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Original Research Article

Clinico-Histopathological Study of Non-Neoplastic Lesions of the Breast

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Abstract

Benign breast diseases constitute a heterogeneous group of disorders including developmental abnormality, epithelial and stromal proliferation, inflammatory lesions and neoplasm. Benign breast lesions deserve attention because of their high prevalence, their impact on women's life and due to cancerous potential of some histological types. So the study is aimed to attempt clinico-pathological correlation of non-neoplastic lesion of breast lump with detail history and pathological findings. The present study is prospective and retrospective study of non-neoplastic breast lesions carried out in department of pathology with the help of department of surgery at one of the teaching hospital in north Maharashtra. The retrospective study was done between May 2015 to July 2018 and prospective study between august 2018 to may 2019. Total one hundred cases of non neoplastic lesions of breast were studied in detail with relation to available clinical data. Tissue for H&E sections were fixed in 10% formalin and subjected to routine paraffin embedded processing and stained with Hematoxylin and Eosin. Out of 78 cases of non- neoplastic lesions of female breast, 45 cases 57.96% were of benign proliferative lesions, 30 cases 38.46% of inflammatory lesions and 3 cases of miscellaneous lesions. Maximum numbers of cases were found in age group 21-50 years with commonly presented with lump and pain. Inflammatory lesions and fibrocystic disease are the two common non neoplastic lesions of the breast tented to occur in 2nd to 4th decade of life. The most common presenting complaints are lump and pain in the breast.

Keywords: Non-neoplastic lesions, fibrocystic disease, Gynecomastia, Breast Abscess.

INTRODUCTION

Carcinoma of breast fairly common, the other non-neoplastic lesions from a separate group of diseases. As the non – neoplastic disease simulate the neoplastic diseases clinically, morphologically and also microscopically, they cause diagnostic difficulty not only to surgeon but also to the pathologist [1]. Most of the benign breast lesions of epithelial origin have been put by many pathologist into single poorly defined category and labeled with a variety of names such as cystic disease, fibrocystic disease, cystic mastopathy, cystic hyperplasia, mammary dysplasia, chronic cystic mastitis, benign breast disease. These non specific terms are used to designate wide spectrum of benign epithelial processes. These causes tremendous confusion while reporting these lesions [2].

The incidence and histological subtypes of these tumors vary from one region of the world to the other, and increasing awareness of breast cancer has stimulated profound interest in breast diseases. The most common symptoms are pain and palpable breast lumps. Generally, as with most neoplasms of other organs, benign breast tumors occur more frequently in clinical practice than malignant cases in both sexes [3]. Benign neoplasms of the breast are more common than the malignant neoplasms and are completely curable. However, these are overshadowed by the magnitude of the problems of malignant tumors of the breast. More than half of all women will develop some form of benign breast disease after age 20. Although a history of benign breast disease indicates some increase in risk for breast cancer, only a small fraction of those diagnosed ever develop malignant disease [4].

Treatment of benign breast disease is preservation of breast tissue as far as possible in contrast to traumatizing mutilating surgeries in breast cancers. Hence awareness and terminologies of benign breast diseases should be there amongst general population and clinicians. Thus, Histopathology plays an important role in management of breast diseases.

MATERIAL AND METHOD

The work represents the prospective and retrospective study of non-neoplastic breast lesions carried out in department of pathology with the help of department of surgery at one of the teaching hospital in north Maharashtra. The retrospective study was done between May 2015 to July 2018 and prospective study between august 2018 to may 2019. The patients operated for various breast lesions in the department of surgery were subjected to present study. Total one hundred cases of non neoplastic lesions of breast were studied in detail with relation to available clinical data. The tissues were routinely fixed with 10% formalin, and the slides were stained with hematoxylin and eosin stain and also with special stains whenever required.

RESULT

The total number of breast specimens received at histopathological section of the teaching hospital in north Maharashtra were seven hundred and two, from may 2015 to may 2019. In this study forty one retrospective cases and fifty nine prospective cases of non- neoplastic lesions of breast were included Table-1.

Table-1: Distribution of Different Lesions of Breast

Types of lesions			No. of cases	Percentage
Female Breast	Neoplastic	Benign	254	36.18
		Malignant	348	49.57
	Non - Neoplastic		78	11.11
Male Breast	Gynecomastia		22	3.33

Fibrocystic disease was found to be the most common diagnosis, which includes 40 cases and accounts 51.28% of all non- neoplastic lesions of female breast. Out of which 24 cases were found on right sided breast. Of these fibrocystic diseases 2 cases showed focus of fibroadenoma, two cases showed focus of abscess. Individual cases association of fibrocystic diseases with atypical ductal hyperplasia, duct ectasia, Sclerosing adenosis and intraductal carcinoma was observed.

