

## Unusual presentations of fibroadenoma breast

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**Abstract:** The most common cause of a breast mass in young females is fibroadenoma, accounting for approximately 75% of all breast lesions in young females [1]. However only 0.5-2% of all cases of fibroadenomas can be classified as giant fibroadenomas. Usually one or two fibroadenomas occur in a patient, but bilateral lesions or even up to four in a single breast is a relatively common feature. Ultrasound is particularly useful in evaluation of fibroadenomas since young women commonly have dense breast tissue, rendering mammography more difficult. The postoperative recurrence of fibroadenomas in patient perhaps was due to the constant presence of the predisposing factors and should not be considered a relapse.

**Material and methods:** A study of 100 cases of breast lumps were studied for the evaluation of unusual types of fibroadenomas.

**Results:** Fibroadenomas are benign breast tumours and they can have varied presentation regarding size, number, presentations and their recurrence tendency.

**Key words:** Benign, Fibroadenoma, Phylloides, mammography, Ultrasound

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### I. Introduction and Review of literature

Fibroadenomas are among the most common tumours of the female breast, occurring most frequently in women of child-bearing age, especially those under 30 years. Fibroadenoma is a slow growing lesion with a size up to 3 cm. Most of the fibroadenomas are present as a single mass in one breast only. However there are present unusual presentations such as multiplicity, bilaterality, variation in size, recurrence tendency.

The most common cause of a breast mass in young females is fibroadenoma, accounting for approximately 75% of all breast lesions in young females [1]. However only 0.5-2% of all cases of fibroadenomas can be classified as giant fibroadenomas [2].

Most fibroadenomas present as single mass, however the presence of multiple fibroadenomas can be seen in 15–20% of patients. (3) It has been reported that the average number of masses in cases of multiple fibroadenomas is typically 3–4 in a single breast but occurrence of more than five fibroadenomas in an individual patient is much less common. (4)

Usually one or two fibroadenomas occur in a patient, but bilateral lesions or even up to four in a single breast is a relatively common feature. The great majority of fibroadenomas are histologically and clinically similar to the slow-growing "adult" fibroadenoma seen in older women. Less than 5% of fibroadenomas have the clinical and histologic characteristics of giant fibroadenomas defined as either having a diameter greater than 5cm and/or a mass heavier than 500 gm. (5) Multiple fibroadenomas and especially recurrent cases have been reported very rarely and the majority of these cases have been part of familial syndromes, in non-Caucasian women. (6)

Breast development is one of the first obvious signs of puberty. Any variation in its normal progression often deserves attention. Virginal hypertrophy, giant fibroadenoma, and cystosarcomaphylloides are the important differential diagnosis to be considered when one encounters a large breast mass. Although the majority of breast disorders in paediatric patients are benign, the presence of any breast mass frequently raises parental concerns of a potential cancer. (6,7)

The aetiology of multiple breast fibroadenomas has not yet been clearly established. A possible connection between multiple fibroadenomas and oral contraceptives was proposed but has not been well investigated yet. Other possibilities include imbalance of in vivo oestrogen levels, hypersensitivity of local breast tissue to oestrogen, dietary factors, or inherited predisposition. The increased sensitivity to oestrogen may subsequently lead to mammary gland hyperplasia and even the development of carcinoma. A study of a large cohort of women with fibroadenoma revealed that the overall prevalence of atypical epithelial hyperplasia within fibroadenomas was 0.81% and only around 7% of women with atypia developed invasive carcinoma on follow-up. (9) Therefore, patients with fibroadenomas may have a slightly increased risk of developing breast cancer. The pathogenesis of formation of the numerous breast fibroadenomas in the patient is unknown.

