Case Report

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Surgery Section

A Case of Juvenile Giant Fibroadenoma of Breast: A Diagnostic Dilemma

S GOWSICK[1], LEJEUNE RAMOT MAHALAKSHMI[2], AN ROOPA URS[3]

ABSTRACT

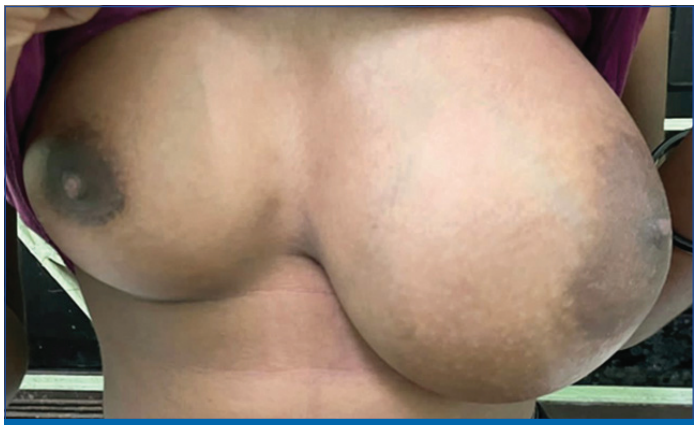
Fibroadenomas are the most common type of breast tumours diagnosed in young women. Fibroadenomas found in children and adolescents are termed as juvenile fibroadenomas of which giant fibroadenomas are rare account for 0.5-2% of all fibroadenomas, that cause asymmetry of the breasts and are characterised by rapidly growing mass of more than 5 cm in greatest dimension, and/or weight more than 500 gm, or replaces at least 80% of the breast. Both phyllodes tumour and giant fibroadenoma have similar clinical presentations. The current case is of 15-year-old female with a rapidly growing mass in the left breast with in a span of six month duration measuring 15×10 cm and was associated with dilated veins over it. The clinical diagnosis was suggestive of phyllodes tumour. Cytopathological and histopathological reports showed the evidence of juvenile giant fibroadenoma. Hence, the purpose of this report is to differentiate phyllodes tumour from juvenile giant fibroadenoma preoperatively to obtain the best cosmetic outcome for a developing breast lesion.

Keywords: Adolescent, Breast tumour, Lump, Phyllodes tumour

CASE REPORT

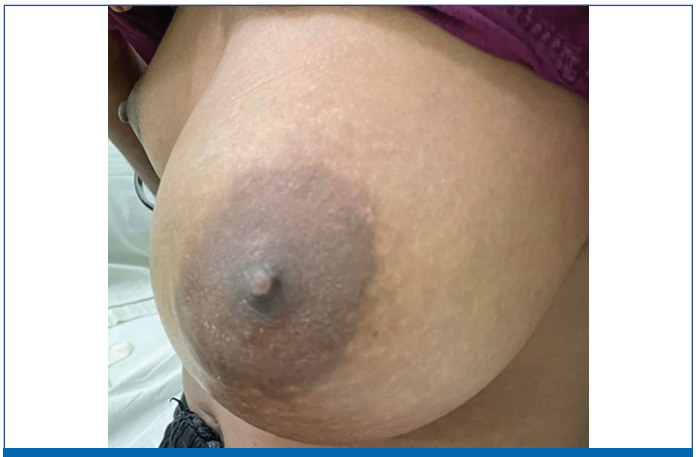
A 15-year-old girl reported to the outpatient department of General Surgery with a chief complaint of a lump in the left breast for past six months, which was initially smaller and rapidly progressed to the present size of 15×10 cm. She also noticed mild pain on and off for six months. She had reached menarche one year prior to the presentation with regular cycles. History of fever, nipple discharge, or trauma was insignificant. There was no significant family history, also no history of using oral contraceptive pills or any radiation exposure.

On examination, asymmetry was noted in both breasts. The left breast was enlarged and right was normal. A hard, non tender and mobile mass of size 15×10 cm was felt involving the entire left breast. The mass was not attached to the skin or underlying muscle. The nipple areolar complex was splayed out without any evident nipple discharge. The overlying skin was stretched and shiny in appearance, and multiple dilated veins were seen. There were no dimpling, puckering or paeu d orange types of changes visible. No axillary lymph nodes were palpable [Table/Fig-1,2].



