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Original Research Article

Clinical Presentation and Management of Benign Breast Diseases

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Abstract: Benign breast diseases are common disorder, upto 30% of women suffering from benign breast diseases requiring treatment at sometimes in their lives. Breast complaints are one of the most common reasons for surgical consultation. Benign breast diseases are common disorder, upto 30% of women will suffer from benign breast diseases requiring treatment at sometimes in their lives.1 Breast complaints are one of the most common reasons for surgical consultation. This study was carried out to compare the age distribution and proportion of various benign breast diseases, taking into account the various factors associated with them. To correlate clinical diagnosis with histopathological examination regarding the accuracy of clinical diagnosis. Thus the aim of this study is to exclude malignant breast condition and emphasis that is made on their presentation and treatment of benign breast diseases. Prospective review of 100 female patients reporting to outpatient department of Surgery, MNR medical college and hospital from October 2014 to September 2016, with complaints related to breast but excluding cases with carcinoma breast. Fibroadenoma constitutes the most common benign breast disease which is most common in the age between 21 and 40 years. Lump is the commonest presentation with size between 2 and 5 cms. Breast lumps most commonly involved upper outer quadrant. 70 cases underwent excision of which 55 were of fibroadenoma and 12 were of fibroadenosis. Sensitivity of clinical diagnosis for fibroadenoma was 82% and for fibroadenosis was 75%.
Keywords: Benign breast diseases, Fibroadenoma, clinical diagnosis

INTRODUCTION

Benign breast diseases are common disorder, upto 30% of women will suffer from benign breast diseases requiring treatment at sometimes in their lives [1]. It is atleast 10 times more common than breast cancer in hospital. The term benign breast disease; (BBD) encompasses a heterogenous clinical and pathological condition which ranges from inflammatory condition to benign neoplastic conditions. Growing public awareness has increased referrals to hospital clinics for breast symptoms and currently malignant to benign ratio of 1:10 are being seen in breast clinic [2]. Breast lesions may present with a variety of symptoms often confusing clinical evaluation leading to error in treatment of essentially benign conditions.

ANATOMY AND PHYSIOLOGY OF THE BREAST

Gross Anatomy

In young adult females each breast is hemispherical elevation situated anterior to upper thorax extending vertically from 2nd to 6th rib and transversely from side of sternum to midaxillary line

Axillary tail of Spence

The upper outer quadrant of the breast tissue project and pass through an opening in the axillary fasia called as "foramina of Langer" at the level of 3rd rib in axilla. This is called axillary tail of Spence.

Nipple (Mammary Papilla)

Nipple projects centrally. Its shape is conical or flattered and its level is at 4 th intercostal space in most young women.

Areola

The nipple and areola contain many sebaceous glands which enlarge during pregnancy and lactation as "Montgomery tubercles" whose oily secretion acts as lubricant [3].

Fascial attachments

The breast is enclosed between superficial and deep layer of superficial fascia. Between the deep layer of superficial fascia and the deep fascia covering the pectoralis major there is a well defined space called "Retromammary Bursa". The deep fascia covers pectoralis major muscle, serratus anterior and chest wall muscles [4].

Microscopic Anatomy of breast

Breast consists of glandular tissue, stroma and adipose tissue.

Glandular tissue

The glandular portion of the breast is composed of fibrous, adipose and epithelial issue and is divided into 15 to 20 lobes, which are arranged in a radial pattern

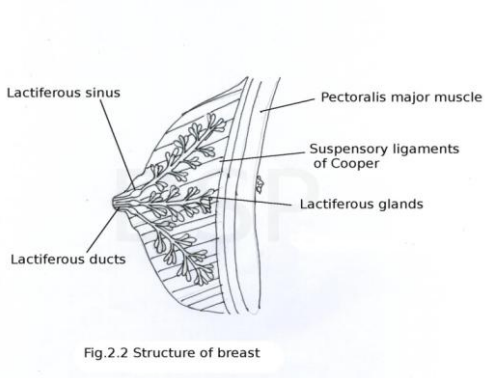

Fig-1: Stroma of the breast

Suspensory ligaments of the breast

Fibrous condensation of stromal tissues extends from ducts to dermis and these are often well developed in upper part of breast as "Suspensory ligaments of Astley cooper" which assist in the support of Breast tissue

Adipose tissue

It is highly variable in amount present typically in inter lobule stroma and not amongst the lobule.

