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BENIGN EPITHELIAL PROLIFERATING BREAST LESIONS: A HISTOPATHOLOGICAL RESEARCH

[1]Ayushee Ganatra, [2]Kaivalya Shah, [3]Devanshi Shah, [4]Rakesh Tandon
[1]Resident, Department of Pathology, SBKS MI&RC, Vadodara, India
[2]Resident, Department of Pathology, MGM, Vadodara, India
[3]Resident, Department of Pathology, SBKS MI&RC, Vadodara, India
[4]Professor, Head of Department, Department of Pathology, SBKS MI&RC, Vadodara, India

ABSTRACT:
Background/Aims:
A range of conditions known as benign epithelial proliferative breast lesions are brought to the attention of clinicians as palpable lesions discovered during a physical examination or as imaging abnormalities. The pathological categorization and management of benign proliferative breast lesions will be reviewed in this topic. Women taking postmenopausal hormone replacement treatment have shown mammographic changes suggestive of physiologic proliferative abnormalities [4,5]. Women who have already received breast irradiation have far less of an impact from hormone replacement treatment on the look of their breasts on mammograms.
Material and methods: A study using cross-sectional observation was carried out at the Pathology department at Dhiraj Hospital, SBKS MI&RC, Vadodara, Gujarat.
Results: The study was conducted for 18 months. The study included 119 cases of benign proliferative epithelial breast lesions. Women in their second decade of life had the majority of the lesions. The majority of patients only experienced one unilateral breast lump, no pain, and no discharge from the nipples.
Conclusion: Women frequently suffer from benign epithelial proliferative breast disorders. despite the fact that the study found a lower frequency of premalignant atypical hyperplasia lesions, it is still essential to thoroughly investigate all cases of breast lesions in order to rule out the risk of breast cancer.

Key words: BENIGN EPITHELIAL PROLIFERATING, BREAST LESIONS, A HISTOPATHOLOGY

INTRODUCTION:

A category of breast conditions referred to as benign epithelial proliferative breast disorders is unrelated to cancer. It is more prevalent than malignant ones and is the primary cause of breast illness in women [1-2]. Treatment may be necessary for up to 30% of women with benign epithelial proliferative breast disorders during their lifetime [3].

A spectrum of conditions known as benign epithelial proliferative breast lesions have been brought to the attention of clinicians as palpable lesions discovered during a physical examination or as imaging abnormalities. The pathological classification and management of benign proliferative breast lesions will be studied in this topic. Women taking postmenopausal hormone replacement treatment have shown mammographic changes suggestive of physiologic proliferative abnormalities [4,5]. When hormone replacement therapy is given to women who have previously had breast irradiation, the effect on the breast's appearance on mammography is significantly reduced [6].

Atypical hyperplasia is one benign breast illness that increases the likelihood of getting breast cancer in the future. Counseling may be suggested as a risk-reduction tactic in this case. Because malignancies that later develop are not always in the location of the atypia and can occur in the contralateral breast, these lesions are regarded as risk markers rather than premalignant.

According to epidemiologic research, women who have proliferative epithelial diseases affecting their breast's small ducts and terminal ductal lobular units are more likely to develop breast cancer later. This risk is especially present when there is evidence of atypia along with the epithelial proliferation [7–9]. Approximately 1.5–2 times higher risk is associated with epithelial proliferation in the absence of atypia [7–9] and 4-5 times for individuals who have atypia along with proliferative disease [8, 10]. The idea that atypia is more similar to carcinoma than proliferative illness without atypia is supported by the greater risk that is linked with it. These results lead to the belief that benign proliferative epithelial diseases (BPED) of the breast may be cancerous [11].

MATERIAL AND METHODS:

A research study using cross-sectional observation was conducted in the Pathology department of Dhiraj Hospital, SBKS MI&RC, Vadodara, Gujarat. The study comprised a minimum of one hundred patients of both sexes and all age groups exhibiting signs and symptoms of benign epithelial proliferative breast lesions. Complete medical history, including age, sex, marital status, and complaints about pain, discharge from the nipple, length of the disease, and site involved was taken.

