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**RESEARCH ARTICLE**

**JUVENILE FIBROADENOMA OF THE BREAST: A CASE REPORT AND REVIEW  
OF THE LITERATURE**

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**Key words:-**

Juvenile fibroadenoma – breast mass –  
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**Abstract**

**Introduction:-**Juvenile fibroadenoma is a rare benign fibroepithelial breast tumor characterized by rapid growth and large size, causing significant breast asymmetry mainly affecting adolescents. Its diagnosis may be challenging due to similarities with phyllodes tumors.

**Patient and observation:-**We report the case of a 15-year-old girl with a family history of breast neoplasia who presented with a rapidly enlarging right breast mass. Physical examination revealed a firm, well-circumscribed, mobile mass measuring approximately 100\*97mm. Breast ultrasonography demonstrated a large, homogeneous hypoechoic lesion classified as BI - RADS 4. Histopathological examination confirmed the diagnosis of juvenile fibroadenoma. The patient underwent breast-conserving surgical excision by enucleation.

**Conclusion:-**Although benign, juvenile fibroadenoma may mimic malignant tumors due to its rapid growth and suspicious imaging features. Surgical excision remains the treatment of choice for large or atypical lesions.

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**Introduction:-**

Juvenile fibroadenoma is a rare variant of breast fibroadenoma, accounting for approximately 2% to 4% of all fibroadenomas (1). It is a fibroepithelial tumor characterized by stromal hypercellularity and increased epithelial proliferation. Its pathophysiology remains unclear, but is thought to be related to a response to estrogenic stimulation (2). Diagnosis relies on a combination of clinical, radiological, and histopathological findings. We report a case of juvenile fibroadenoma in a 15-year-old adolescent. The aim of this report is to highlight the diagnostic challenges and management of this rare entity in adolescents.

**Case report:-**

**Patient Information :** A 15-year-old patient, with a family history of breast neoplasia in her sister, presented with a rapidly enlarging mass in the right breast, without breast pain, nipple discharge or other associated functional symptoms.

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**Clinical findings:** physical examination, revealed a large mass occupying almost the entire right breast, measuring approximately 10 cm, in greatest diameter. The lesion was firm, mobile, well-circumscribed, painless, with no signs of inflammation or axillary lymphadenopathy (Figure 1).

**Diagnostic Assessment:** Breast ultrasonography demonstrated a large oval-shaped, hypoechoic, homogeneous lesion measuring 100 × 97 mm, involving multiple quadrants of the right breast, and was classified as BI-RADS 4 (Figure 2).

**The histological study of the micro-biopsy** suggested a juvenile fibroadenoma with stromal hypercellularity and epithelial hyperplasia without atypia, or malignancy.

**Therapeutic intervention:** A lumpectomy by enucleation was performed (Figures 3 and 4). The postoperative course was favorable, with a satisfactory cosmetic outcome.