Blood Supply

- Arterial supply
- Axillary Artery

Internal Mammary Artery: This gives perforating branches to antero–medial part of the breast.

Intercostal Artery: 2nd, 3rd, 4th intercostal arteries give perforating branches more laterally in anterior thorax.

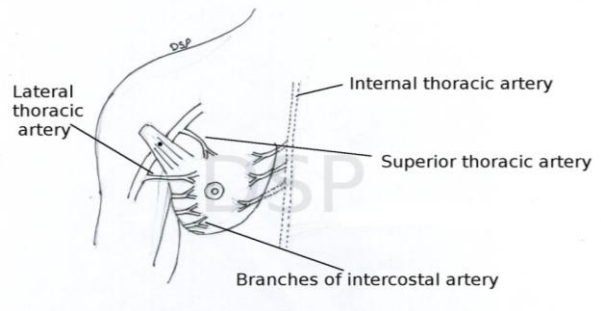

Fig-2: Blood supply of breast

Venous drainage

Superficial veins radiate from the breast and are characterized by their proximity to the skin. They are accompanied by lymphatics and drain to axillary, internal mammary and intercostals vessels [5].

Nerve supply

The secreting tissue is supplied by sympathetic nerves. The anterior and lateral branches of the 4th, 5th and 6th intercostal nerves supply the overlying skin [5].

Lymphatic Drainage

Lymphatic from the parenchyma of breast

The axillary lymph nodes receive 75% of lymph from breast tissue.

The internal mammary lymph nodes receive lymph from medial and inner portions of breast.

Axillary lymph nodes

- Anterior Group
- Posterior Group
- Lateral Group
- Central Group
- Apical Group

The interpectoral (**Rotter's**) group consists of one to four lymph nodes interposed between pectoral minor and major muscles. Lymph from these nodes passes directly into the central and apical groups.

ETIOLOGY OF BENIGN BREAST DISEASE

Role of dietary factors

There has been much interest in the role of dietary factors in the etiology and progression of benign breast disease. Caffeine consumption has many biochemical and physiological effects, thus caffeine was extensively studied in clinical and experimental studies and to date have drawn inconsistent and inconclusive conclusions. Alcohol consumption and dietary fats were not associated with risk of fibroadenomas. Whereas duration of smoking and daily Vit-C intake were both associated with decreased risk for fibroadenoma.

Efficiency of essential fatty acids in the diet can lead to deficient production of prostaglandin E1, which may potentiate the effects of prolactin on the breast. Higher tissue level ratios of saturated to unsaturated fatty acids may lead to similar potentiation of the endocrine response. A high red meat intake with low consumption of fresh vegetables and Vit-A increases the risk of proliferative benign breast disease. Conversely if has been shown that a reduction is fat consumption reduces breast pain.

Endocrine factors

Endocrine factors such as increased oestrogen, decreased progesterone and increased prolactin have been considered but serum levels of these hormones during the menstrual cycle have not shown any

difference between those with mastalgia and those without. Breast pain and cyst formation, however, are seen in the menopausal age group but are rarely seen in the absence of oestrogen. Estrogen is necessary for the development of these conditions. Although measurements of hormonal profiles for groups of patients may show little variation, it is impossible that minor individual variation is hormonal levels and end organ responsiveness may play a role in the etiology.

The wide spread use of the oral contraceptive pill has promoted numerous detailed studies of its effects on breast disease. Most results from large studies have shown a decrease in benign breast disease in long term pill users. Fewer biopsies for benign breast disease were performed in this group in the large prospective Oxford FPA study. The protective effects seem related to progesterone component of the pill. Controversy still exists on the effects of the pill on epithelial hyperplasia.

