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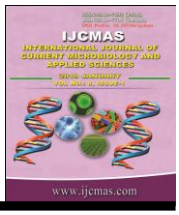

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Diagnosis and Treatment Procedures Involved for Young Female Patients having Fibroadenoma

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A B S T R A C T

'Fibroadenoma', is the most common benign tumors among most of the young female patients who are in their adolescent phase. They can be asymptomatic or painful and sometimes develop as tumors which cause distortions of breast. Here we have conducted a descriptive 6 months survey from April to September, 2018 at Dr. Bholanath Chakravarty Integrated Medical Research and Treatment Centre. All the clinical records along with the consent of the patients were taken and recorded for future analysis. It was observed that among selected 113 patients attending the OPD, 11 patients (9.73%) were found as confirmed cases of fibroadenoma via diagnostic techniques ultrasonography and X-Ray Mammogram. Fibroadenomas are more frequent among married woman than unmarried woman. The factors such as early marriage and parity, age of menarche and age of menopause, hormonal therapy such as intake of oral contraceptives have no effect on these lesions. Our study revealed that the incidence percentage of fibroadenoma out of 113 cases were 11 (9.73%). Patients who undergo conservative therapy involves combination of progesterone and danazol as it is the most accepted theory for the treatment.

Introduction

'Fibroadenoma', a common benign breast mass often noticed among young female patients within 35 years of age. They are often felt as smooth rubbery or hard palpable mass similar to a structure of pea or grape (Begum *et al.,* 2017). The structure is not considered to be true neoplasms, rather an eccentricity of normal development of breast (Greenberg *et al.,* 1998). As they are considered to be benign breast lesions, therefore there are two mode of suggestive treatment for the disease, i.e., conservative mode of treatment where it could be assumed that surgical excision is not needed and the structure could regress eventually and the other method is surgical excision method (Santhosh *et al.,* 2018). There are mainly two issues to consider with the enlargement of FAs: 1) probable

development of malignancy in the epithelial component, 2) the possibility of progression of FA into phyllodes tumor (PT) (Sanders *et al.,* 2015). Histological examination revealed that FA resembles hyperplastic breast lobule and they also respond to hormonal stimulation in the same manner as normal breast tissue does (Begum *et al.,* 2017). The biological nature of fibroadenoma is unpredictable as they may remain static or grow rapidly (Begum *et al.,* 2017).

Initially surgical excision was considered to be the only mode of treatment for FAs to avoid the development of malignancy. Fortunately this doctrine has been recently challenged because confident diagnosis with preoperative investigations excludes the need for surgical excision (Begum *et al.,* 2017). There are basically three categories of FAs: 1) simple fibroadenoma, 2) giant juvenile fibroadenoma and multicentric fibroadenoma (Begum *et al.,* 2017).

Fibrocystic disease

Patients have lumpy breast rather than the classical lump. Pain, nipple discharges are the two major clinical features observed among these patients though exact pathogenesis is unknown. Hormone estrogen predominates over progesterone which plays the key role in the development of the disease. Core biopsy is suggested as the tool for confirmatory diagnosis (Hartmann *et al.,* 2005; Marshall *et al.,* 1997; Kennedy *et al.,* 2003; Patterson *et al.,* 2004; Fasih *et al.,* 2005; Rabban *et al.,* 2004).

Phyllodes tumor

PT represents the most common benign tumor of the breast which enlarges rapidly. It represents a spectrum of diseases which ranges from FA to benign, metastasising benign and malignant PT. Large PT are expected to become malignant and may represent pain and according to the data available from previous studies, 38% of PT turned out to be malignant and rest are all sarcomas (Vijayalakhmi *et al.,* 2016).

Adenomyoepithelioma

It is considered to be a rare benign tumor condition of the breast and it is difficult to clinically differentiate from carcinoma. After surgical excision the recurrence rates are also high, therefore mastectomy is the only choice left for those patients. Fine Needle Aspiration Cytology (FNAC) confirms the diagnosis with 86% of specificity and 99% of sensitivity. Core biopsy acts as a confirmatory tool for doubtful cases (Vijayalakhmi *et al.,* 2016).

Materials and Methods

A descriptive observational study was conducted for 6months, from April to September, 2018. A total number of 113 cases were selected for our study, investigated and confirmed by physical examinations followed by ultrasonography and X-Ray mammogram study. The detailed history and clinical examination of all patients were also recorded.

Inclusion criteria for the patients are

1. Female patients showing breast lump.
2. Ages of the patients were more than 12 years.
3. Patients admitted in between the study period.
4. Cases confirmed by physical examinations and sonography.

