

Giant Juvenile Fibroadenoma: Report of two cases

Kalpana Beniwal^{1*}, Deepti Aggarwal², Swarn Kaur³

^{1*}Senior resident, Department of Pathology, BPS Government College for Women, Khanpur (Sonapat), India

²Associate Professor, Department of Pathology, BPS Government College for Women, Khanpur (Sonapat), India

³Professor, Department of Pathology, BPS Government College for Women, Khanpur (Sonapat), India

ABSTRACT

Juvenile giant fibroadenoma (JGF) is a rare benign breast tumor usually presenting in adolescent female and constitute 0.5 % of all fibroadenomas. JGF characterized by rapid and massive growth of encapsulated mass measuring more than 5 cm. We are reporting two cases of giant fibroadenoma in prepubertal girls aged 13 and 11 years. The provisional diagnosis was made on FNAC which was subsequently confirmed on histopathology. These tumors are mostly benign and should be treated with breast-conserving surgery to improve physical, psychological disturbances and cosmetic disfigurement.

Keywords: Juvenile fibroadenoma, Giant, Breast, Prepubertal.

Introduction

Breast lumps are rare during childhood and adolescents. The majority of them are related to infection, trauma, cyst and benign tumors as fibroadenomas. Juvenile fibroadenoma is a rare clinical entity that occur during prepuberty comprising 4% of the total fibroadenomas, of which giant juvenile fibroadenoma constitutes only 0.5%. [1] Juvenile fibroadenomas greater than 5 cm and/or 500 grams are called giant juvenile fibroadenomas. According to Stanford School of Medicine, Juvenile fibroadenoma of the breast is defined as circumscribed, often large, breast mass usually occurring in adolescent females with stromal and epithelial hypercellularity but lacking the leaf-like growth pattern of phyllodes tumor. [2] We report 2 cases of giant juvenile fibroadenoma in prepubertal girls aged 13 and 11 years. The reason for reporting this case is because of its rarity and its treatment modality.

Case history

Case no .1

A 13 year old girl (premenarchal) presented with lump in left breast for a duration of 4 months increasing progressively in size and associated with mild pain. There was no history of trauma, nipple discharge, fever, anorexia, and weight loss. There was no significant family history. On local examination, slightly tender, huge, nodular mass in left breast was seen, which was firm in consistency and not fixed to underlying structures. The overlying skin was tense and shiny with prominent superficial veins. Axillary lymphadenopathy was absent. Routine hematological and biochemical examinations were within normal limits. Ultrasonography was showed heterogenous parenchymal pattern suggestive of fibroadenoma. On FNA showed cellular smears comprising of large branching monolayered sheets and tightly cohesive clusters of benign epithelial along with myoepithelial cells. Background showed numerous bare bipolar nuclei and myxoid stroma. (figure 1) No mitosis seen.



Fig 1: FNAC from breast lumps showed many branching sheets of epithelial cells with many bare nuclei and myxoid stromal fragments in background. (Giemsa stain)

*Correspondence

Dr. Kalpana Beniwal

Senior resident, Department of Pathology, BPS Government College for Women, Khanpur (Sonapat), Haryana, India.

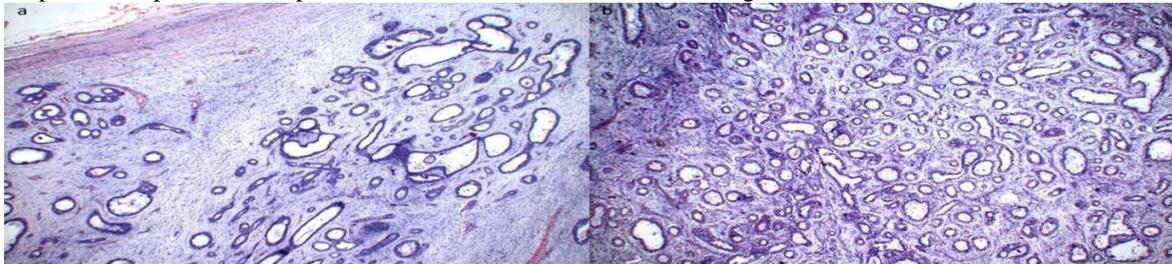
These findings were consistent with fibroadenoma. Total excision of lump was done and the normal breast tissue, nipple, and areola were preserved. The resected specimen was sent for histopathology. The excised lump was well

circumscribed, encapsulated and measured 12× 8 × 7.5 cm. Cut surface was homogenous, grey white, firm, nodular and myxoid.(figure2)



Fig 2: Gross photograph of the excised mass of case no. 1 revealing smooth gray white nodular cut surface with myxoid appearance and occasional slit-like spaces.