Others

Periductal mastitis is linked to cigarette smoking. Women who smoke and have periductal mastitis develop more inflammation and recurrence of the disease after corrective surgery is more frequent. This effect may be due to altered oral bacterial flora in smokers leading to breast duct colonization or direct ischemic effects of nicotine on breast ducts. Factors altering hepatic metabolism of oestrogen with an alteration in the ratio of C2 hydroxylation products (inactive metabolite) to C16 ratio hydroxylation (active metabolite) may play a role. Smoking increases the active C16 metabolites. These studies emphasis a potential important pathway for chemo-preventive studies.

Pathological classification of Benign Breast Diseases [6]

- Developmental disorders
- Inflammations
- Breast Abscess
- Duct Ectasia
- Fat Necrosis
- fibrocystic disease
- Proliferative Breast Disease
- Papillomas

FIBROADENOMA

Fibroadenomas are the most common benign solid tumors of the female breast. It an abnormality of normal development and involution.It represents the most common breast tumor in women younger than 25 years.

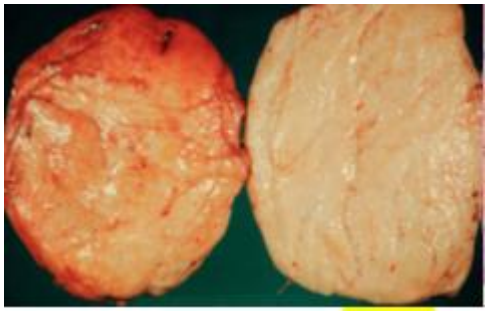

Fig-3: Cut section of Fibroadenoma

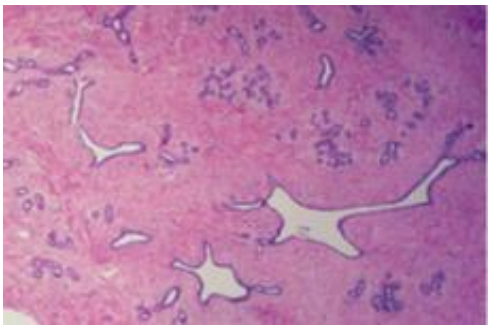

Fig-4: Microscopy picture of intracanalicular P pattern in a fibroadenoma

Fibroadenomas grew to 1-2 cm in size and then remained unchanged. Many of them stayed unchanged or disappeared on follow up [7]. Regression is seen in later life and it is rare in older women owing to the diminishing cellularity with increasing age.

Microscopically

It is made up of two components:

(i) Proliferating connective tissue stroma

(ii) Typical multiplication of ducts and acini

Based on micrscopical features they can be of 2 types

-pericanalicular fibroadenoma.

-intracanalicular fibroadenoma

MASTALGIA

Mastalgia was usually reported in the age group of over 34 years of age

It is postulated that breast pain has a hormonal origin. Circulating hormone levels are normal in cyclical mastalgia patients [8]

CLINICAL FEATURES OF BENIGN BREAST DISEASE

Benign breast disease generally presents as the lump, breast pain, nipple discharge and breast enlargement.

1. Lump

   This is the most common presenting complaint. Most of the fibroadenomas and cysts are not visible on inspection because of their small size. Whereas a giant fibroadenoma, phyllodes tumour, galactocele may be evident on inspection.

2. Mastalgia

   The theory that a relative hyperestrogenemia occuring secondary to decreased Progesterone levels in Luteal phase [9, 10]cannot be substaintiated [11].

   a. There are two distinct groups of patients with these symptoms.
      - Cyclical Mastalgia.
      - Non-cyclical Mastalgia.
3. Nipple–areolar complex problems
4. Changes on the skin of the nipple–areolar complex
5. Nipple inversion or retraction or distortion
6. Nipple Discharge**:**

TREATMENT OF BENIGN BREAST DISEASES

Management of lump

If there is a dominant palpable mass, management depends upon the age of the patient. If it resolves, clinical follow up for 3 months is enough.

Fibroadenoma

Excision is the standard treatment. Many studies [12] recommend the conservative management especially in young patients under 25years Treatment for giant fibroadenoma and juvenile fibroadenoma is enucleation.

Phyllodes tumour

Excision with 1cm margin of normal breast is enough for small lesions. Very large tumour or those with aggressive histological feature by merit, even wide excision or simple mastectomy is recommended.