Exclusion criteria for the patients are

1. Male Patients.
2. Ages of the patients were less than 12 years.
3. Patients having any congenital abnormalities.

4. Patients having inflammatory condition of the breast or having breast carcinoma.

Results and Discussion

Age distribution and its significance

According to previous literatures, higher numbers of cases of fibroadenomas (FAs) are observed among the second and third decade (Table 1) (Frantz *et al.*, 1951). Hormonal change especially estrogen is considered to be the major reason behind fibroadenoma as it changes their size during pregnancy, menstruation and also during lactating phase (Soini *et al.*, 1981; Ajitha *et al.*, 2012) (Fig. 1 and 2).

Table.1 Age wise distribution of patients

Sl. No.	Age Group	No. Of Patients	Percentage (%)
1	10 - 20	2	20
2	21 - 30	5	45.45
3	31 - 40	4	40

Table.2 Clinical features observed for the confirmed cases by physical examination and ultrasonography / Mammography

Patient Code	Clinical Features
BNC 006	Multiple benign fibroadenoma of left breasts
BNCH 010	Surgery was done, FA in both breasts. Important Features are fibroadenomas in both breasts (birads ii category).
BNCH 011	Fibroadenoma, Benign FA - left breast, Right breast.
BNCH 016	Benign fibroadenoma at lower lateral part of right breast.
BNCH 019	Small benign hypoechogenic is visible in lower lateral area of right breast. May be benign fibroadenoma in right lower lateral part of the breast.
BNCH 050	Finding more suggestive of fibroadenoma of both breast.
BNCH 056	Finding more suggestive of fibroadenoma of left breast.
BNCH 080	Inflammatory breast lesion. Suggestive of fibroadenoma of breast via HRUSG
BNCH 082	USG finding shows bilateral fibroadenoma with X - Ray mammogram and HRUSG
BNCH 097	Fibroadenoma in right breast. Clinical correlation using X-Ray mammography and HRUSG are suggested for patients for further evaluation.
BNCH 112	Fibroadenoma in right breast. Clinical correlation using X-Ray, mammogram and HRUSG are suggested for patients for further evaluation.

FA: Fibroadenoma
HRUSG: High Resolution Ultrasonography

Fig.1 Mode of treatment employed for fibroadenoma cases (FA) among female patients within 35 years of age (Greenberg *et al.*, 1998)

Mode of Treatment for patients having Fibroadenoma:

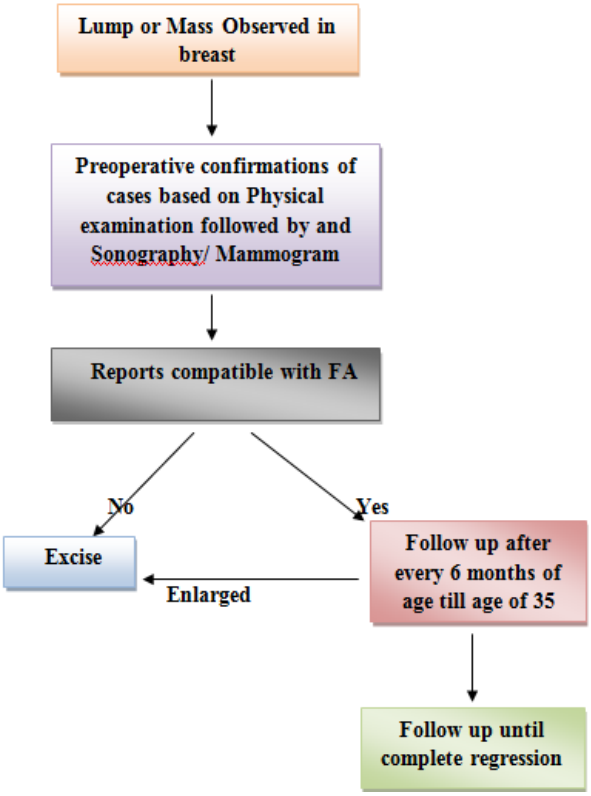


Fig.2 The picture represent the simplified anatomy of the female breast explaining the major structural components of the breast which includes the anatomic location of various lesions along with their histology indicating the potential lesion ((Kotepui *et al.*, 2014)

