedge biopsies often capture only benign epithelial elements—such as adenosis, duct ectasia, or tubular adenoma—while missing the diagnostic stromal features of phyllodes tumour (2, 6, 8).

Tubular adenoma is a rare benign tumour, frequently misclassified as fibroadenoma or other lesions due to overlapping clinical and imaging characteristics (3–5). Its Diagnosis is purely histological and relies on excised tissue (2, 6). Moreover, pregnancy amplifies diagnostic complexity due to hormonal stimulation and accelerated tumour growth (1, 7).

Literature indicates that tubular adenomas typically occur in women below 40 years (3, 10), though cases in postmenopausal women and even men have been reported (9, 11, 12). Morphologically, they are closely related to fibroadenomas, explaining the imaging and histologic overlap (8).

Although benign phyllodes tumours rarely metastasize, local recurrence is associated with inadequate surgical margins. Most experts advocate achieving at least a 1 cm margin, though close follow-up may suffice for benign histology with technically limited resection (1, 13).

**Patient Perspective**

"When the lump grew quickly during my pregnancy, I became very anxious about cancer and my baby's safety. The doctors explained that surgery would obliterate the mass and protect both of us. The recovery was smooth, and I feel relieved knowing the tumour was benign."

**Learning Points**

1. Rapidly enlarging breast masses during pregnancy require **multidisciplinary evaluation**; benign biopsy results do not exclude phyllodes tumour.
2. **Sampling bias** in core or wedge biopsies may mask fibroepithelial lesions; discordant cases should proceed to complete excision.
3. **Adequate margins** are essential even for benign phyllodes tumours; close margins warrant structured follow-up.
4. **Tubular adenoma** mimics fibroadenoma and carcinoma; Diagnosis depends on complete histological evaluation.

**Ethical Approval**

Written informed consent for publication of clinical details and images was obtained from the patient. Institutional ethical approval was obtained as per standard requirements.

**Declarations**

**Data Availability statement**

All data generated or analysed during the study are included in the manuscript.

**Ethics approval and consent to participate**

Approved by the department concerned.

**Consent for publication**

Approved

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**Author Contribution**

**NS** (Consultant General Surgeon)
*Manuscript drafting, Study Design,*
*Review of Literature, Data entry, Data analysis, and drafting article.*
**ZC** (Undergraduate in Molecular Cell Development Biology)
*Conception of Study, Development of Research Methodology Design, Study Design, manuscript review, critical input.*

*All authors reviewed the results and approved the final version of the manuscript. They are also accountable for the integrity of the study.*

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