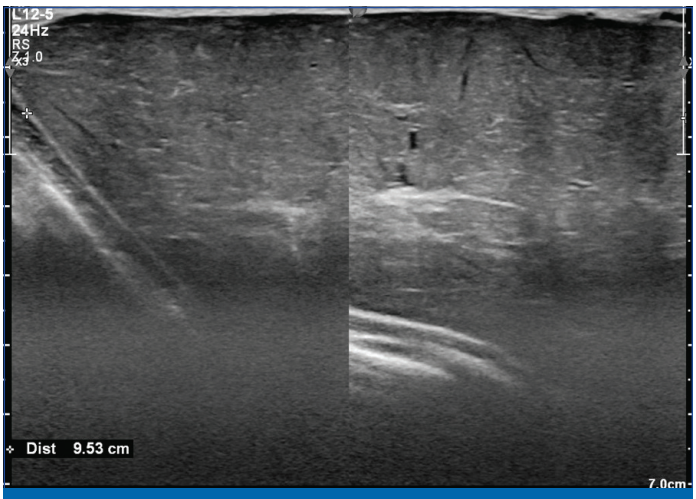
[Table/Fig-1]: Enlarged left breasts with stretched, shiny skin and multiple dilated veins.

The routine laboratory and biochemical investigations were within normal limits. Ultrasound of left breast revealed a large well defined, homogenous, hypoechoic solid lesion extending across the entire left breast [Table/Fig-3] for a length ~17 cm and depth of ~4.5 cm. Few thin septations were also noted within with areas of increased

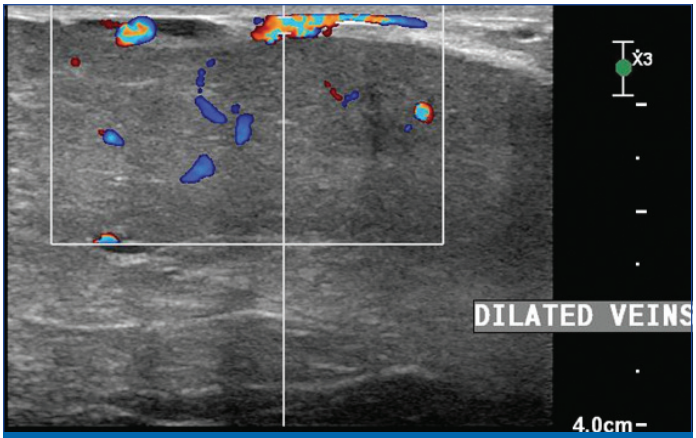


[Table/Fig-2]: Splayed nipple areolar complex of left breast.

vascularity [Table/Fig-4] which was suggestive of a Phyllodes tumour. Core needle biopsy was attempted and due to torrential bleeding the procedure was denied. Further Fine Needle Aspiration Cytology (FNAC) was done that showed features suggestive of fibroadenoma left breast. The patient and family were counselled and agreed to surgery and consent was obtained.

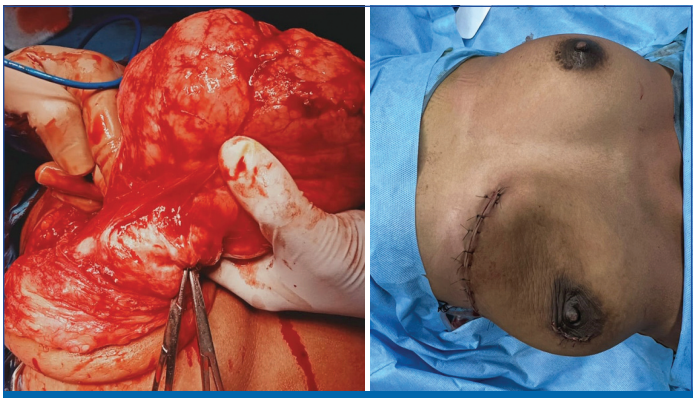


[Table/Fig-3]: Ultrasonography of lesion showing well defined, homogenous, hypoechoic solid lesion extending across the entire breast.