Giant fibroadenomas typically present clinically with pain and breast enlargement. They are usually smooth, firm, nontender and mobile to palpation, and most often occur in the upper outer quadrant of the breast [10]. There may be overlying skin changes. Other potential causes of significant breast enlargement, or

macromastia, which must be considered when evaluating a patient presenting with this complaint include juvenile hypertrophy, macrocyst, lipoma, hemangioma, pseudoangiomatous stromal hyperplasia, cystosarcomaphyllodes and fibroadenoma. The appearance of a giant fibroadenoma on mammography is consistent with that of a benign fibroadenoma: a dense, sometimes lobulated, well-circumscribed mass with sharp margins. There may be a surrounding lucent halo. However, since giant fibroadenomas most commonly occur in pre-menopausal women, the pathognomonic “popcorn-like” calcifications that may be appreciated on mammographic imaging of fibroadenomas are rare in giant fibroadenomas, since this finding results from involution of the tumor in post-menopausal women [9].

**Breast ultrasound** allows for discrimination of breast cysts, which are typically anechoic fluid-filled spheres, from solid tumors, which are typically hypoechoic [11]. Specifically, on ultrasonographic evaluation, fibroadenomas appear as well-circumscribed elliptical homogeneous masses that are either hypo- or isoechoic, with smooth borders and posterior acoustic enhancement. They are typically larger in the transverse than the antero-posterior axis. Ultrasound is particularly useful in evaluation of fibroadenomas since young women commonly have dense breast tissue, rendering mammography more difficult. While the presence on ultrasound of clefts or cysts in a well-defined solid mass is typical of a phyllodes tumor, this is not a pathognomonic finding and further diagnostic evaluation is mandatory. A giant fibroadenoma can be distinguished histologically from a phyllodes tumor by the lack of stromal atypia, stromal overgrowth, stromal condensation surrounding ducts, and leaf-like architecture typical of a phyllodes tumor [13]. Rather, a giant fibroadenoma will have histology consistent with that of a fibroadenoma: a well-circumscribed proliferation of stromal and epithelial tissue, which can be classified as pericanalicular, intracanalicular, or variant, referring to the location of the stromal proliferation. This subclassification is a histologic distinction and carries no prognostic value. The distinction between phyllodes tumor and giant fibroadenoma, however is prognostically significant: phyllodes tumors may be malignant while fibroadenomas are benign, with no association between the presence of a fibroadenoma and subsequent breast cancer development [14]. Though benign, because of their size giant fibroadenomas are nonetheless associated with significant morbidity, including venous congestion, glandular distortion, pressure necrosis, and occasionally ulceration [14].

The management of a giant fibroadenoma differs from that of a phyllodes tumor. Typical surgical intervention for a fibroadenoma is enucleation, while excision with wide margins is the standard of care for a phyllodes tumor (15)

**MRI** is currently emerging as a useful complement to the more established breast imaging modalities. On T2-weighted images of fibroadenomas, septations which demarcate the separation between lobules can be appreciated. This pattern emerges because of the characteristic growth of fibroadenomas in adjacent lobules [11]. This feature alone, however, is not sufficient to distinguish between a phyllodes tumor and a giant fibroadenoma. Thus, even with the addition of MRI to the radiologic armamentarium, imaging survey and clinical examination do not provide adequate information for the conclusive diagnosis of giant fibroadenoma.(16)

### **Juvenile fibroadenoma**

In contrast to fibroadenomas, the age range at presentation of the variant – juvenile fibroadenoma – tends to be between 11 and 18 years, which approximately coincides with the onset of puberty. Fibroadenoma is extremely rare in very young children, with the earliest known published case in a 13-month-old girl (6). Other differential diagnoses include virginal hypertrophy, fibrocystic disease, cystosarcomaphyllodes, fibrosarcoma and lymphangioma abscess.

### **Diagnosis of juvenile fibroadenoma:**

Diagnosis of a breast mass in an adolescent is often based on history and physical examination. Juvenile fibroadenoma is a painless, solitary and unilateral mass, without evidence of infection, and may double in size within three to six months, reaching 15 cm to 20 cm. It grows rapidly and distorts overlying skin, with prominent veins. Juvenile fibroadenoma is often cosmetically distressing to the patient.