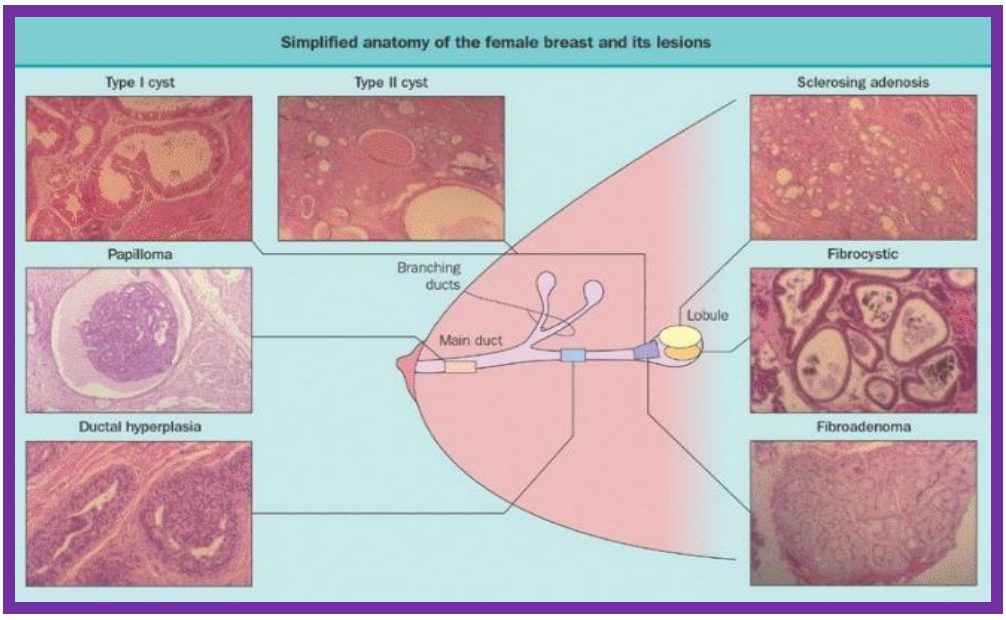


Fig.3 The graph describes the location and percentage of fibroadenoma patients among the confirmed cases

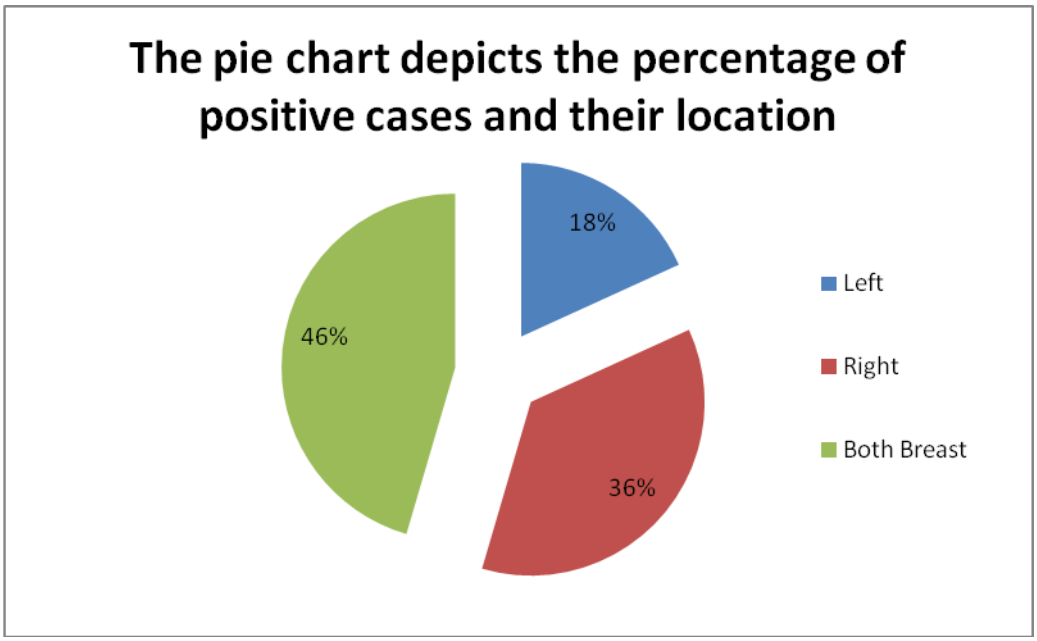
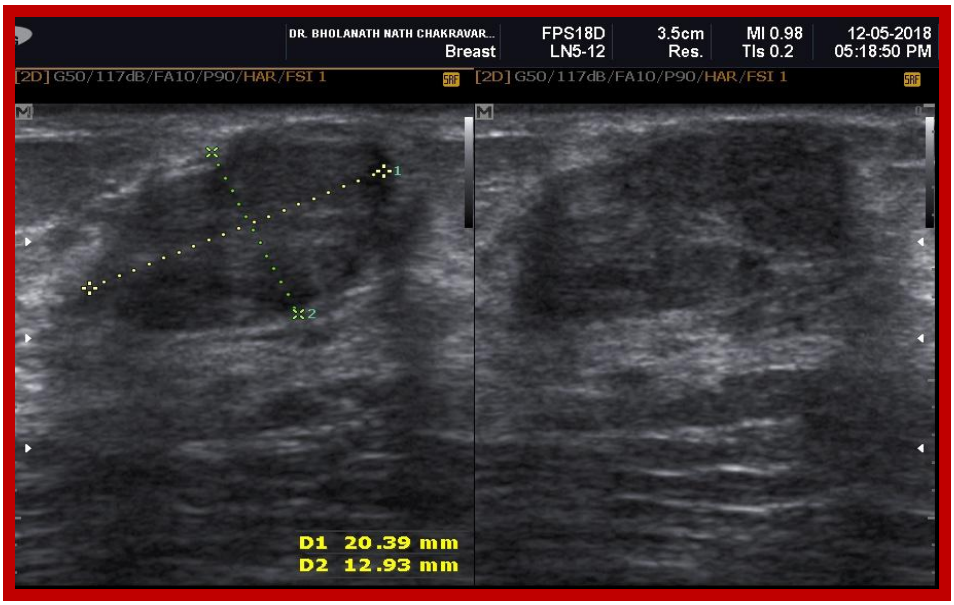