Out of four cases of granulomatous lobular mastitis, one was associated with fat necrosis and one with tubular adenosis. Out of three cases of Sclerosing adenosis one showed association with papillary hyperplasia Table-2.

Among non- neoplastic lesions of female breast (total 78 cases), we found 45 cases 57.96% of benign proliferative lesions, 30 cases 38.46% of inflammatory lesions and 3 cases of miscellaneous lesions. Out of 45 cases of benign proliferative lesions, fibrocystic disease was observed in 88.88% of cases followed by sclerosing adenosis 6.66% cases. Similarly, Out of 30 cases inflammatory lesions abscess 26.66% was found most common lesion followed by Non-lactating mastitis 16.66%.

Table-2: Distribution and Incidence of Non- Neoplastic Lesions of the Breast

S. N.	Types of lesions	Total No. of cases	Percentage in total no of breast lesion	Percentage in total non- neoplastic lesions of female breast
1	Breast Abscess	8	1.14%	10.25%
2	Non- lactating mastitis	5	0.71%	6.41%
3	Lactating mastitis	2	0.28%	2.56%
4	Fat necrosis	4	0.57%	5.12%
5	Granulomatous lobular mastitis	4	0.57%	5.12%
6	Mammary duct ectasia	4	0.57%	5.12%
7	Tubercular mastitis	3	0.42%	3.84%
8	Fibrocystic disease	40	5.71%	51.28%
9	Sclerosing adenosis	5	0.71%	6.41%
10	Galactocele	3	0.42%	3.84%
11	Gynecomastia	22	3.13%	-

Table-3: Age wise distribution of non- neoplastic lesions of breast (total 100 cases)

S. NO	Types of lesions	Age groups in years					Total
		10-20	21-30	31-40	41-50	51-above	
1	Breast Abscess	-	3	3	1	1	8
2	Non-lactating mastitis	-	3	1	-	1	5
3	Lactating mastitis	-	2	-	-	-	2
4	Fat necrosis	-	2	1	-	1	4
5	Granulomatous lobular mastitis	-	-	3	1	-	4
6	Mammary duct ectasia	-	-	3	1	-	4
7	Tubercular mastitis	-	1	-	1	1	3
8	Fibrocystic disease	3	20	10	5	2	40
9	Sclerosing adenosis	1	2	2	-	-	5
10	Galactocele	-	3	-	-	-	3
11	Gynecomastia	8	7	3	2	2	22
Total		12	43	26	11	8	100

In present study the maximum numbers of cases were seen in age group 21-40 years. No cases were found below 10years. Fibrocystic disease was particularly noted in 21-30years age group with minimum age of 18 years and maximum 60 years. Out of 22 cases of Gynecomastia, 10 cases were found in age group 21-40 years with oldest case was 65 year. Lactating mastitis was the least common non-neoplastic breast lesions accounting only 2 cases.

Table-4: Frequency of presenting symptoms in non- neoplastic breast lesions

S. No	Types of lesions	Fever	Lump	Pain	Nipple discharge	Nipple retraction
1	Breast Abscess	5	8	7	1	1
2	Non- lactating mastitis	4	5	4	-	-
3	Lactating mastitis	2	2	2	-	-
4	Fat necrosis	-	4	2	-	1
5	Granulomatous lobular mastitis	1	4	3	1	1
6	Mammary duct ectasia	1	4	4	1	-
7	Tubercular mastitis	1	3	2	-	2
8	Fibrocystic disease	4	40	19	2	1
9	Sclerosing adenosis	-	5	2	-	-
10	Galactocele	3	3	3	1	-
11	Gynecomastia	-	22	4	-	-

All the patients were presented with lump in breast. In fibrocystic disease 19 out of 40 cases presented with pain, 2 cases with nipple discharge and one case came with complaints of nipple retraction. Over all breast lumps, pain and fever was noted as most common presenting symptoms in maximum cases of non- neoplastic lesions of breast.