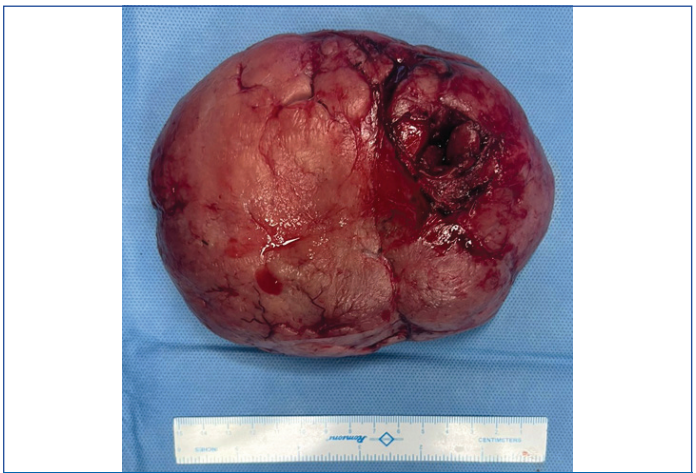
[Table/Fig-4]: Showing dilated veins and increased vascularity of the mass in the breast parenchyma.

Total excision of the lump or simple mastectomy was planned. Inframammary incision was given, tumour was found deep in the subdermal layer with a deep margin anterior to the pectoralis major fascia and it was well encapsulated and highly vascularised. During surgery, the frozen section of the specimen also gave an impression of juvenile fibroadenoma. Hence, excision of the lump was done and skin edges were approximated [Table/Fig-5,6] and the lesion was sent for histopathological examination.

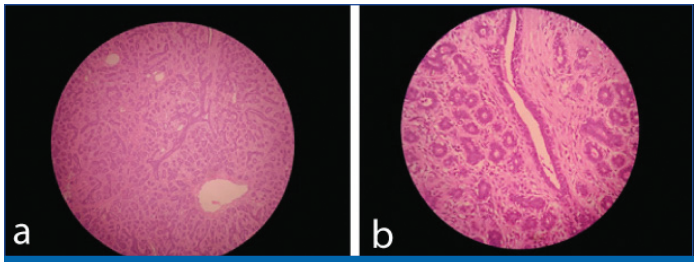


[Table/Fig-5]: Intraoperative image showing encapsulated, highly vascularised grayish white tumour. **[Table/Fig-6]:** Showing inframammary approach sutured with drain insitu. (Images from left to right)

Grossly, the specimen was capsulated with engorged veins, cut surface was greyish yellow to greyish brown in colour, measuring 13×11×5 cm [Table/Fig-7]. Histopathological examination of excised lesion showed a benign biphasic cellular tumour composed of epithelial cells and myoepithelial cells arranged predominantly in a pericanalicular pattern and focally as intracanlicular pattern in a background of fibrocollagenous stroma with few dilated blood vessels. Lack of atypia/leaf like architecture confirmed the diagnosis of juvenile giant fibroadenoma [Table/Fig-8 a,b].



[Table/Fig-7]: Well-circumscribed excised lesion with bosselated surface.



[Table/Fig-8]: a) Photomicrograph showing proliferation of glands in pericanalicular pattern in a background of fibro collagenous stroma Haematoxylin and Eosin (H&E, 10X). b) Photomicrograph showing proliferation of epithelial cells in glandular and tubular structures lined by bilayered epithelium (H&E, 40X). (Images from left to right)

Postoperative days were uneventful and drain tube was removed on the second postoperative day. Patient was doing fine till one year follow-up.

DISCUSSION

Various reasons can lead to the development of abnormal breast lesions in adolescents, either physiological or pathological. The most common among adolescent benign breast lesions is juvenile fibroadenoma with a prevalence of approximately 2% in women in their second and third decade [1,2] and accounts for 44% to 94% of total biopsied specimens [3]. Fibroadenomas are asymptomatic, and shows progressive growth, but the growth phase is followed by a static phase in about 80% of patients, with regression in about 15% and progression in only 5%-10% [1,2]. The exact aetiology is unknown. Hormonal influence which implicates excess oestrogen stimulation, increased oestrogen receptors, or decreased oestrogen antagonists activity in the breast are thought to be a contributing factors as juvenile fibroadenomas increase in size during puberty or pregnancy and in response to oral contraceptives [4].

