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RESEARCH PAPER

Giant juvenile fibroadenoma: experience from a rural medical college

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Background and aims: Fibroadenoma is one of the most typical benign breast lesions in our outpatient clinics. Giant Juvenile fibroadenoma (GJF), characterized by its alarming rapid growth and gross disfigurement, is less frequently identified. **Material and methods:** All fibroadenomas presented to the Outpatient Department from 2011 to 2016 were undertaken. Demographic data, duration of symptoms, size at presentation were noted. For diagnosis, radiological, cytological and histo-pathological modalities were used. Patients were treated by surgical excision and followed up. Three-Hundred-Ninety-Four cases were diagnosed as fibroadenoma by both clinical and radiological examinations and confirmed by FNAC. Patients with fibroadenomas <2cm in size were followed up regularly in the outpatients' department, while those >2cm underwent surgical excision. GJF were defined as those with >5cm in diameter. The data were analysed using the Statistical Package for the Social Studies (SPSS) version 22 (IBM Corp., Armonk, New York). Prior ethical clearance was taken from the institute's ethics committee. Informed consent was taken from the participants before the collection of the data. **Results:** The total number of excised fibroadenomas was 92(23%). GJF was diagnosed in 4 patients accounting for 4.3% of all excised fibroadenomas. Age ranged between 14-23 years. **Conclusion:** However benign these lesions may appear, because of the history of a sudden rapid breast enlargement as demonstrated in nearly all the clinical presentations, surgical excision remains the mainstay of treatment of such lesions to allow the previously compressed normal surrounding breast tissue to expand and retain its normal function and cosmetic appearance. Radiological modalities such as ultrasound and MRI may aid the diagnosis, limiting mammography to the older age group.

Keywords: Breast lesion; benign; premenarchal.

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INTRODUCTION

Benign breast diseases are among the most significant proportion of breast complaints presenting to our Outpatient Department. Fibroadenomas, usually diagnosed by palpation

or by radiological investigations. They account for approximately 20% of open surgical breast excisions.¹ As they contain the same components as normal breast tissue, they enlarge during pregnancy and regress at menopause in response to hormonal changes. Their natural history is variable.

They usually grow to 2-3cm in diameter.^{1,2} It is rare but possible to have malignancy within fibroadenomas.³

Giant juvenile fibroadenoma (GJF) are rare, about 5% of all breast tumours. They are common in young females in their teens or early 20s. Their rapid growth raises the suspicion of possible malignancy, and they do not become malignant but often unsightly and disturbing to the patient.²

MATERIAL AND METHODS

This study was undertaken at Fakhruddin Ali Ahmed Medical College Hospital, Barpeta, Assam, from 2011 to 2016. Patients diagnosed with fibroadenomas who visited the Surgery Outpatient Department were included. Demographic data, duration of symptoms, size at presentation, radiological and cytological investigations and operative records were included. All patients underwent clinical examination, ultrasonography and FNAC.

Patients presenting with <2cm lumps in diameter were followed up regularly. Surgical excision was done to all patients presenting with lumps >2cm in diameter. Lesions >5cm in size were considered GJF and underwent total excision through a circum-areolar or inframammary incision, and meticulous care was taken to preserve the shape of the breast. Before the collection of the data, ethical clearance was obtained from the ethics committee.

RESULTS

Total of 394 patients was diagnosed with fibroadenoma. Out of that, 92(23%) underwent excision. GJF was reported in 4 (4.3%) patients of 14-23 yrs age. The most typical presentation was rapidly growing painless breast mass within 5-8 months, with marked breast asymmetry, stretched overlying skin and dilated superficial veins average size was 7-15 cm in diameter.

Ultrasonography showed the presence of a large hypoechoic mass surrounded by compressed breast parenchyma yet failed to distinguish accurately between the lesion and the active breast tissue.

Hypercellular aspirate containing predominantly stromal cells with no atypia was seen in FNAC.

On gross appearance, mass was well encapsulated and thin-walled.

The characteristic appearance of the intracanalicular and pericanilicular growth patterns, dilated spaces, leaf-like projections, epithelial hyperplasia, and lack of stromal condensation was seen on histopathology. There was no recurrence in any of the patients during the follow-up period.