Ultrasound may be more suited to imaging-suspected breast pathology in young patients than mammograms because it better detects masses in fibroglandular breasts than in fatty breasts. Aspiration cytology demonstrates sheets of hyperplastic, benign, ductal epithelial cells with myoepithelial cells and a background of benign bipolar nuclei and blood, without inflammatory fat cells. In contrast to phyllodes tumors, juvenile fibroadenoma often shows hyperplasia of ductal epithelium.

Fine-needle aspiration biopsy has been found to be a reliable tool for evaluating masses of the adolescent breast, but it requires an experienced cytopathologist. Fine-needle aspiration cannot always differentiate between a phyllodes tumor and a fibroadenoma. This distinction is important because, unlike fibroadenomas, phyllodes tumors require wide excision with negative margins.

Finally, incisional biopsy can confirm a diagnosis. Histologically, juvenile fibroadenomas appear more cellular with fewer lobular components than simple fibroadenomas.

**Cystosarcomaphyllodes**

Cystosarcomaphyllodes is a rare, predominantly benign tumor that occurs almost exclusively in the female breast. Its name is derived from the Greek words sarcoma ("fleshy tumor"), and phyllon ("leaf"). Grossly, the tumor displays characteristics of a large, malignant sarcoma, takes on a leaflike appearance when sectioned, and displays epithelial, cystlike spaces when viewed histologically. Because most tumors are benign, the name may be misleading. Thus, the favoured terminology is now phyllodes tumor.

**Pathophysiology and etiology**

Phyllodes tumor is the most commonly occurring nonepithelial neoplasm of the breast, although it represents only about 1% of tumors in the breast. (12) It has a smooth, sharply demarcated texture and typically is freely movable. It is a relatively large tumor, with an average size of 5cm. However, lesions of more than 30cm have been reported. The etiology of phyllodes tumors is unknown. (13)

While most phyllodes tumors are benign, the possibility exists for underestimating their potential for malignancy. Moreover, some juvenile fibroadenomas in teenagers can look histologically like phyllodes tumors; however, they behave in a benign fashion similar to that of other fibroadenomas. The difficulty in distinguishing between fibroadenoma, benign phyllodes tumors, and malignant cystosarcomaphyllodes may be vexing for even the most experienced pathologist.

**II. Material and methods**

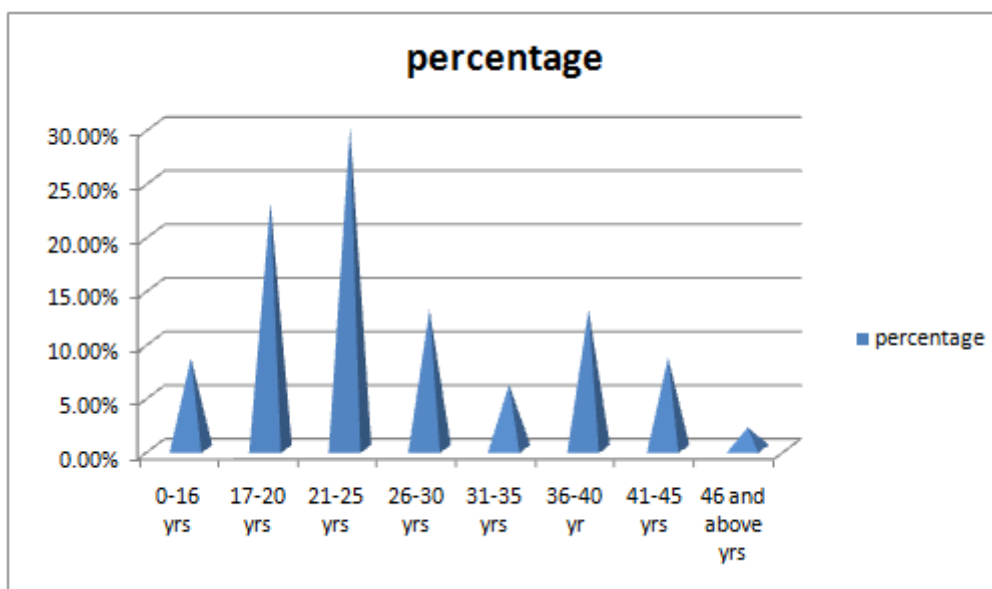
We have a study of 100 cases of breast diseases that were treated surgically in Govt. Medical college, Amritsar, India in a span of three years. Out of all 100 cases we studied the unusual presentations of fibroadenomas in benign breast diseases. Patients with conservative management, Breast abscesses, fibroadenosis and Mastalgia were not included in this study.