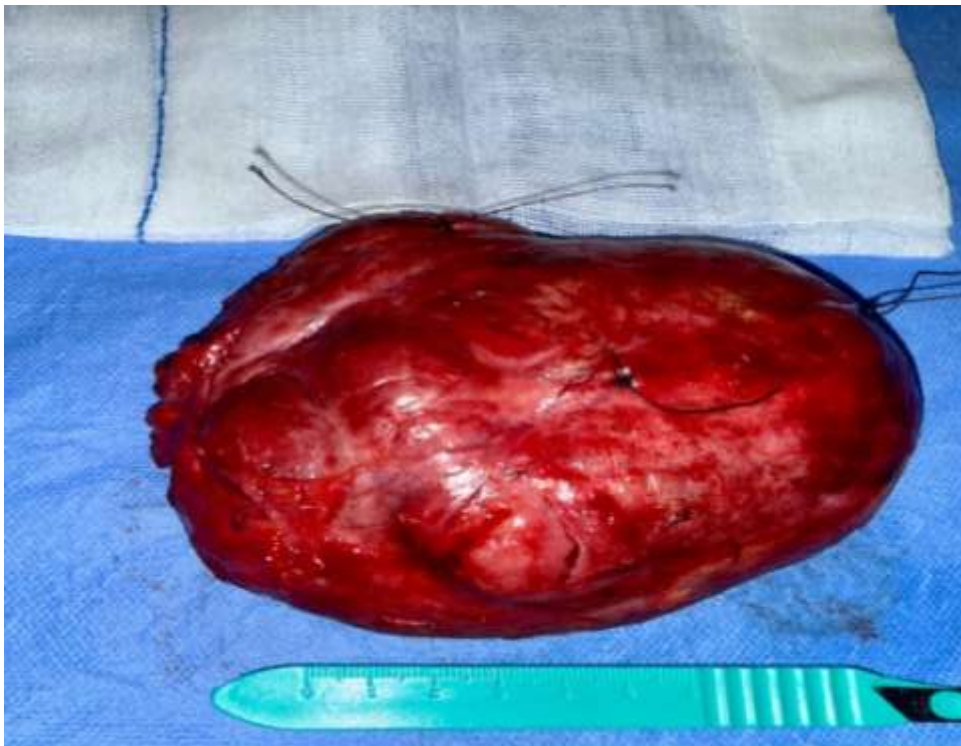
**Figures:-**



**Figure 1: Marked breast asymmetry with a significant enlargement of the right breast, causing skin distension suggestive of a giant juvenile fibroadenoma.**



**Figure 2: Breast ultrasound showing a large, well-circumscribed, homogeneous hypoechoic mass, suggestive of a fibroepithelial tumor consistent with juvenile fibroadenoma.**



**Figure 3: Surgical specimen following tumorectomy, showing a large, well-circumscribed mass with a smooth, lobulated surface, consistent with fibroadenoma on macroscopic examination**



**Figure 4: Early postoperative appearance after excision of a juvenile fibroadenoma, showing an arcuate incision in the inframammary fold with a satisfactory initial cosmetic outcome**

### **Discussion:-**

Juvenile fibroadenoma is a rare entity of breast fibroadenoma that predominantly affects adolescent girls and young women (3) Despite its benign nature, rapid enlargement frequently causes concern for malignancy and may lead to significant cosmetic and psychological consequences.

The pathogenesis of juvenile fibroadenoma remains incompletely understood. Hormonal stimulation during puberty is considered the most likely contributing factor. Increased sensitivity of breast tissue to estrogen and progesterone may explain the rapid growth observed during adolescence. (4) Genetic factors may also contribute, as familial cases have occasionally been reported. (5)

Clinically, it presents as a unilateral, well-defined, mobile, and painless breast mass, often with rapid growth (6). Giant forms, may cause breast asymmetry with skin distension. However, inflammatory skin signs such as ulceration, or nipple inversion remain exceptional and should prompt consideration of a differential diagnosis, particularly a phyllodes tumor (7).

Ultrasonography is the first-line imaging modality, with an excellent negative predictive value estimated at 99.5% (8). It typically showing a well-circumscribed, round, homogeneous, hypoechoic lesion, sometimes associated with posterior acoustic enhancement (9). Mammography has limited value in young patients due to high breast density and the risk of radiation exposure.

Histologically, juvenile fibroadenoma is characterized by marked stromal hypercellularity and epithelial hyperplasia without significant atypia. These findings help differentiate it from phyllodes tumors, which usually demonstrate increased stromal atypia, higher mitotic activity, and infiltrative borders. (10).

Management depends on lesion size, growth pattern, and cosmetic impact. Small stable lesions may be observed. However, surgical excision is recommended for giant fibroadenomas, rapidly enlarging tumors, lesions causing breast deformity, or masses with uncertain diagnosis. Preservation of normal breast tissue is particularly important in

adolescents to ensure continued breast development and optimal cosmetic outcomes. (11)The prognosis is excellent. Malignant transformation is exceedingly rare. Nevertheless, recurrence has been reported in a small proportion of patients, highlighting the importance of regular clinical and ultrasonographic follow-up. (12)Our case emphasizes the importance of considering juvenile fibroadenoma in the differential diagnosis of rapidly enlarging breast masses in adolescents. Early diagnosis and breast-conserving surgery allow excellent functional and aesthetic outcomes.

### **Conclusion:-**

Juvenile fibroadenoma is a rare benign breast tumor occurring mainly during adolescence. Rapid growth and large size may mimic malignant breast lesions, creating significant diagnostic challenges. A multidisciplinary approach combining clinical examination, imaging, and histopathological evaluation is essential for accurate diagnosis. Breast-conserving surgical excision remains the treatment of choice for giant or rapidly growing lesions and provides excellent cosmetic and functional outcomes. Long-term follow-up is advisable because recurrence, although uncommon, may occur.

### **Conflicts of interest:-**

The authors declare no conflicts of interest.

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### **Consent:-**

Informed consent was obtained from the patient.

### **Author contributions:-**

All authors contributed to patient management, manuscript drafting, and final approval.

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