Microscopically, revealed well encapsulated tumor with hyperplasia of both epithelial and stromal components. Epithelial component showed tubular or tufted pattern of epithelial hyperplasia with characteristic tufts of cells protruding into the lumina.(Figure3&b)



3: Microscopic photograph of case no.1 (a),(b) well-encapsulated tumor with hyperplasia of both epithelial and stromal components. (H&E stain)

The glands were lined by bilayered epithelium at places showing stratification. Most of the areas showed a pericanalicular pattern. Stroma was cellular and showed myxoid change (Figure4a&b).

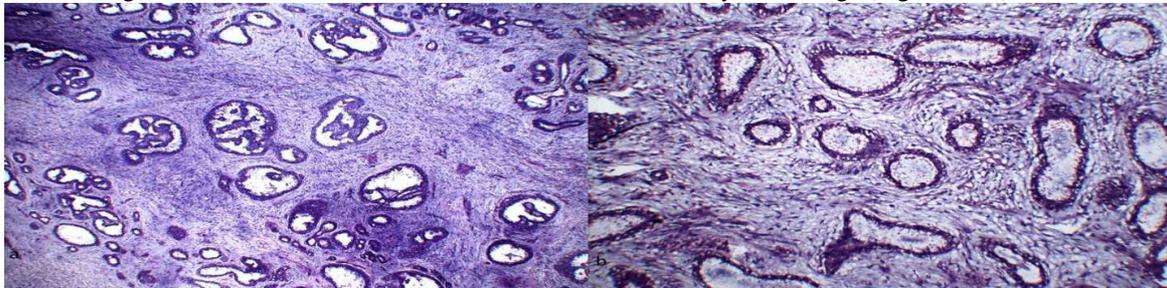


Fig 4: Microscopic photograph of case no.1 (a),(b) revealed many glands lined by bilayered epithelium at places showed stratification and cellular stroma with myxoid change. (H&E Stain)

There was occasional mitosis (0-1/hpf) and absence of cytological atypia. Based on light microscopic findings, diagnosis of Giant Juvenile Fibroadenoma was made.

Case no.2

A 11-year-old girl presented with a lump in right breast for 2 months. It was not associated with any discharge, pain or history of trauma. There was no significant family history. On local examination a

single mobile firm mass with well defined margins was noticed in right breast, which was firm in consistency and not fixed to underlying structures. Axillary lymphadenopathy was absent. Routine haematological and biochemical examinations were within normal limits. Ultrasonography was carried out which showed heterogenous parenchymal pattern suggestive of fibroadenoma. The patient was subjected to fine-needle aspiration cytology (FNAC) and showed features of fibroadenoma. Total excision of the mass preserving the nipple and areola was done. The resected specimen

was sent for histopathological study.(figure 5a) The excised lump was well circumscribed, encapsulated and measured 10× 7 × 6.5 cm.Cut surface was

homogenous, grey white, firm, nodular and myxoid.The histopathological diagnosis of Giant Juvenile Fibroadenoma was given.(figure 5b)

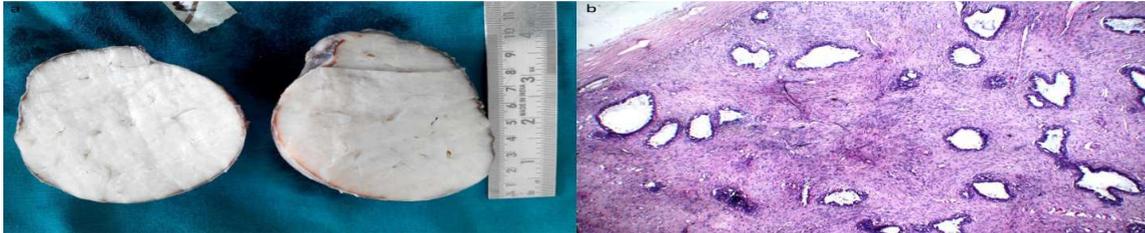


Fig 5 a)Gross and (b) Microscopic photograph of case no. 2. (H&E Stain)