In our study, out of 100 cases that were treated surgically, 57 cases belonged to benign breast diseases and 43 patients were of malignant breast disease. Out of 57 cases of benign diseases, 47 cases belonged to fibroadenomas, 2 with subareolar breast nodules in more than 50 yr of age woman and had inflammatory pathology, 2 cases of duct papilloma, 5 case of chronic Breast disease and one case of cystosarcomaphyllodes.

**Observations:**

**Age**

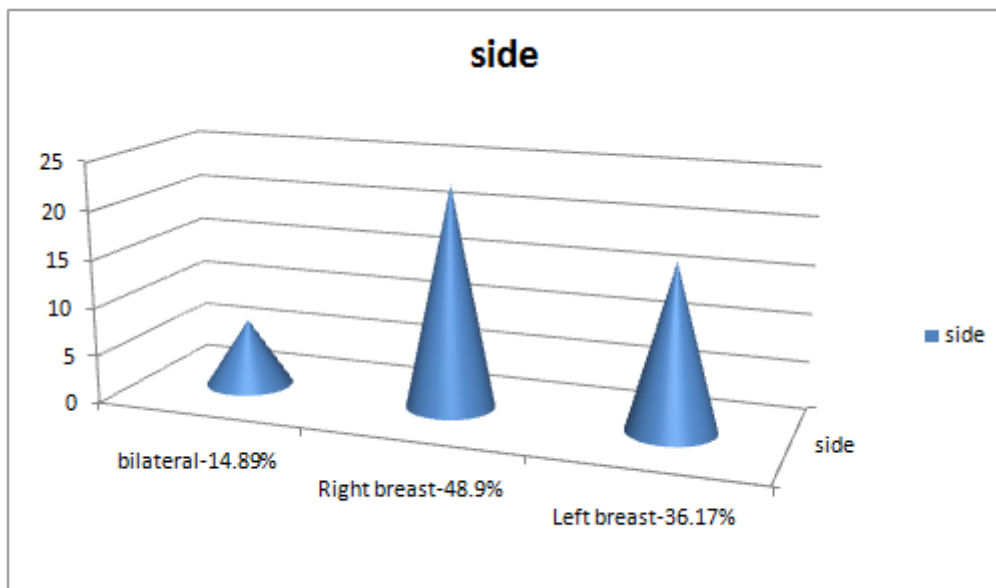
Most of the fibroadenomas were in the reproductive age group i.e between 18-45 yrs. (44 out of 47 ) cases (93 %). 4 case were below 16yrs (8.5%). 11 cases (23%) were between 17-20 yrs, 14 cases (30%) between 21-25 yrs, 6 case (13%) between 26-30 yrs, 3cases (6%) between 31-35 yrs, 6 case (13%) between 36-40 yrs, 4 cases (8.5%) between 41-45 yrs, 1 case(2%) between 46-50 yrs.



