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Title: Clinical presentation and pathological changes of various benign breast diseases

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ABSTRACT

Background: The breast sustains the human young, brought into this world in a helpless and mother dependent state. But unfortunately this sustainer, the female breast is the seat of many lesions like infections, cystic mastitis, and benign and malignant tumours. **Objective:** To study the clinical presentation and pathological changes of various benign breast diseases. **Materials & methods:** The present study was conducted on 76 females and 2 males of Benign Breast Diseases (BBD) who attend Surgery outdoor or are admitted in Surgery indoor, Department of Surgery, Nehru Chikitsalaya, B.R.D. Medical College, Gorakhpur **Results:** Fibroadenosis (34.61%) was found to be the commonest lesion, followed by fibroadenoma (26.92%) and mastitis (24.35%). Majority of patients had pain (64.1%), and lump (42.3%) in breast as presenting symptom. The commonest sign was lump or swelling (67.79%) in breast followed by tenderness (58.97%) in breast. **Conclusion:** Fibroadenosis (34.61%) was found to be the commonest lesion, followed by fibroadenoma (26.92%) and mastitis (24.35%). Majority of patients had pain (64.1%), and lump (42.3%) in breast as presenting symptom.

Keywords: Fibroadenosis, Fibroadenoma, Mastitis, pain, lump, swelling

Introduction: Breast disease has always been an area of interest and enigma to the clinicians. Many clinicians have broadly divided diseases of the breast as cancer and benign breast diseases (BBD). Despite a high incidence of BBD-Devitt J.E., (1976) estimates that at least 36 percent of female population has BBD and that benign lesions of the breast are about 6 times as numerous as malignant tumours, BBD continues to be the neglected and confused area of surgical disease, largely resulting from the undue but understandable preoccupation with cancer at the expense of benign conditions. [1]

However, an increasing interest in histology of the normal human breast with studies of autopsy and biopsy material, is providing a background which allows a better understanding of what is normal and what is abnormal, thus helping to correct the tendency to overrate the malignant potential of BBD. [1] On the clinical side, the establishment of breast clinics has concentrated clinical material, allowing some of the less common conditions- such as sclerosing adenosis, duct ectasia and periductal mastitis- to be studied in detail.

It is now agreed that BBD is the aberration of normal development and involution

(ANDI) of breast tissue meaning there by that this is a variation on the normal theme of eyelical proliferation and regression. Thus now all benign breast diseases are known by the acronym ANDI.

With this understanding it is not surprising that fibroadenoma is seen predominantly in the 15 to 20 years period of intense lobular development, that cyst formation is seen in the pre-menopausal phase of involution when lobular units are undergoing regression, and that both are rare after menopause. Duct ectasia, papillomas and epithelial hyperplasia are seen throughout the period of breast activity, and may all persist into the postmenopausal period, for the larger ductal structures do not disappear at this time. [2]

Unlike the topic of breast cancer BBD have not generated much interest to both the clinicians and researchers. Over the last century much data has come up for BBD but it is miniscule. The estimation of BBD is difficult in the absence of community- based statistics in India. We aimed to study the clinical presentation and pathological changes of various benign breast diseases.

Material and Methods: The present study was conducted on 76 females and 2 males of Benign Breast Diseases (BBD) who attend Surgery outdoor or are admitted in Surgery indoor, Department of Surgery, Nehru Chikitsalaya, B.R.D. Medical College, Gorakhpur from August 2011 to October 2012. Ethical clearance was obtained from the institutional ethical committee for the present study.

Patients under study were thoroughly interrogated and clinically examined, for detailed history regarding the various risk factors of BBD and epidemiological variables regarding BBD and all information's were recorded on a predesigned and pre-tested proforma.

For approaching the diagnosis of BBD fine needle aspiration cytology was done. In selected number of cases ammography complemented with ultrasonography was done. However, diagnosis was confirmed on histopathological examination of paraffin sections. The treatment was given according to the lesion detected. The patients under study were followed up for a period of 1 year to study their present status and overall response to treatment.

Statistical Analysis: Data was analysed using SPSS 12 software. Categorical data was represented in the form of Frequencies and proportions.