Discussion

Fibroadenomas of breast are benign tumors made up of both glandular breast tissue and stromal tissue affecting females usually before the age of 30 (commonly between 10-18 years). Juvenile fibroadenomas is a variant that occurs in adolescents and young adult. Fibroadenomas more than 5 cm in size or >500 gms in weight are termed as giant juvenile fibroadenomas. The gross appearance is similar to fibroadenomas in adults. The smooth, sharply demarcated mass shows a myxoid or fibrous cut surface.[3]Giant juvenile fibroadenoma is an uncommon tumour characterized by rapid and massive enlargement of breast, compressing and displacing normal breast tissue and stretching the overlying skin and dilatation of superficial veins. Diagnostic criteria for juvenile fibroadenoma are (1) circumscribed and multiple; (2) biphasic stromal and epithelial process in which pericanalicular pattern is most common and lacks leaf-like growth pattern in uniformly hypercellular stroma. Fibrotic areas may be present; (3) lack of atypical features in stroma-like periductal increase in cellularity, stromal overgrowth, cytologic atypia, and mitotic rate >3/hpf; (4) frequent epithelial and myoepithelial hyperplasia; (5) most patients' age is 10–20 years with a mean age of 15 years.[4]The exact etiology is not clear, increased estrogen stimulus and receptor sensitivity and decrease in estrogen antagonist levels during puberty are thought to be responsible for it .[5]Juvenile fibroadenomas are rarely multiple or bilateral and they may recur repeatedly . This condition is more common in black than in white and typically presents in the early teens. It may recur rapidly after excision, and the histological appearance in this situation is similar to that of a conventional or juvenile fibroadenoma. The rapidity and frequency of recurrence usually decrease after the third decade.[6]The most important differential diagnosis of Giant juvenile fibroadenoma includes low-grade phyllodes tumor, virginal hypertrophy, and rarely lipoma, hamartoma, breast abscess, macrocyst,

adenocarcinoma, and pseudoangiomatous stromal hyperplasia. It is important to distinguish these pathological entities preoperatively as the treatment modalities and the prognosis differ quite significantly in these various condition. Some of them were treated by mastectomy, but some other lesions may require only local excision, aspiration, or conservative management.[7,8]Juvenile fibroadenomas should be differentiated from benign phyllodes tumors . Distinction between the two is important because juvenile fibroadenomas should be treated by lumpectomy with preservation of surrounding normal tissue, whereas benign phyllodes tumors is treated by wide excision with a margin of normal tissue or mastectomy and require follow up. In contrast to benign phyllodes tumors, juvenile fibroadenomas usually have a pericanalicular growth pattern and the epithelial hyperplasia is a more prominent feature, Stromal cellularity is less and the cells show no periductal concentration, no atypia, and few mitoses, if any. Although some degree of stromal overgrowth with separation of the glandular elements may be present, this again is less prominent than in benign phyllodes tumors, and large areas of stroma devoid of epithelium are not seen. Benign low-grade phyllodes tumor occurs in the older (> 40 years) age group and has no racial predisposition, usually present as solitary mass confined to unilateral breast, and bilateral involvement is rarely seen.[3,9] In juvenile breast hypertrophy, rapid and distressing asymmetrical enlargement of one or both breasts which affect adolescent female.On Histology, shows abundant connective tissue and duct proliferation, frequently with epithelial hyperplasia.It is treated by reduction mammoplasty.[10]Giant lipomas can cause unilateral breast hypertrophy and present as Soft, immobile, mass on palpation. Breast abscesses developing during puberty causes sudden and rapid growth in the breast associated with Pain, erythema and fluctuation.Histological examination reveals collection of neutrophils with necrosis in the lobules. Hamartomas

can be easily differentiated by their multilobular structures. Microscopically, these lesions are composed of an admixture of ducts, lobules, fibrous stroma, and adipose tissue in varying proportion. Pseudoangiomatous stromal hyperplasia reveals complex interanastomosing spaces, some of which have spindle-shaped stromal cells at their margins simulating endothelial cells. FNAC and biopsy easily rule out these conditions.[8,11] Juvenile fibroadenoma is a benign tumor, and total excision of the lump with conservation of nipple and areola is the optimal treatment.[12] Malignant changes in juvenile fibroadenoma female breast are uncommon. The diagnosis was made clinically, substantiated by FNAC and confirmed by histopathology.

Conclusion

Giant juvenile fibroadenoma is a rare benign, rapid growing breast mass in adolescent female. The definitive diagnosis is made by histologic features and total excision of the lump with conservation of nipple and areola is indicated. It should be distinguished from other benign masses of breast.

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