Year wise distribution of cases of fibroadenomas

**Side predilection**

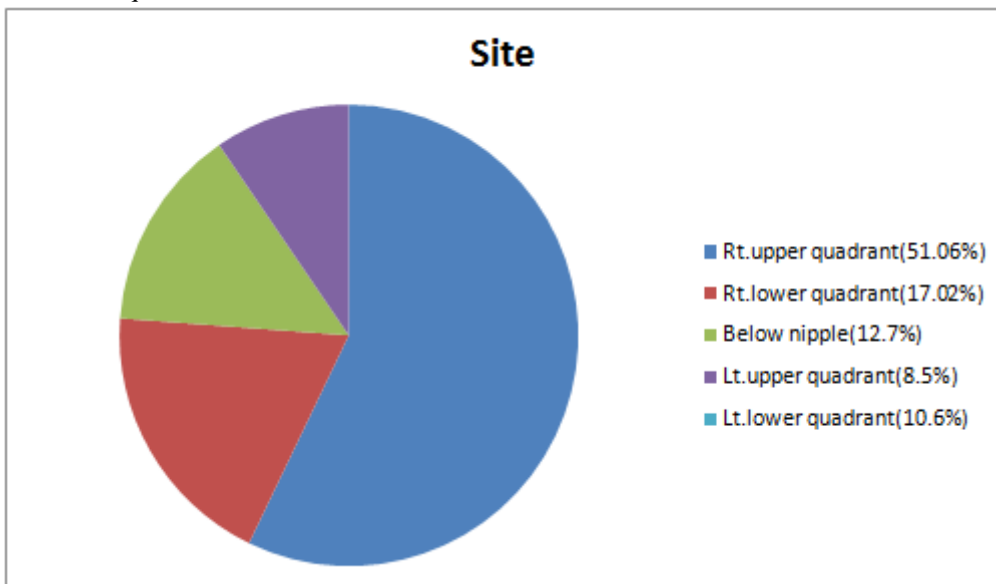
In our study of 47 cases of fibroadenomas 7 cases had bilateral masses. Out of 40 case 23 (57.5%) women had mass on right side and 17 (43%) has masses on left side.



Side wise distribution of fibroadenomas.

**Site**

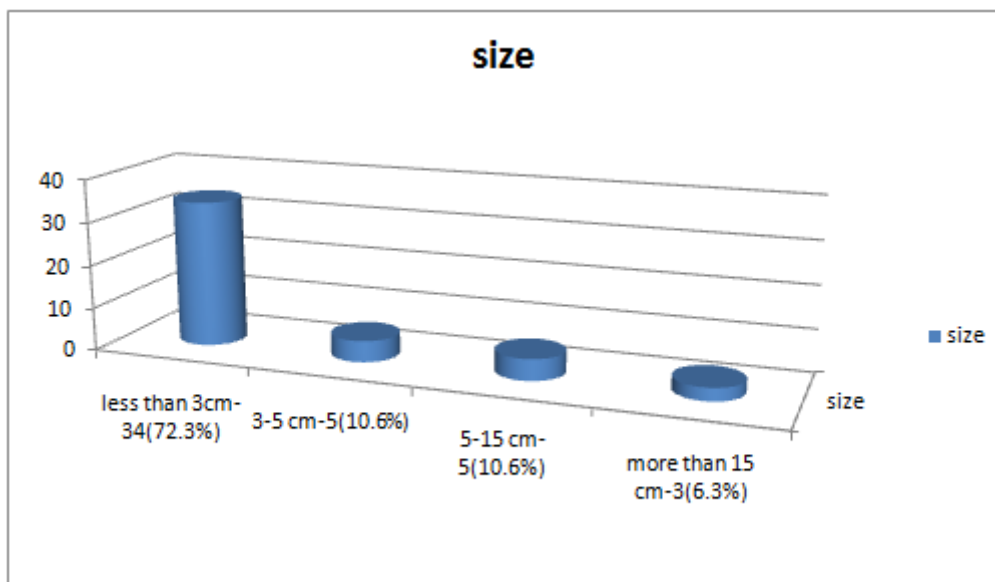
Most of the fibroadenomas occurred in the right upper quadrant, 24 out of 47 cases (51.06%), 8 cases (17.02%) occurs in right lower quadrant, 6 cases (12.7%) below nipple, 4 cases (8.5%) in left upper quadrant, 5 cases (10.6%) in left lower quadrant.



