



## Giant juvenile fibroadenoma of breast in adolescent girls



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### ABSTRACT

Giant juvenile fibroadenomas are rare variants of fibroadenoma, usually occurring in girls between the ages of 10 and 18 years. They are characterized by massive and rapid enlargement of a rubbery, mobile, and non-tender mass. The etiology is not well understood and believed to be an increased sensitivity to normal estrogen level. We report two cases of giant juvenile fibroadenoma in a 12 and 14 years old girls that were managed by surgical excision with conservation of normal breast tissue, nipple, and areola. The cases are followed by a literature review.

### 1. Introduction

Breast development is an early physical change during puberty. Any abnormality in the growth rate or symmetry will be a major concern to the patients and their family. Breast masses in children and adolescents are commonly benign in etiology with fibroadenoma being the most common pathological diagnosis [1]. Fibroadenoma is termed juvenile if it occurs in children and adolescents between the ages of 10–18 years. A rare variant is giant fibroadenoma characterized by a rapidly growing tumor with a mass greater than 5 cm and/or weighing more than 500 g [1]. Juvenile fibroadenoma forms only 4% of the total fibroadenomas, and giant juvenile fibroadenoma constitutes only 0.5% of all fibroadenomas [2,3]. The etiology of the disease is still not well understood, but hormonal factors have been proposed. Here we present two cases of giant juvenile fibroadenomas in 14 and 12 years old girls.

### 2. Case no. 1

A 14-year-old female patient presented to our pediatric surgery clinic due to a rapidly growing mass in the left breast for one month. She has reached her menarche 12 months prior to presentation. The mass was painful with menstruation. There was no significant family history. No history of irradiation to the chest or estrogen supplementation. History of trauma, fever, nipple discharge, anorexia, and weight loss was absent. On local examination, a firm non tender mass was felt in the upper outer quadrant of the left breast. It was mobile and measuring  $3.1 \times 2.7$  cm (Fig. 1). The overlying skin was normal with no axillary lymphadenopathy or nipple discharge. The right breast was normal. Routine hematological and biochemical parameters were

within normal limits. Ultrasonography of the left breast demonstrated a large slightly heterogeneous lesion suggesting left breast fibroadenoma. The patient was followed up for the next four months. During the follow up period, the mass has markedly enlarged reaching a size of  $5 \times 5$  cm. The patient and family was counselled and lumpectomy with circum-areolar breast incision was performed. The mass was released from surrounding normal breast tissue and was delivered intact (Fig. 2). Histopathological evaluation of the specimen showed a well circumscribed mass with biphasic proliferation of fibroblastic and glandular elements with no cytologic atypia confirming the diagnosis of fibroadenoma (Fig. 3).

### 3. Case no. 2

A 12-year-old girl, who is post menarcheal with regular periods, presented to our outpatient clinic with history of a huge right breast lump that was noticed one month prior to presentation. She is on treatment for attention deficit hyperactivity disorder (ADHD). Also, she is known to have sensorineural hearing loss since the age of three years for which she had cochlear implants. Her father is deaf and mute. She had no family history of malignancy. On breast examination, the lump was  $8 \times 4$  cm, occupying two-thirds of the right breast (Fig. 4). It was mobile and non-tender with no overlying skin changes. There was no nipple discharge, retraction, or axillary lymphadenopathy noted. Because of family anxiety she had an ultrasound followed by a fine needle aspiration cytology (FNAC). Ultrasonography examination revealed a well-defined mass with heterogeneous echogenicity, measuring  $8.7 \times 4.5$  cm, with mild to moderate hypervascularity. The results of fine needle aspiration cytology (FNAC) were consistent with benign

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Fig. 1. Huge mobile mass occupying upper outer quadrant of left breast.



Fig. 2. Excised mass measuring 5.8 × 4.2 × 3.5 cm.

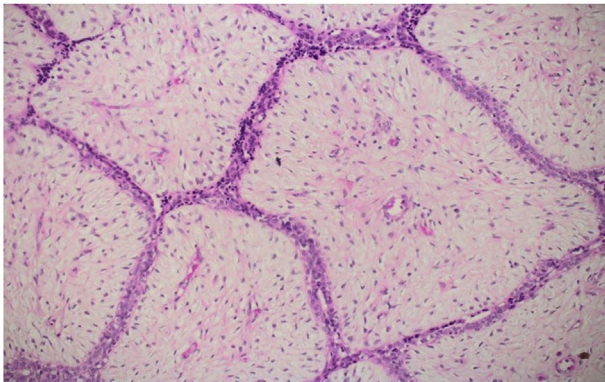


Fig. 3. H & E slide showing biphasic proliferation of fibroblastic and glandular elements with no cytologic atypia.

fibro epithelial lesion, namely fibroadenoma.

Upon follow up, the patient noticed growth of the mass even bigger. After counselling the family and patient they opted for excision. Due to size of the mass in relation to the rest of the breast, the lumpectomy was done through an axillary incision rather than a circumareolar incision (as advised by the plastic surgeon) with placement of a drain. The drain was removed the next day. Gross examination of the excised mass showed a firm mass with lobulation and smooth outer surface, measuring 10 × 7 × 5 cm and weighing 174 g (Fig. 5). Microscopic examination showed a well demarcated lesion, composed of mammary tissue, with increased both stromal and epithelial components. The stroma showed minimal cellularity, fibrosis and myxoid changes. No evidence of atypia, mitosis or necrosis were present. The epithelial



Fig. 4. Pre operative photo with marking of the outline of the mass. More than two thirds of the breast is occupied by the mass.



Fig. 5. Excised well circumscribed mass measuring 10 × 7 × 5 cm.

component showed a leaf like intra canalicular growth pattern giving the pathology diagnosis of fibroadenoma with focal phyllodes like intra canalicular pattern (Fig. 6). The patient was seen in follow up six weeks post the operation. The wound was healing fine with normal breast development and the patient was doing well (Fig. 7). Six months later, the asymmetry between the two breasts was barely noticeable.

#### 4. Discussion

Fibroadenoma is the most common benign breast lesion diagnosed in young women [1]. Peak incidence occurs in adolescence between the ages of 10–18 years [3]. It presents as a rubbery, mobile, and non-tender mass. It can be multiple in 10%–15% of cases, or bilateral in 10% of the cases [4]. Most commonly, it is located in the upper outer quadrant of the breast [5]. Giant fibroadenoma is a rare variant, which occurs only in 0.5% of all cases of fibroadenoma [2,3]. Giant

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