Fig.4 The visualized sonographic image region reveals a focal bulge of homogeneous soft tissue density of size approximately 20.39mm x 12.93mm, suggestive benign SOL with smooth margins



They also undergo autotrophic changes during menopause and have receptors which respond to growth hormone and epidermal growth factor. Menopause is considered to be a probable contribution to lump formation and evolution (Ajitha *et al.*, 2012). According to the data mentioned in previous literatures 72% of positive cases are reported from urban

areas and very few cases are reported from rural background (Soini *et al.*, 1981). The major reasons behind this kind of differential case reporting are sedentary life style of urban population, unhealthy food habits especially junk foods. The other reasons that can be considered for higher reporting of cases from urban population are due to high literacy rate and availability of facilities for the screening of breast cancer (Santhosh *et al.*, 2018).

Confirmation of cases by ultrasonography

This technique has often been used as confirmatory diagnosis of fibroadenoma as the observation reveals round solid mass having smooth contour and weak internal echoes which supports the diagnosis (Table 2) (Fig. 4). This technique may also help us to differentiate between solid and cystic lesions. Previous literature revealed that 25% of the FAs, showed irregularity indicating malignancy. The sonography data confirmed with biopsy depicted that 82% of the cases are fibroadenomas. We have also described our data based on the location along with its percentage of the benign mass (Fig. 3). On the other hand the role of mammography for the detection of fibroadenoma among young women is very limited (Greenberg *et al.*, 1998).

Fibroadenoma and association with development of breast cancer

Literature studies reported that 0.002% to 0.0125% cases of developing fibroadenoma are found to be carcinomas (Greenberg *et al.*, 1998). The patients having a history of non complex fibroadenoma and having no history of breast cancer are reported to be at lower risk. Previous literature revealed that 50% of the tumors are lobular carcinoma in situ (LCIS), 20% were considered to be ductal carcinoma in situ (DCIS) and the remaining 10% are infiltrating ductal carcinoma (Ajitha *et al.*, 2012).

According to epidemiological survey data mentioned in other literatures FAs are more frequent among married woman than unmarried woman. The factors such as early marriage and parity, age of menarche and age of menopause, hormonal therapy such as intake of oral contraceptives have no effect on these lesions. Therefore, no definitive associations could be achieved. Patients undergoing conservative therapy involve combination of progesterone and danazol since it is the most accepted theory for the treatment of FA, which occurs due to excessive influence of hormone estrogen. Anti-estrogen medications could not show any effect upon FAs. Therefore, conservative treatment follows clinical examination, radiology and biopsy (Ajitha *et al.*, 2012).

Treatment options

Patients who don't want to undergo surgery, USG guided cryoablation are advised for them (Lee *et al.*, 2015).

Vacuum assisted percutaneous biopsy

This process removes tumor through core biopsies and depending on radiographic guidance, the whole procedure gets completed when the mass is completely removed via radiographic means (Lee *et al.*, 2015).

Ablative procedure

It involves cryotherapy where FA gets removed with a probe which gets subsequently cooled by argon gas to – 160 ˚ C. The cell membrane gets disrupted which results thrombosis of capillaries and results in eventual destruction of FA (Lee *et al.*, 2015).

Surgical excission

Giant FAs can be removed surgically without causing iatrogenic deformity to the breast (Lee *et al.*, 2015).

In conclusion, fibroadenomas are more frequent among married woman than unmarried woman. It was observed that among selected 113 patients attending the OPD, 11 patients (9.73%) were found as confirmed cases of fibroadenoma via diagnostic the applied diagnostic technique ultrasonography and X-Ray mammogram. Patients who undergo conservative therapy involves combination of progesterone and danazol, as it is the most accepted theory for the treatment (Ajitha *et al.*, 2012).

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Author's contribution

All the authors have analysed the data and have gone through the final draft of the manuscript.

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