Simple cyst

Simple aspiration will normally suffice. Two main indications for surgical excision are

- If the aspirate is blood stained and
- Rapid recurrence of cyst after more than 2 aspirations

Galactocele

Needle aspiration is the treatment of choice. Surgery is reserved for those cysts that cannot be aspirated due to thick secretions or if the cyst become infected.

Mastalgia

Initially firm reassurance that the symptoms are not associated with cancer will help the majority of women.

Drugs:

Danazol - was shown to be effective in three studies [13-15]

Evening primrose

Tamoxifen- day have also been effective in some studies [16].

Management of Nipple discharge

If there is no abnormality and the disease is localized to one duct, microdochectomy is enough. If discharge is through multiple ducts, major duct excision is the treatment.

OBJECTIVES OF THE STUDY

- To determine common types of benign breast diseases in the study group
- To evaluate Age distribution of different benign breast diseases
- To study the modes of presentation of various benign breast diseases
- To Study the clinical features of different Benign breast diseases
- To note the Response to Treatment and Complications arising during the follow up

MATERIALS AND METHODS

Source of data

A total of 100 cases of benign breast disease attending out-patient or getting admitted in MNR Medical College & Hospital, SANGAREDDY were selected.

Inclusion Criteria

- Female patients with complaints of pain in the breast.
- Presence of lump in the breast.
- Nipple discharge.
- Breast abscess.

Exclusion Criteria

- Carcinoma Breast.

Statistics used

- Statistical Proportion Tests.

RESULTS

The present study of 100 cases of benign breast disease was studied during the period from OCTOBER 2014 to SEPTEMBER 2016. Both inpatient and outpatient basis evaluation and treatment were done during the study period.

In the present study, fibroadenoma constitutes the most common benign breast disease which is accounting for 55 cases followed by fibroadenosis which consists of 23 cases. Breast abscess accounted for 9 cases and 7 cases of cyclical mastalgia were found. 2 cases of galactocele were found and 1 case each of duct ectasia, lipoma, benign breast cyst and antibioma were also found.

Table-1: Various benign breast diseases in the present study

Type	No. of case	Percentage
Fibroadenoma	55	55
Fibroadenosis	23	23
Abscess	9	9
Mastalgia	7	7
Galactocele	2	2
Duct Ectasia	1	1
Lipoma	1	1
Benign	1	1
Antibioma	1	1
Total	**100**	**100**

Table-2: Age-wise distribution of various benign breast disorders

Type	AGE					Total
	>20	21 – 30	31-40	41 - 50	> 50	
Fibroadenoma	2	34	18	1	0	55
Fibroadenosis	3	13	7	0	0	23
Abscess	0	6	3	0	0	9
Mastalgia	0	4	3	0	0	7
Galactocele	0	2	0	0	0	2
Duct ectasia	0	0	0	0	1	1
Lipoma	0	1	0	0	0	1
Benign cyst	0	0	0	1	0	1
Antibioma	0	1	0	0	0	1
Total	5	61	31	2	1	10

In the present study, most common age at presentation is between 21 and 30 years and least common age at presentation is after 50 years.

The data suggests increased incidence of fibroadenoma in the age range of 21-30 followed by increased number of cases in 31-40 years of age.

In the present study, more than half the patients presented with only lump as the chief complaint. 29 patients presented with breast lump and associated pain. 7 patients presented only with pain as their chief complaint. Patients with lump and discharge were 7 and fever and lump were 5.

The diameter of the lumps ranged from <2 cms to 5 cms in the 100 cases which were analysed in this study. The smallest lesion was 1 sq. cm (1 x 1cm) whereas the largest diagnosed was 8 x 6cms. 75 patients had a lump of size between 2 and 5 cms of which 45 patients had fibroadenoma followed by 23 cases of fibroadenosis. Most of the cases of lesion more than 5 cms were breast abscess and only one case of giant fibroadenoma were recorded.

