

# Inframammary Giant Fibroadenoma Removing and a Nipple-sparing Breast Reconstruction in an Adolescent: A Case Report

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**Abstract:** Fibroadenomas are common, benign breast tumors that usually affect women in the second and third decade of life. Giant fibroadenomas often cause significant concern for the patient or family regarding malignant potential and altered breast development. Most fibroadenomas are benign. Local excision of small lesions through a circumareolar or inframammary incision rather than radical surgery is appropriate. Breast ultrasound represents the most commonly used imaging modality for the study of pediatric female breast masses and fibroadenomas. Detailed descriptions of the sonographic appearances of fibroadenomas in young girls are sparse. We believe that surgical treatment for the patient should include tumor extirpation and immediate restoration of breast appearance, minimizing visible scars, protection of the developing breast bud, nipple, and areola. This modality reduces psychosocial comorbidity.

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## Introduction

Fibroadenomas are common, benign, breast tumors that usually affect women in the second and third decade of life (Chang and McGrath, 2007). Giant fibroadenomas often cause significant concern for the patient or family regarding malignant potential and altered breast development (Greydanus et al., 1989). Giant fibroadenoma is the main cause of unilateral breast mass in teenagers and adolescents. Giant fibroadenoma is an uncommon variant of fibroadenoma and the most common cause of unilateral macromastia in adolescents, accounting for 2% to 10% of all fibroadenomas of the breast. Four percent of these represent a special form described as giant or juvenile fibroadenoma (Baxi et al., 2000; Chang and McGrath, 2007). The fibroadenoma must be distinguished from phyllodes tumors, which can be malignant. Postulated etiologic factors include trauma, pregnancy, lactation, excess estrogen, or pubertal hormonal effects (Rajan et al., 1998). Because most fibroadenomas are benign, local excision of small lesions through a circumareolar or inframammary incision rather than radical surgery is appropriate (McGrath, 2000).

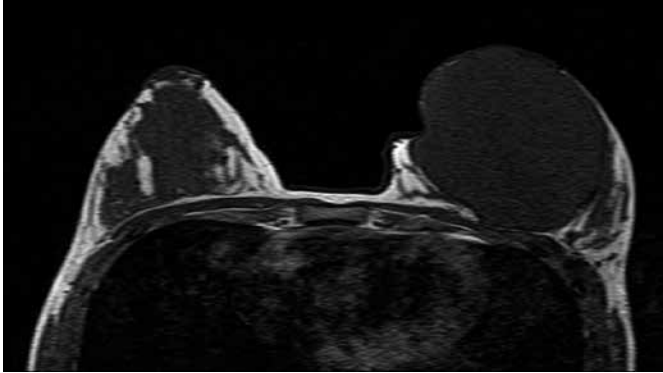
## Case report

A 16-year-old girl presented with a 3-month history of a rapid asymmetric enlargement of the left breast (Figure 1). At the first physical examination, the lump presented typical features of an inflammatory swelling, although there were no palpable fluctuant areas nor systemic signs and symptoms.

Ultrasound (US) examination revealed a subareolar, well-circumscribed, heterogeneous mass of 8 to 8 cm in diameter, extending in the lower quadrants, with no calcifications or fluid areas in left breast. Ultrasound characteristics were well suited with a normally developing other breast.



Figure 1 – Asymmetric enlargement of the left breast.



*Figure 2 – Magnetic resonance imaging for breast mass.*



*Figure 3 – A nipple-sparing inframammary giant fibroadenoma removing of the left breast was performed.*



*Figure 4 – Breast prosthesis was placed behind the pectoral and serratus muscles.*

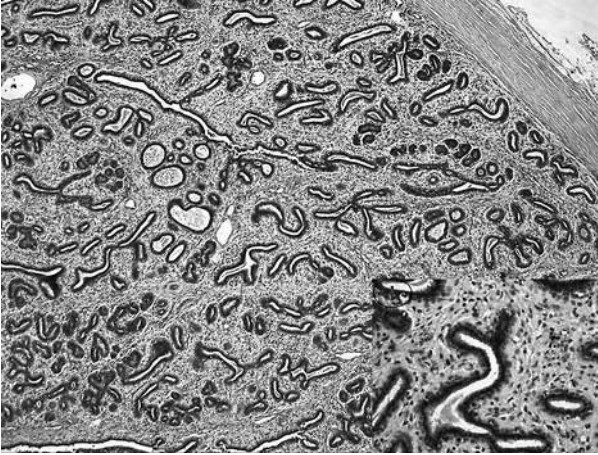


Figure 5 – Glandular structures in cellular homogeneous stroma and border of the tumor on the upper right (hematoxylin-eosin stain, original magnification, 50×), I (inset): glandular structures composed of a single layer of epithelium supported by a layer of myoepithelial cells (hematoxylin-eosin stain, original magnification, 400×).