Site wise distribution of fibroadenomas

**Size**

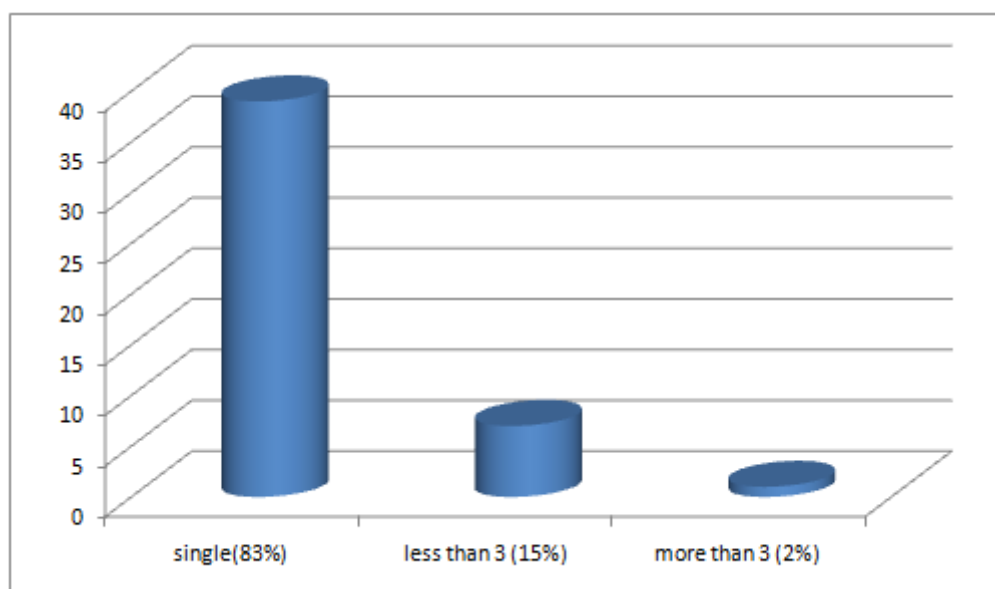
Most of the fibroadenomas 34 out of 47 (76%) were of the size of less than 3 cms, 5 cases (10.6%) were of this size between 3- 5cms, 8 cases (17%) are of the size of more than 5 cms. Out of , 8 cases of the size of more than 5 cms, 3 cases (6%) were larger than 15 cms and belongs to Giant variety.



Size-wise distribution of fibroadenomas

**Multiplicity and bilaterality**

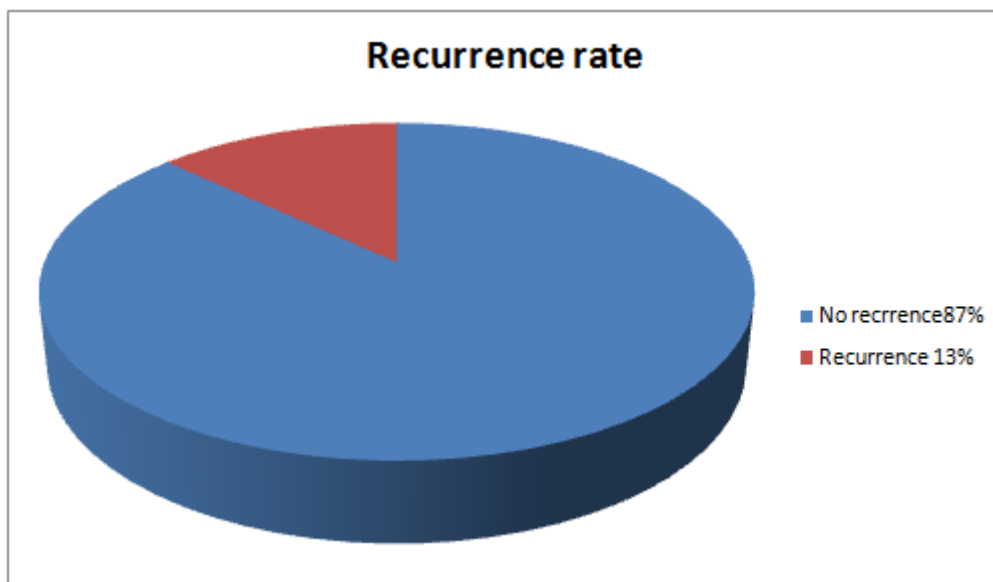
Most of the fibroadenomas presented as a single mass in unilateral breast i.e 39 cases (83%), 7 cases (15%) occurred in both breasts but not more than 3 masses. 1 case (2%) has multiple fibroadenomas i.e 8 in number in a single breast.