In the present study, 70 cases underwent excision of which 55 were of fibroadenoma and 12 were of fibroadenosis. All the patients with abscess underwent incision and drainage. There was a single case of duct ectasia who underwent microdochectomy. Lipoma, breast cyst and antibioma all underwent excision. 11 cases of fibroadenosis underwent conservative management with medications.

Table-3: Symptoms of Benign breast diseases

Chief Complaints	Frequency	Percentage
Lump	52	52
Pain	7	7
Lump and pain	29	29
Lump and discharge	7	7
Fever and lump	5	5
Total	100	100

Table 4: Size of the lesion

	SIZE <2 CM	SIZE 2-5 CM	SIZE >5 CM	TOTAL
Fibroadenosis	3	20	0	23
Abscess	0	4	5	9
Mastalgia	0	0	0	0
Galactocele	0	2	0	2
Duct ectasia	0	1	0	1
Lipoma	0	1	0	1
Benign cyst	0	1	0	1
Antibioma	0	1	0	1
Total	12	75	6	93

Table-5: Treatment Modalities

	Treatment Modalities					
Diagnosis	**Excision**	**Conservative**	**I &D**	**Aspiration**	**Microdo chectomy**	**Total**
Fibroadenoma	55					55
Fibroadenosis	12	11				23
Abscess			9			9
Mastalgia		7				7
Galactocele				2		2
Duct ectasia					1	1
Lipoma	1					
Benign Breast cyst	1					1
Antibioma	1					1
Total	70	18	9	2	1	100

Table-6: Follow- up

Type	**No. of cases**	**Followed up**
Fibroadenoma	55	16
Fibroadenosis	23	6
Abscess	9	4
Mastalgia	7	6
Galactocele	2	0
Duct ectasia	1	0
Lipoma	1	0
Benign Breast cyst	1	1
Antibioma	1	1
Total	100	28

We could follow-up 28 cases from 1 month upto 1 year for few cases. Also almost all cases of mastalgia followed up regularly. We did not note any recurrences during follow-up.

SUMMARY

- In my study fibroadenoma formed the major component forming 55 % of cases followed by fibrocystic diseases, 23 cases.
- Puerperal breast abscess formed 9 cases, cyclical mastalgia were 7 cases. Galactocele formed 2 cases and benign breast cyst, antibioma, lipoma and ducte ectasia accounted for 1 case each.
- Fibroadenoma involved commonly in age group of 21-40 years (56.5%) and fibrocystic diseases in 21-30 years (21.3%). Breast abscess also occurred in age group of 21-40 years and all were during lactation. A single case of duct ectasia was noted at the age of 55 years.
- Most common presenting complaint is breast lump (52%). Breast pain and lump presenting together in 29 cases.
- Most of the cases (56%) presented with complaints of duration 1 to 6 months.
- Involvement of right and left breast was almost equal with 9 cases having bilateral disease.
- 75 cases presented with lump of an average size between 2 and 5 cms.
- Most common quadrant involved was UOQ (43%), non tender, firm in consistency and mobile.
- Patients who were lactating mostly presented with puerperal breast abscess.

- Surgical excision was an effective treatment for most of benign breast diseases nearly 70 cases. Other modalities of treatment included I and D, microdochectomy, aspiration and conservative line.

CONCLUSION

- Majority of the benign breast diseases occurs in younger age group.
- Most common presenting complaints are lump in the breast, pain in the breast followed nipple discharge.
- Fibroadenoma and fibroadenosis are the most common benign breast diseases.
- Early onset of fibroadenoma and fibrocystic diseases is attributed to early menarche.
- Majority of lumps are noticed accidentally by the patient.
- Majority of breast lumps are painless to present with.
- Fibroadenoma usually present with unilateral solitary lump, but, multiple fibroadenomas in single breast and fibroadenomas in both breasts also can be present.
- Diseases like ductal ectasia, lipoma and antibioma are extremely rare.
- Benign breast diseases most commonly affects upper and outer quadrant.
- Conservative treatment is one of the options in young women who are clinically have < 2 cms breast lumps and cytologically confirmed cases of fibroadenoma and fibrocystic diseases.
- Surgery in the best treatment for benign breast disease.
- Excision will suffice in majority of benign breast lumps.

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