A magnetic resonance imaging (MRI) was performed, revealing a large well-circumscribed predominantly hypointense mass on T1WI (Figure 2) measuring 80×75 mm, almost involving the entire left breast. Tiny hyperintense foci were seen in the mass representing hemorrhage.

A nipple-sparing inframammary giant fibroadenoma removal of the left breast was performed (Figure 3). Breast prosthesis of 360 cc was placed behind the pectoral and serratus muscles (Figure 4).

We confirmed pathological diagnosis of giant fibroadenoma with presenting microscopic pictures (Figure 5).

## Discussion

Fibroadenoma is the most common among benign nodules in adolescents, accounting for 67% to 94% of adolescent breast pathology. Breast masses are relatively uncommon in the pediatric population, with an estimated prevalence of 3.25% in the adolescent age group (Neinstein et al., 1993).

Juvenile fibroadenoma occurs typically between 10 and 18 years (Wechselberger et al., 2002). Symptomatology and clinical significance vary depending on the age group. In the toddler and prepubertal age groups, early mammary development and enlargement, asymmetrical breast appearance, mastitis and posttraumatic hematomas are common lesions, while fibroadenomas represent the most common breast masses in adolescence (Sanchez et al., 2010).

In physical examination, fibroadenomas are usually well-defined, palpable, and “rubber-like” painless, mobile lesions. The average size is 2–3 cm and the term “giant fibroadenoma” is reserved for lesions larger than 5 cm. The most common location is the outer upper quadrant of the breast (West et al., 1995). Fibroadenomas are usually solitary although multiplicity is not uncommon, especially among the juvenile fibroadenomas subtype.

A diagnosis is made by a combination of clinical and imaging findings. The increased density of fibroglandular breast tissue in girls limits the ability of mammography to determine the presence of abnormal findings, and the role of MRI is undetermined. In contrast to adults, mammography is contraindicated in children because of the extremely low risk of breast cancer, increased risk of radiation-induced malignant changes in the young glandular breast, and poor image quality because of dense fibroglandular breasts (Chang and McGrath, 2007). Breast ultrasound represents the most commonly used imaging modality for the study of pediatric female breast masses. Detailed descriptions of the sonographic appearances of fibroadenomas in young girls are sparse (Chung et al., 2009).

Most breast masses could be removed by circumareolar incision except for giant lesions. Protection of the developing breast bud, nipple, and areola is as important as appropriate excision of the lesion. A detailed physical examination accompanied by ultrasonography is sufficient for the correct diagnosis in most cases. Female adolescents presenting with breast masses should undergo surgery after a reasonable observation period of 3 to 4 menstrual cycles. Excision of discrete, undiagnosed breast masses is warranted to define pathology, to rule out malignancy and to prevent breast enlargement and asymmetry (Ciftci et al., 1998).

Clinical, sonographic, and MRI findings were well suited for the phylloid tumor of the left breast in our case. Surgical excision of the tumor was planned: the mass was enucleated through an inframammary incision, and reconstructive mammoplasty was necessary. For the nodular development of the right breast and development of recurrent mass of left breast, it was decided to have only a careful follow-up for bilaterally breast.

Small fibroadenomas of the adolescent breast can be locally resected, with good aesthetic results. Giant tumors frequently require reconstructive techniques and plastic surgical expertise. The goals of treating a benign breast tumor are complete resection of the tumor and a symmetric result.

The breast remnant will not return to a normal contour after resection of a giant lesion with dramatic skin and parenchymal displacement unless reconstructive techniques are used. Chang and McGrath (2007) have found that a modification of a mammoplasty technique can be used successfully in these cases. The choice of a reduction mammoplasty technique also depends on the location of the breast tumor (Rajan et al., 1998).

We believe that surgical treatment for the patient should include tumor extirpation and immediate restoration of breast appearance, minimizing visible scars, protection of the developing breast bud, nipple, and areola. This modality reduces psychosocial comorbidity.

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