Figure 3 The excised 15×20 cm lobulated, thin capsule, soft mass



Figure 4(a) Breast mass demonstrating proliferating glands and stroma with intracanalicular and pericanalicular patterns of growth, dilated spaces and leaf-like projection



Figure 4b High power demonstration of the above image

DISCUSSION

Fibroadenomas are abnormality of normal development and involution; some can be managed without surgical intervention. If it grows more than 2 cm in size, surgery is considered to eliminate anxiety or compromise cosmetic appearance.¹

GJF are less common, consist of around 5% of all breast tumours. They are usually solitary and, by definition, are more significant than 5 cm in size or weigh 500 grams.⁴ They typically present in young females in their teens or early 20s. Their rapid growth raises the suspicion of malignancy. They never become malignant, though often unsightly and disturbing to the patient.² Rarely, their rapid enlargement may cause skin ulceration, but the skin is not adherent to the tumour.⁵

Cystosarcoma phyllodes may be confused with Giant juvenile fibroadenoma. They have even similar clinical presentation and cytological appearance. It may occur in ectopic breast tissue, commonly in the axillary region and, more rarely, the vulva and the inguinal areas.⁶

Many time it isn't easy to diagnose preoperatively, and in some instances, even on the frozen section. The diagnosis of Cystosarcoma phyllodes can be mainly based on increased stromal cellularity, pleomorphism, and the presence of mitotic figures.⁷ Due to extensive areas of hemorrhagic necrosis, Phylloid tumours may rarely present with bloody nipple discharge.^{7,8}

Juvenile gigantomastia can be another differential diagnosis of juvenile fibroadenoma. This is characterized by estrogen receptor-positive and its hypersensitivity to estrogen.⁹

Different benign breast lesions may occur in prepubertal female children. In a reported series of thirty-seven cases of benign breast lesions, with ages ranging between 7.5-11.5 years, fibroadenoma was the commonest, accounting for 22 (59.5%), juvenile fibroadenoma 9(24.2%), virginal hypertrophy 3(8.1%) and one case of osteosarcoma phyllodes 1(2.7%), duct papilloma 1(2.7%) and tuberculosis 1(2.7%).¹⁰

Breast carcinoma is sporadic below 20 years. Invasive ductal carcinoma, secretory carcinomas, and invasive lobular-type carcinoma have sporadically been reported.^{4,11} As fibroadenomas have progesterone and estrogen receptors, and they at least rely partly on these hormones to grow, similar to breast carcinoma. Exogenous estrogen therapy may be responsible for developing fibroadenomas as described in a case of a complete androgen insensitivity syndrome XY karyotype (CAIS) who received exogenous estrogen as replacement therapy after orchidectomy.² Multiple Juvenile fibroadenomas should be careful managed as there is a risk of recurrence after local excision.¹² According to some authors, the security zone of mammary parenchyma is mandatory.¹³

Mammograms are not recommended for this age group. Ultrasonography usually shows a diffuse glandular process

that may or may not be distinct from the surrounding breast tissue. Radiographically it is challenging to distinguish juvenile fibroadenoma from cystosarcoma phyllodes.¹⁴ MRI may accurately delineate additional lesions not demonstrated by conventional modalities.¹⁵

Non-surgical excisions like cryoablation for cytologically proven fibroadenomas have played a role in size reduction or total elimination of lesions with minimal scarring and patient satisfaction.¹ However, this method is slow (3-12 months) and tedious. Another non-surgical method is an ultrasonic guided vacuum-assisted biopsy. It is used for lesions of <2cm in diameter. For larger lesions, >2cm in diameter, the success rate is low. Consequently, some patients have had to undergo conventional surgical excision.¹⁶

Endoscopic resection of benign breast tumours and axillary dissection has gained some popularity in recent years. Both methods of using the anterior adipose tissue or retro mammary space have been equally reported. They provide superior cosmetic results with high levels of patient satisfaction. However, the mean duration of the surgery is 79 minutes with a mean hospital stay of 3.5 days compared to the conventional day- surgery procedure of the classical excision.^{17,18}

In this study, teenage patients presented with rapidly growing benign breast lesion were included. Ultrasonography confirmed the presence of a sizeable hypoechoic mass surrounded by compressed breast parenchyma but failed to show details of the margins. FNAC and histopathology confirmed the diagnosis of GJF.

CONCLUSION

Giant juvenile fibroadenoma is a condition of young females. The primary treatment is surgical excision. Meticulous care must be taken to attain the best cosmetic results and breast function or management outcome. The surgeon's preference and skills should determine the surgical approach.

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