Total number-wise distribution of fibroadenomas

**Recurrence**

In our study of 3 years of follow up recurrence occurs in 6 cases(13%). 2 cases of juvenile giant fibroadenomas has recurrence and reoperated for this.



### III. Discussion

Fibroadenoma is the most common cause of a breast mass in young females, accounting for approximately 75% of all breast lesions. Breast fibroadenoma, a benign biphasic tumor, occurs most frequently in women of child-bearing age, especially those under 30 years. Fibroadenoma is usually a slowly growing lesion with size up to 3 cm. However only 0.5-2% of all cases of fibroadenomas can be classified as giant fibroadenomas. Some authors defined fibroadenomas larger than 5 cm as giant fibroadenomas. However, this definition is not universally accepted. It has been reported that the average number of masses in cases of multiple fibroadenomas was 3 to 4 in a single breast. Most fibroadenomas are present as a single mass, however, the presence of multiple fibroadenomas can be seen in 15% to 20% of the patients. The occurrence of more than five fibroadenomas in an individual patient is much less common. Unlike women with a single fibroadenoma, most of the patients with multiple fibroadenomas have a strong family history of these tumors. Majority of fibroadenomas do not recur after being completely excised, but in adolescent patients, one or multiple new fibroadenomas can occur in areas adjacent to the prior surgical excision site of the same breast or even in the contralateral breast. The postoperative recurrence of fibroadenomas in patient perhaps is due to the constant presence of the predisposing factors and should not be considered a relapse.

### IV. Conclusion:-

Fibroadenoma is the most common cause of a breast mass in young females accounting for 82.4% of all benign lesions. Most of the patients, 93% of females are in the reproductive age group i.e between 18-45 yrs. Most of the fibroadenomas occurs in the right upper quadrant (51.06%) in unilateral breast and usually occurs of the size less than 3 cms. However there are unusual presentations of fibroadenomas that can occur in the form of variations in age, site, size, number, bilaterality and recurrence tendency. This study is done to know the unusual presentations and behaviour of fibroadenomas.

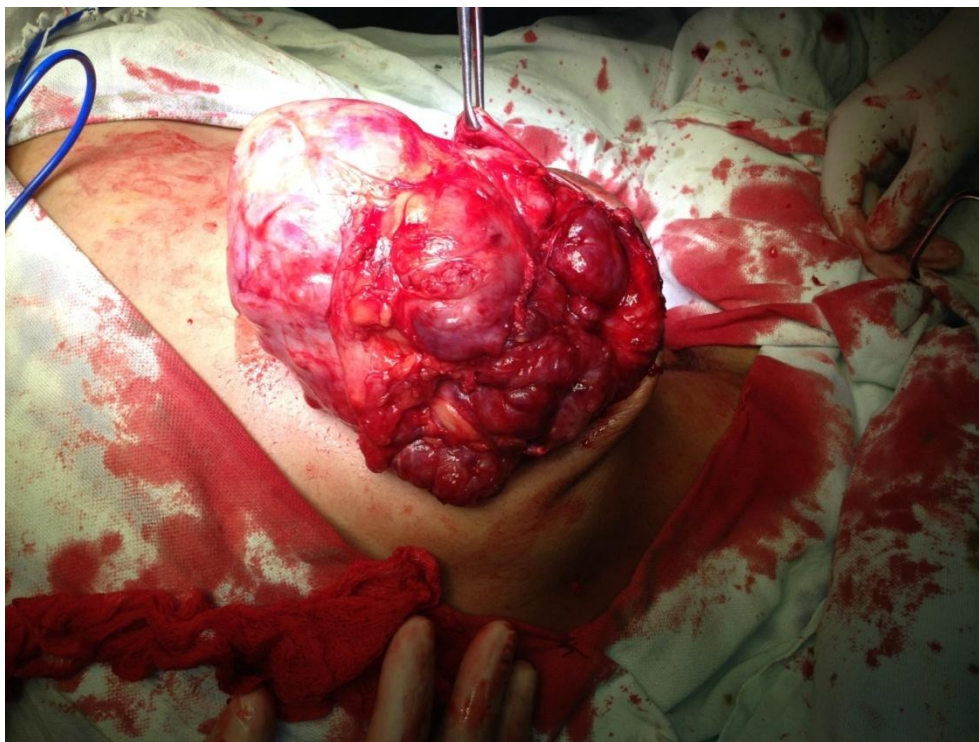
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Recurrent giant fibroadenoma in unilateral breast in a 24 yr unmarried female