Results: Majority of the patients were in the age group of 21-30 years (51.28%). The average age of these patients was 28.56 years with range of 14 years to 57 years. Majority of the patients (65.4%) were from urban inhabitance and only 34.6% came from rural areas.

Most of the cases belonged to Middle (37.17%) and High (32.05%) socio economic status. 60.26% cases were educated upto high school and beyond.

In our study 60.26% patients were thin built with 85.52% cases wee having low or average breast fat content. 5.26% cases had positive maternal history of Breast Cancer or BBD and 1.31% cases had positive history in their sisters.

The commonest presenting symptom was pain in breast 64.1% followed by lump in breast 42.3%, swelling in breast 38.46%. Nipple discharge was present in 6.41% cases and itching of nipple in 3.84% cases. Table 1

TABLE-1: SYMPTOMS OF PATIENTS OF BENIGN BREAST DISEASE

Symptoms	No. Patients	Percentage (%)
Breast Pain	50	64.1
• Cyclical	20	25.64
• Acyclical	30	38.46
Lump in Breast	33	42.3
Lumpiness	20	25.64
Swelling in Breast	30	38.46
Itching of Nipple	03	03.84
Nipple Discharge	05	06.41

The commonest finding was presence of a lump or swelling in the breast in 53 cases (67.79%) followed by 46 cases (58.97%) having tenderness. In 20 cases (25.64%) nodularity was felt, in 11 cases (14.10%) there was rise in temperature. Nipple retraction was present in 3 cases (3.84%), nipple cracking in 2 cases (2.56%) and skin ulceration in 1 case (1.28%).
Table 2

TABLE-2: CLINICAL SIGNS IN PATIENTS OF BENIGN BREAST DISEASE

Clinical Signs	No. of Patients	Percentage (%)
Lump in Breast or Swelling in Breast	53	67.79
Tenderness	46	58.97
Rise in Temperature	11	14.10
Nodularity	20	25.64
Nipple Retraction	03	03.84
Nipple Cracking	02	02.56

Skin Ulceration	01	01.28
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In this study of 78 patients the commonest lesion found was fibroadenosis 34.61% followed by 26.92% cases of fibroadenoma and 24.35% case of mastitis. Duct Ectasia was found in 3.84% cases. There were 2 cases each (2.56%) of dermatitis of nipple and gynaecomastia. There was 1 case each of duct papilloma, tuberculosis, cystosarcoma phylloides, galactocoele. Table 3

TABLE-3: DISTRIBUTION OF PATIENTS ACCORDING TO THEIR DIAGNOSIS

Breast Lesions	No. of Patients	Percentage (%)
Fibroadenosis	27	34.61
Fibroadenoma	21	26.92
Duct Ectasia	03	03.84
Duct papilloma	01	01.28
Mastitis	19	24.35
Tuberculosis of breast	01	01.28
Cystosarcoma Phylloides	01	01.28
Galactocoele	01	01.28
Dermatitis of Nipple	02	02.56
Gynaecomastia	02	02.56
Total	78	100.0

Breast pain was found in 85.18% cases and was the commonest presentation. Sensation of lumpiness was there in 74.07% cases. 81.48% patients had tenderness in their breasts. 74.07% cases had nodularity and 18.51% had a lump in the breast.

TABLE-4: CLINICAL PRESENTATION IN 27 CASES OF FIBROADENOSIS

Presentation	No. of Patients	Percentage (%)
Breast pain	23	85.18
Sensation of lumpiness	20	74.07
Nipple discharge	01	03.70
Tenderness	22	81.48
Nodularity	20	74.07
Lump	05	18.51

There were 74.07% cases of cyclical mastalgia and 25.93% cases of acyclical mastalgia in 27 cases of fibroadenosis. Table 5

TABLE-5: CLINICAL PRESENTATION OF 21 CASES OF FIBROADENOMA

Clinical Presentation	No. of Patients	Percentage (%)
Lump in breast	21	100.0
Breast Pain	01	04.76
Tenderness	01	04.76

In this study of 21 cases of fibroadenoma, all (100%) presented with lump in breast. Only 1 case (4.76%) presented with pain and tenderness.