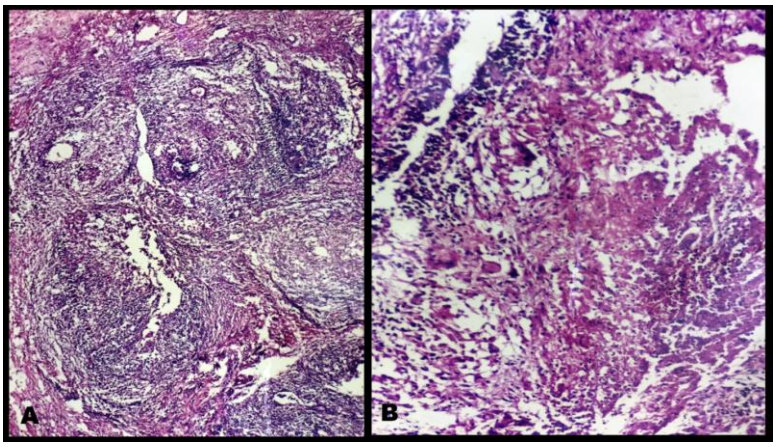

Fig-1: (A) Granulomatous lobular mastitis showing granuloma formation (B) Tubercular mastitis showing granuloma with giant cells

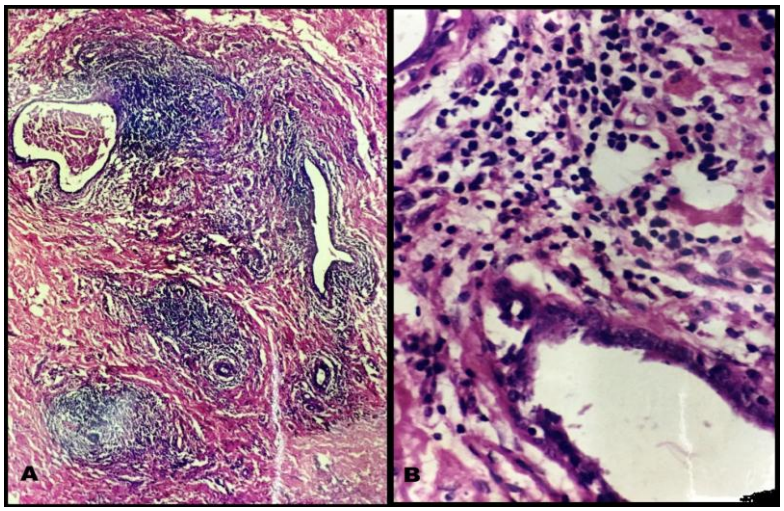

Fig-2: Mammary duct ectasia (A) showing dilated duct (B) with plasma cells

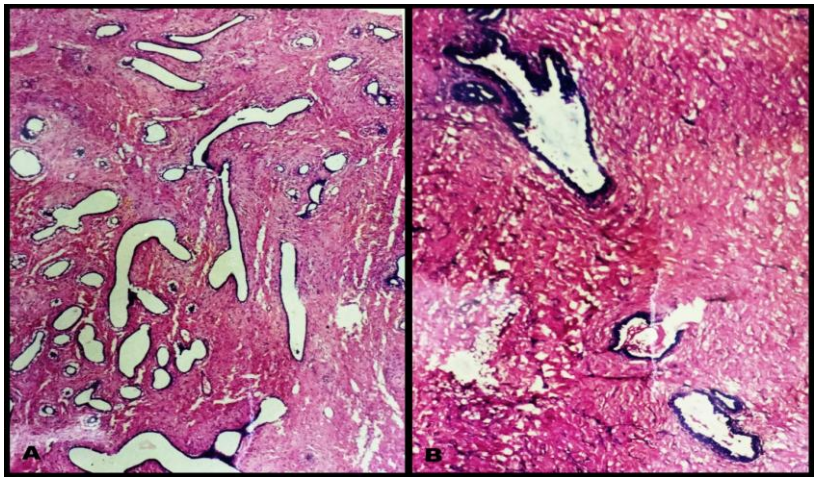

Fig-3: (A) Blunt duct adenosis (B) Gynecomastia

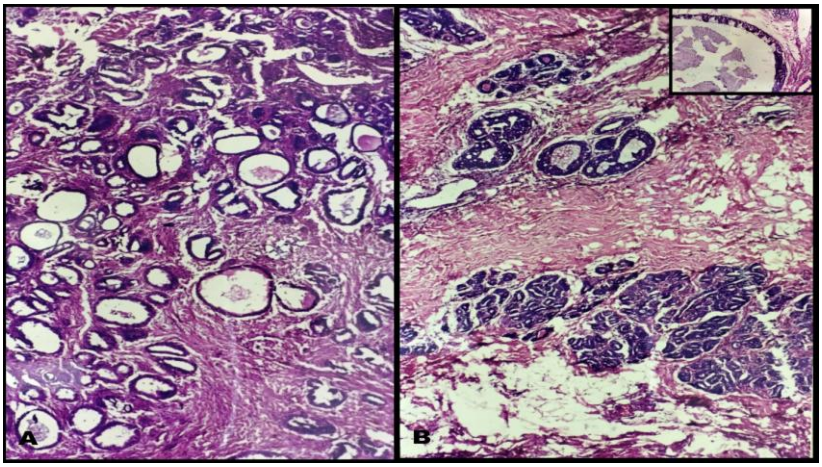

Fig-4: (A) Fibrocystic disease (B) Fibrocystic disease with intraductal carcinoma. Inset- showing apocrine change

DISCUSSION

In present study 14.44% cases, out of 702 were non- neoplastic lesions breast. Our results are slightly lower as compared to Haque *et al*., [5] who reported 20% incidence of non- neoplastic group and also with Baravkar L.V [6], Sing *et al*., [7] and Solanki *et al*., [8] who observed 20.75%, 22% and 24% incidence of non-neoplastic lesions respectively.

Inflammatory Lesions

We observed 3.69% of total breast biopsies belonged to inflammatory lesions and the maximum number of cases found in 21-30 years age group. Haque *et al*., [5] reported 4% incidence of inflammatory lesions, which similar to the incidence of present study. Baravkar L.V [6] reported 5.6% cases of inflammatory lesions with age range from 20-30 years, Sree ND *et al*., [9] reported 7.28% cases of inflammatory lesions with age range from 11-60 years, while Cox *et al*., [10] found 1.80% cases of non specific inflammation of breast, as infections are uncommon in developed countries and also most of the inflammatory lesions are treated by incision& drainage, biopsy is not always performed.

Fat Necrosis

Only four cases of fat necrosis were observed in our study. The maximum numbers of cases were in 21-30 years age group. 50% of patients gave history of both trauma and pain, while 25% patients came with complaints of nipple retraction. Microscopically showed central area of necrotic fat surrounded by lipid laden macrophages, neutrophils, lymphocytes and plasma cells. Adair and Munzer [11] reported 110 cases of fat necrosis; the age range was 14-80years. Of 110 cases 44% patients had history of trauma, 58% with nipple retraction and 34% with pain. Haagensen [12] observed 44 cases of fat necrosis with age range from 27-80yrs. He found that 32% of the patients gave history of both lump and pain, while 41% complaints of nipple retraction.