Operative Finding



Multiple fibroadenomas in unilateral breast ( 8 in number)

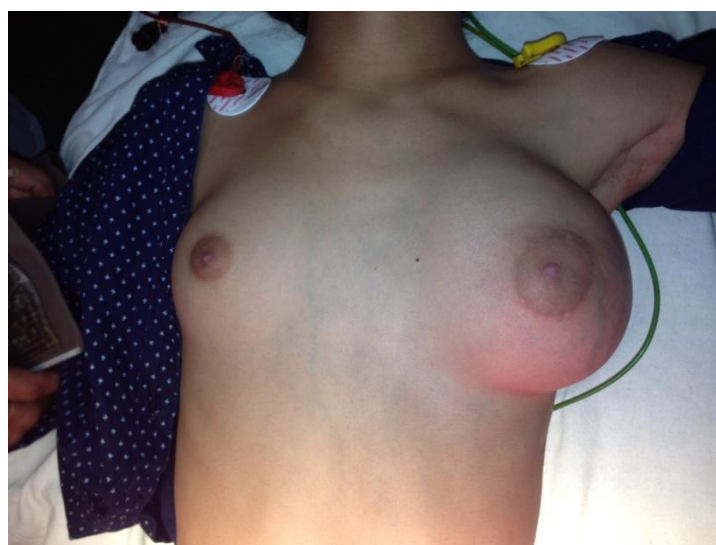


Excised specimen





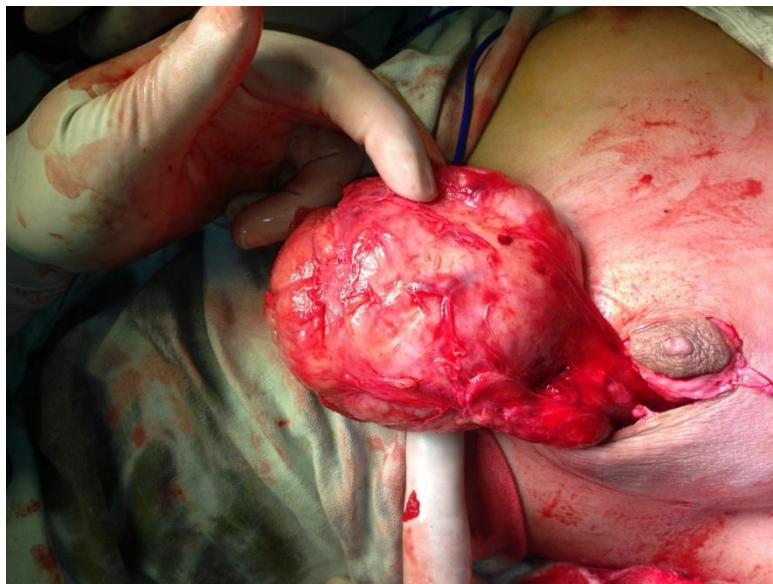
A Case of cystosarcomaphylloides recurred three times in a span of 3 yrs



Juvenile Giant fibroadenoma in a single breast in a 14 yr girl



Juvenile Giant fibroadenoma (Intraoperative)



Operative finding in above patient



Excised specimen



Cut specimen of juvenile fibroadenoma



Mammography findings showing two fibroadenomas in a single breast of 19 yr F



Operative findings of above pt. with two fibroadenomas



Excised Specimen