2 out of 3 patients (66.67%) of duct ectasia presented with lump in breast while 1 patient (33.33%) had discharging sinus at periareolar region discharging pus. One patient (33.33%) had straw coloured nipple discharge and one (33.33%) had nipple retraction, erythema of the nipple and areola and tenderness at the involved part of breast. Left breast was involved in 66.67% cases while right in only 33.33% cases.

In this study there were 5 cases of nipple discharge. 3 (60%) cases had serous discharge and 2 (40%) had serosanguinous discharge. In serous discharge 2 cases (40%) were of Dermatitis nipple and 1 case (20%) of duct ectasia. In serosanguinous discharge 1 case (20%) each was of duct papilloma and fibroadenosis.

Mastitis was a common entity (24.3%). Highest incidence was in third decade of life

(73.68%). Puerperal mastitis (63.15%) was commoner than non-puerperal mastitis (36.85%). Pain, swelling and signs of inflammation were present in all cases. Incision and drainage was done in majority (93%) of cases.

The incidence of nipple discharge was 6.41%. Serous discharge was seen in 60% cases and serosanguinous discharge in 40% cases. The cause of nipple discharge were dermatitis (40%) of nipple, duct ectasia, duct papilloma and fibroadenosis in 20% each.

Duct ectasia was seen in 3 cases (3.84%) and majority of patients were in their fifth decade. Duct papilloma was present in a single case (1.28%) aged 42 years. The patient presented with subareolar lump and bloody nipple discharge and nipple retraction.

Tuberculosis of the breast was present in 1 case (1.28%). Patient presented with painless lump in the breast.

There were 2 cases of Dermatitis of nipple (2.56%) in the present series. Itching with cracking of nipples was the presentation in both the cases. There was a single case of cystosarcoma phylloides (1.28%) a lady aged 43 years.

Discussion: In the present study the commonest lesion was fibroadenosis (34.6%), followed by fibroadenoma (26.9%) and mastitis (24.35%). Breast clinic of Guy's Hospital London saw 205 cases of fibroadenosis, 39 cases of fibroadenoma and 127 other benign disorders in 1 year. With the present understanding that fibrocystic disease constitutes the lobular and ductal involutional changes, the reported incidence of apocrine and cystic changes in recent series has been as high as 50%. [2, 3] Compared with this, the incidence of fibroadenosis is low in our country. The low incidence may be due to earlier marriage, early and frequent childbirth and higher incidence of breast-feeding in our country.

Cox et al (1982) found fibroadenosis in 21% patients, cyst in 16%, followed by fibroadenoma in 8% cases. [4] *Rangabashyam et al (1983)* found the commonest lesion to be fibroadenoma (57.28%) followed by fibroadenosis (16.43%) and chronic pyogenic abscesses (7.51%). [5]

Pattern of mastalgia in fibroadenosis in this study was found to be cyclical in 74.07% and acyclical 25.93%. This is in accordance with report of *Wisbey et al (1983)* and *Webster JT (1985)*. [6,7]

Two patients in whom initial diagnosis was fibrocystic changes had suspicious mammographic findings. The suspicious areas that led to repeat FNAC were not clearly located in the same area as the initial FNAC site but were nearby. This finding reinforces, what *Davis et al (1964)* concluded that the mere finding of coexisting cystic disease was inadequate evidence hence that cystic change had predisposed to the breast carcinoma. [8]

FIBROADENOMA

In present series lump was found in all 21 cases and was associated with pain in 1 case (4.76%). Left breast was involved in 57.15% cases and right breast in 42.85% cases. *Wilkinson and Forrest* in their study of fibroadenoma reported painless lump in 71% cases detected by patient, painful lump in 20% cases and in 9% cases the doctor detected the lump. [9]

In the present study a palpable lump in the breast was found in 66.67% cases and discharging sinus in 33.33% cases. Nipple discharge was a feature in 33.33% cases, nipple retraction in 33.33% and nipple and areolar erythema in 33.33% cases of duct ectasia. Left breast was involved in 66.67% cases. *Sandison and Walker (1962)* in their series found a

palpable mass in 63% cases, prominent nipple discharge in 48% cases, nipple retraction in 9% cases. [10] *Haagensen (1971)* found nipple discharge in 25% cases and a palpable rounded tumour in 81% cases. Episodes of acute inflammation were present in 18% cases, pain and tenderness without skin changes in 35% cases and axillary lymphadenopathy in 16% cases. [11]