Granulomatous Lobular Mastitis

Four cases of granulomatous mastitis showed epitheloid cell granuloma composed of foreign body giant cells without caseation, confined to lobule. Most of the cases are in between 31-40 yrs age group. Our study is similar with the studies of Kessler *et al*., [13] and Fletcher *et al*., [14] who studied 5 cases and 7 cases of granulomatous lobular mastitis respectively. Both of them found this lesion in child bearing age i.e. 2- 5 yrs after last delivery.

In present study, we found 0.57% of mammary duct ectasia. The age range between 31-40 yrs with oldest patient in our series was 48 yrs old. 25% of patients were presented with bloody nipple discharge. This study is slightly lower than the study of Haque *et al*., [5]. who reported 1.5% of mammary duct ectasia. Haagensen [15] found 1.80% cases with 20% incidence of nipple discharge and Azzopardi [16] reported 15-20% of nipple discharges in mammary duct ectasia patients.

We have found 3 cases 0.42% of tubercular mastitis, most of the cases was in 30-45 yrs of age group. Haque *et al*., [5] found 1% tubercular mastitis in 30-35 yrs age group while Mukherjee *et al*., [17] and Baravkar L.V [6] reported 1.2% and 1.87% respectively with maximum number of cases in 20-30yrs of age. Most of the cases of tuberculosis occur in 20-30yrs age group, the active reproductive life. This is because the female breast undergoes more frequent changes during this period of activity and is more liable to trauma and infection through cracked nipple. In present study incidence of tubercular mastitis in lactating mother was 33.33%, while Gottschalk *et al*., [18] and Mukherjee *et al*., [17] reported 35.5% and 78.57% respectively. In all cases we observed caseating necrosis, epitheloid cell granuloma with Langhan's type of giant cells as described by Mukherjee *et al*., [17]. Hatim KS *et al*., [19] reported 2.4% cases of granulomatous mastitis.