The name 'phyllodes' is taken from Greek, meaning 'leaf-like' which refers to leaf like pattern of tumour cells growth [5]. Phyllodes tumour which usually occurs in the premenoupausal age group between 30 and 50 years should be suspected when rapidly growing breast mass (more than 3 cm) which is palpable [6]. The World Health Organisation (WHO) classifies phyllodes tumours into benign, borderline and malignant mainly based on histological features including nuclear atypia, stromal cellularity, mitotic activity, tumour margin appearance and stromal overgrowth [7]. Another differential diagnosis was virginal hypertrophy, unequal growth of breast buds on one side related to stimulation of hormone and it lacks lobule formation along with presence of abundant connective tissue with ductal proliferation histologically [3]. The most important aspect of treating a breast lump is reaching a correct diagnosis. The algorithm for investigation of breast lesion is through triple assessment: Clinical examination, radiological assessment and histopathological examination [8]. Ultrasound is the investigation of choice for adolescent and modern ultrasonography is a reliable technique to diagnose fibroadenoma in the hands of experienced breast radiologists [8]. Mammogram and Magnetic Resonance Imaging (MRI) are in limited usage for benign breast lesions. Core needle biopsy remains the gold standard to confirm the diagnosis as this technique provide the more tissue [2] and it is easier to identify cell types and structures among malignant diseases. But Fine Needle Aspiration Biopsy (FNAB) is preferred since it is less invasive. The stromal elements are a key component in differentiating phyllodes tumours from fibroadenomas and in differentiating a benign tumour from a malignant one [6]. As the last resort, excisional biopsy needs for the diagnosis of giant fibroadenoma [9].

The treatment options are heterogenous and varied, from simple enucleation to mastectomy with or without immediate or delayed breast reconstruction [10]. In a systematic review study involving 52 articles (153 patients) showed the mainstay of treatment is complete excision of the lump, which emphasised on conserving the

breast parenchyma and nipple areolar complex, thereby achieving superior aesthetic results [10]. The incisons can be circumareolar, infra or submammary. In large tumours, an inframammary incision is preferred to preserve the integrity of the normal breast parenchyma. The axillary incision can also be given as it will be hidden in the armpit. In this patient inframammary incision was given and complete excision of the tumour was done. Reconstructive procedure was planned for later date as the patient was reaching puberty. Long term follow-up is necessary for these kind of patients as the overall recurrence rate for fibroadenoma and phyllodes were reported to be 15% and 21%, respectively [11]. Recurrence rates are also reported to be more in masses larger than 2 cm and need proper surveillance [12,13].

The dilemma about this case was that a clinical diagnosis of phyllodes tumour was made due to the appearance of the large breast mass along with dilated veins but histological evidences along with the age and giant size of the lesion, this case was reported as giant juvenile fibroadenoma. Though preoperative diagnosis plays the key role in planning for surgery but the multimodality approach involving clinical, radiological and pathological diagnosis along with psychologist's advice will give a better outcome for the patient.

CONCLUSION(S)

Giant juvenile fibroadenomas are rare and their clinical picture might appear similar to cystosarcoma phyllodes. Hence, it is challenging to plan the best treatment along with better cosmetic outcomes. Mastectomy for giant juvenile fibroadenoma is in debate and it is reserved for recurrent or unusual cases.

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PARTICULARS OF CONTRIBUTORS:

1. Postgraduate, Department of General Surgery, SRM Medical College Hospital and Research Centre, Chengalpattu, Tamil Nadu, India.
2. Senior Resident, Department of General Surgery, SRM Medical College Hospital and Research Centre, Chengalpattu, Tamil Nadu, India.
3. Assistant Professor, Department of Pathology, Karwar Institute of Medical Sciences, Karwar, Karnataka, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:

S Gowsick,
52L, Kongu Nagar, Tiruchengode Road, Namakkal-637001, Tamil Nadu, India.
E-mail: gowsickshanmugam@gmail.com

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