In this study serous discharge was there in 60% cases and sero sanguinous discharge in 40% cases. A palpable lump was present in 60% cases of nipple discharge. *Rimsten et al (1976)* found serous discharge in 57.5%, blood stained discharge in 30% and purulent discharge in 12.5% patients. In the present study, the underlying cause was dermatitis of nipple 40%, duct ectasia, duct papilloma and fibroadenosis in 20% each. [12]

McLaughlin et al found the cause of nipple discharge as fibrocystic disease in 40% cases, invasive carcinoma in 25% cases and non-invasive papillary carcinoma in 20% cases. [13] *Rimsten et al (1976)* found fibroadenosis as underlying cause in 67% cases, mastitis in 4%, duct ectasia in 4% and normal in 7% of their patients with nipple discharge. [12]

There was a single case of Duct papilloma in present series, aged 42 years. *Mandalin* found centrally situated duct papilloma in 58% of hundred patients of nipple discharge and cancer was present in 18 cases. The relative risk of breast cancer in papilloma with fibrovascular core has been estimated to be 1.5 to 2 times. *Rosai (1996)* also stated that concurrent complex proliferations such as florid adenosis or papillomas could cause difficulty in identifying intraepithelial neoplasia of ANDI/DCIS spectrum. [14] *Haagensen (1971)* has reported the age range of the patients with duct papilloma from 18-85 years with a mean age of 48 years. [11]

In the present study the patient presented with subareolar lump and bloody nipple discharge and nipple retraction. *Haagensen (1971)* found duct papilloma in 69% cases with nipple discharge. In 20% cases tumour was associated with nipple discharge. [11]

In the present study the incidence of mastitis was 24.35%. Puerperial mastitis (63.15%) was commoner than non-puerperial mastitis (36.85%).

Soltau and Hatcher (1960) gave the incidence of mastitis as 2.1% of total maternal ward admissions. [15] The incidence of mastitis is higher in this part of country as compared to west, may be due to poor hygiene, frequent childbirths and prolonged breast feeding. *Huges et al (1982)* in their series have noticed skin oedema, fixity, nipple retraction and axillary lymphadenopathy in extreme cases. [16]

In this study there was only 1 case (1.28%) of Galactocoele with age of 25 years. Patient was lactating and had pain and swelling of the right breast. Aspiration was done, but swelling recurred after 1 week so excision was performed.

In the present study there was a single case (1.28%) of Cystosarcoma phylloides, a lady aged 43 years. She presented with a painless lump of her left breast. *Aerial (1961)* reported the incidence of cystosarcoma phylloides as 0.3% of all breast tumours. [17]

There were 2 cases (2.56%) of Dermatitis of Nipple in present series all had itching of nipple and areola and there was pain and tenderness. Both cases had cracked and erythematous nipple with serous discharge. Both cases had bilateral involvement of nipples. Smear showed inflammatory cells. Both cases were given local antibiotic cream and systemic antibiotics. Both responded to treatment.

According to *Karsner (1946)*, gynaecomastia is the result of hormone imbalance, due to relative or absolute increase in oestrogen. It is considered as one of the predisposing factors in etiology of male breast cancer. [18]

Two patients with cystic lump were found to be harbouring malignancy. In one there was residual lump after aspiration and in other aspirate was bloody. This reinforces the recommendation made by *Howell and Kline (1990)* that cytological study should be performed for cyst aspiration that is bloody, or if the cyst recurred in 2 weeks or if a cyst leaves a residual mass, it should be excised. In other cysts the reported incidence of intracystic neoplasm is low 0.1%. [19, 20]

Conclusion: Fibroadenosis (34.61%) was found to be the commonest lesion, followed by fibroadenoma (26.92%) and mastitis (24.35%). Majority of patients had pain (64.1%), and lump (42.3%) in breast as presenting symptom. The commonest sign was lump or swelling (67.79%) in breast followed by tenderness (58.97%) in breast. Majority of patients of fibroadenosis were in third decade (59.25%) of life. Cyclical mastalgia (74.07%) was more common.

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DECLARATIONS

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