Benign Proliferative Lesions

The benign proliferative lesions include fibrocystic disease along with sclerosing adenosis, fibrosis of breast and blunt duct adenosis. In present study 6.41% of cases belonged to benign proliferative lesions, which is lower in accordance with Haque *et al*., [5] and Baravkar L.V [6]. Who reported 13% and 12.40% of benign proliferative lesions respectively.

a) Fibrocystic disease:

In present study, we observed maximum number of cases between 21-30yrs of age, all patients presented with lump in breast. 19 out of 40 associated with pain during premenstrual period of menstrual cycle. Baptist *et al*., [20] reported maximum incidence of fibrocystic disease in 41-50yrs age group. Ellis et al found most of the cases of fibrocystic disease in age group of 18-67 yrs. Haagensen[21] observed maximum number of cases in 30-40 yrs age group and point out that the breast are constantly subjected to changing hormonal stimulation leading to physiological nodularity leading to fibrocystic disease. A considerable portion of gross cysts are discovered in the premenstrual or menstrual phase of menstrual cycle. We also observed that 12.5% cases of fibrocystic disease show apocrine metaplasia and 50% cases show epitheliosis. Haque *et al*., [5] reported apocrine metaplasia in 13% cases, while Baravkar L.V [6]. observed 72.20% apocrine metaplasia and epitheliosis in 33.33% cases. Karpas *et al*., [22] observed 60% apocrine metaplasia and 35% cases of epitheliosis in fibrocystic disease. We have found cases of fibrocystic disease with fibroadenoma (2 cases), atypical ductal hyperplasia (one case) and intraductal carcinoma (one case). Baptist *et al*., [22] also found association of benign proliferative lesion with fibroadenoma in 13% of cases and carcinoma in 30.6% of fibrocystic disease. Jadhav Dnyaneshwar S *et al*., [4] and Hatim KS *et al*., [19] reported 5.48% and 4.3% of fibrocystic diseases respectively.

b) Sclerosing adenosis:

In our study, the incidence of sclerosing adenosis was lower (6.66%) as compared to J. Douglas [23] and Baravkar L.V [6]. who reported 24.6% and 21.70% respectively. As sclerosing adenosis is difficult to define, its incidence in different centers may depend upon criteria adopted. Ibrahim *et al*., [3] studied 3.3% cases of sclerosing adenosis and found in 11- 50years of age.

Galactocele

In this study 3 case, 0.42% of galactocele was observed. All cases are lactating female in between 21-30 yrs. Golden *et al*., [24] reported 5 cases of galactocele most frequently in lactating females in post partum period. Deloach *et al*., [25] observed 2 cases of galactocele following breast augmentation.

Gynecomastia

We observed that incidence of gynecomastia was 3.13% in total number of breast lesion. Most of the cases were found in age group of 10-30 yrs and 40 % in right breast, 45% in left breast, 15% bilateral. 22% cases showed mainly florid type, 36% showed intermediate type and 40% showed fibrous type of gynecomastia. Carlson *et al*., [26] reported 32% cases of gynecomastia which is higher as compared with present study. Baravkar L.V [6]. Observed 2.9% incidence of gynecomastia which is similar to our study. Bannayan *et al*., [27] reported 41.29% cases of gynecomastia with two peak age range 10-30 yrs and 50-70 yrs, most of the cases were presented with complaints of pain and tenderness. They also found that 42% cases in left breast, 27% in right breast and 30% bilateral. Histologically they found florid type 42% as most common pattern, while 15% were intermediate and 41% were fibrous type of gynecomastia. Ibrahim *et al*., [3] studied 1.4% of gynecomastia in 3rd to 6th decade of life.

CONCLUSION

In present study of 100 cases of non-neoplastic breast lesion, overall maximum number of non- neoplastic lesion of breast were tented to occur in 21- 50 years of age. The most common lesion was found to be fibrocystic disease of breast which was most common in 21-40 years of age. Next common lesion was inflammatory lesions most of cases found in

2nd and 3rd decade of life and acute mastitis/abscess was the commonest lesion in this category. Most of the lesions were presented as palpable lump and pain in breast. Gynecomastia seems to be commonly found with complaints of breast lump in 1st to 4th decade of life.

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