Case Report:  

Multiple juvenile fibroadenomas in a pre-pubertal girl  

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Abstract:  
Fibro adenomas comprise most of the benign breast lumps among young females between the age group 20 and 35 years. Breast masses or fibro adenomas are uncommon in childhood. The majority of them are related to inflammation (infection or abscess) or benign tumors as fibro adenomas. Juvenile fibro adenoma is a rare clinical entity and forms 4% of the total fibro adenomas, and giant juvenile or multiple fibro adenomas constitutes only 0.5% of all fibro adenomas. They usually present as well-circumscribed, well encapsulated masses in the breast. Multiple fibro adenomas are not uncommon when they present in bilateral breast. But the presence of more than four fibro adenomas in one breast is very rare. We present a case of multiple, unilateral juvenile fibro adenomas (12 fibro adenomas in one breast) in a 10-year-old pre-pubertal girl. The diagnosis was done on fine needle aspiration cytology and later on confirmed on histopathology. These tumors are almost always benign and should be treated with breast conserving surgery.  

Keywords: Juvenile Fibro adenomas, Multiple Fibro adenomas, Benign Breast Tumors, Breast Lump, Pre-pubertal girl.  

INTRODUCTION  
Fibro adenoma is the most common benign tumor of female breast which implies a new growth comprising of both fibrous and glandular tissue. Fibro adenomas are common between age groups 20 and 35 years, but can occur at any age group within reproductive period of life. Breast masses are uncommon in children and adolescents. Breast development is one of the first obvious signs of puberty. Any variation in its normal progression often deserves attention. Virginal hypertrophy, giant fibro adenoma, and cystosarcoma phyllodes are the important differential diagnoses to be considered when one encounters a large breast mass in the childhood and adolescence. Although the majority of breast disorders in pediatric patients are benign. The majority of them are associated with inflammation due to infection or benign tumors like fibro adenomas. Fibro adenomas usually present as an encapsulated, mobile, rubbery, non-tender mass/masses. Multiple fibro adenomas account for 0.5%–2% of all fibro adenomas and the exact etiology is not known. If the mass is not diagnosed early, it can cause psychological trauma to the patient. In rare occasions, fibro adenomas can show rapid proliferation and massive growth resulting in multiple fibro adenomas or single giant fibro adenoma. Giant fibro adenomas are more than 5 cm in diameter and constitute less than 4% of all fibro adenoma (1,2).  

CASE REPORT  
A 10 year old pre-pubertal thin built girl presented to the surgical out-patient department with complaints of swelling in the left breast associated with heaviness since 10 months. There was no pain initially, but due to the growth of the swelling and
A patient experienced pain in the last 4 months. On examination, the left breast (3 times that of the right breast) with nipple, areola and skin appear normal without any ulceration, but there were engorged veins noticed on the left breast. Palpation of the left breast revealed multiple well-defined, firm, mobile swellings of size approximately 3.5 x 2 cm. No other swellings noted neither in the axillary tail of the left breast nor in the right breast. Apart from the routine investigations, patient was advised to undergo ultrasound of the left breast and fine needle aspiration cytology (FNAC).

Ultrasonography of the left breast revealed multiple swellings – Features were suggestive of Multiple Fibro adenomas.

Fine needle aspiration cytology (FNAC) - Aspirations were done from three different swellings of the left breast. Cytosmears show benign ductal epithelial cells arranged in clusters and sheets with few elongated myo-epithelial cells and bare nuclei in the hemorrhagic background. Features are suggestive of Multiple Fibro adenomas.

Patient was posted for lumpectomy of the multiple fibro adenomas and the masses were sent for Histopathological examination (HPE) to confirm the diagnosis.

Gross findings

We have received 12 well-circumscribed, well encapsulated, irregular, nodular to smooth gray white masses. Largest mass measured 5 x 3.5 x 2 cm, smallest mass measured 1 cm diameter. (Fig. 1). Cut section of all the masses showed homogenous gray white appearance with slit like spaces. (Fig. 2)

Microscopy

Multiple sections studied show benign ducts, glands and stroma. Glands are lined by inner epithelial cell layer and outer myo-epithelial layer. Some of the glands are slit like. Stroma is fibro-myxoid and more concentrated around the glands.

Impression - Multiple Fibro adenomas of left breast - Pericanalicular type.
DISCUSSION

Breast fibro adenomas are the most common solid lesions found in young women. They typically present as firm, mobile, painless, easily palpable breast nodules. They occur in any part of reproductive life of female but more common between the age groups 20 and 35 years. The nomenclature of fibro adenoma in younger women is confusing and a plethora of names exists to designate the lesion such as age related term juvenile fibro adenoma and size related term giant or massive fibro adenoma\(^3\). According to Stanford School of Medicine, juvenile fibro adenoma of breast is defined as circumscribed, often large, breast mass occurring in adolescent females with stromal and epithelial hypercellularity but lacking leaf like growth pattern of phyllodes tumors. Most of the patient’s age ranges between 10-20 years with a mean age of 15 years. Juvenile fibro adenoma may be multiple. Exact etiology of juvenile fibro adenoma is not known; hormonal influences are thought to be contributing factors. Excessive estrogen stimulation and/ or receptor sensitivity or reduced levels of estrogen antagonist during puberty have been implicated in pathogenesis \(^4,5\). A wide variety of breast conditions such as phyllodes tumor, virginal hypertrophy, lipomas, hamartoma, cyst, abscess and carcinoma can result in solitary or multiple giant masses \(^6\). It is important to distinguish these pathological entities preoperatively as the treatment modalities and the prognosis differ quite significantly in these various conditions. Some of the lesions were treated by mastectomy, but most of the lesions require only local excision, aspiration, or conservative management. Virginal hypertrophy is rapid and distressing enlargement of one or both breast, but is often asymmetrical. It is treated by reduction mammoplasty. Giant lipomas can cause unilateral breast hypertrophy and presents as soft mobile mass on palpation. Breast abscesses during puberty cause sudden and rapid growth in the breast with pain and erythema. Malignant tumors of the breast are rare in children and adolescence. Preoperative cytological examination is essential as cytological diagnosis of phyllodes tumor remains difficult with a significant overlap with fibro adenomas. The cytological smears

![FIGURE 3 & 4 (40 X View)](image)

Microscopy of fibro adenomas showing benign ducts and glands.
of malignant phyllodes tumor is quite easy and well established, but the differential diagnosis between fibro adenomas and benign or borderline phyllodes tumor is overlapping at times. The intervention to be done to the breast changes according to the size of the lesion and its localization. If the lesion is small, it can be treated by simple enucleation from an areolar incision (7). A skin sparing mastectomy and reconstruction with prosthesis are eligible choices when the tumor is not gigantic (8). When there are gigantic tumors causing structural deformities, it becomes necessary to reshape the breast by excising excessive skin (9, 10). When performing excision, the symmetric appearance between each breast should be protected.

It is essential to know that juvenile fibro adenoma may recur after complete excision, and the chance of recurrence become less after third decade. Isolated case reports of unilateral juvenile fibro adenoma and multiple giant fibro adenoma in single breast were reported in the past (4, 7, 11, 12). The patients were treated by removal of fibro adenoma with preservation of breast tissue, nipple and areola.

CONCLUSION

The diagnosis and management of large breast tumors in the pre-pubertal age group is challenging for pathologist and surgeon. In the diagnostic work-up, sonography and fine-needle aspiration are used after physical examination. In the majority of the cases, these tumors are benign and should be treated with breast sparing surgery.

REFERENCES