Inclusion criteria

- All Benign epithelial proliferative breast disease specimens in form of biopsy / lumpectomy which were received in pathology department.

Exclusion criteria

- Inadequate biopsy material.

Following the patient's written consent, the surgeon obtained breast biopsies for the study and sent them in 10% Formalin to the pathology department. Following a sufficient 8–12-hour fixation period, the samples were sent for routine processing. Following processing, five Microtome-thick sections of paraffin were cut and stained for morphological examination using hematoxylin and eosin.

H & E staining procedure:

- After removing paraffin wax slides was immersed in absolute alcohol for 2 minutes.
- washed in water
- Stained with hematoxylin - 15 minutes
- washed in water
- 1-2 dips were given to absolute alcohol
- washed in water
- Counter stain 1% aqueous eosin for 3 minutes.
- Dehydrated
- Mounted with DPX

RESULTS:

More than One hundred breast specimens were examined. The study's findings and observations were as follows.

TABLE 1: AGE WISE DISTRIBUTION OF BREAST LESIONS

The results showed that the age group of 21–30 years old had the largest percentage of breast lesions (44.54%).

TABLE 2: SEX WISE DISTRIBUTION OF BREAST LESIONS

SEX	NO. OF CASES	PERCENTAGE
Female	**105**	**88.24%**
Male	14	11.76%
TOTAL	119	100%

The results showed that the majority of breast lesions (88.24%) were found in females.

TABLE 3: LATERALITY WISE DISTRIBUTION OF BREAST LESIONS

Side involved	No. of cases	Percentage
Right side	**57**	**47.90%**
Left side	49	41.18%
Both side	13	10.92%
Total	119	100%

In the study, the right side (47.90%) had a higher frequency of unilateral breast lesions.

TABLE 4: MARITAL STATUS WISE DISTRIBUTION OF BREAST LESIONS

Age in years	No. of cases	Percentage
11-20	37	31.09%
21-30	**53**	**44.54%**
31-40	26	21.85%
41-50	02	1.68%
>50	01	0.84%
Total	119	100%

Marital status	**No of cases**	Percentage
Unmarried	47	39.5%
Married	**72**	**60.5%**
Total	119	100%

The results showed that married women (60.50%) had the greatest number of breast lesions.

TABLE 5: HISTOMORPHOLOGICAL PATTERN OF BREAST LESIONS

Breast lesion	No. of cases	Percentage
Usual Ductal Hyperplasia	18	15.13%
Atypical ductal hyperplasia	03	2.52%
Sclerosing adenosis	04	3.36%
Fibroadenoma	**72**	**60.5%**

Gynaecomastia	14	11.77%
Tubular adenoma	03	2.52%
Benign phyllodes tumour	04	3.36%
Intraductal papilloma	01	0.84%
Total	119	100%

According to the data, typical ductal hyperplasia (15.13%) and fibroadenoma (60.50%) were the two most common breast lesions.

TABLE 6: AGE WISE DISTRIBULATION OF BREAST LESIONS

Breast lesions	Age					
	11-20	21-30	31-40	41-50	>50	Total
Usual Ductal Hyperplasia	05 (4.2%)	09 (7.57%)	04 (3.36%)	00 (00%)	00 (00%)	18 (15.13%)
Atypical ductal hyperplasia	00 (00%)	00 (00%)	03 (2.52%)	00 (00%)	00 (00%)	03 (2.52%)
Sclerosing adenosis	01 (0.84%)	02 (1.68%)	01 (0.84%)	00 (00%)	00 (00%)	04 (3.36%)
Fibroadenoma	20 (16.81%)	34 (28.57%)	17 (14.29%)	01 (0.84%)	00 (00%)	72 (60.5%)
Gynaecomastia	07 (5.89%)	05 (4.20%)	00 (00%)	01 (0.84%)	01 (0.84%)	14 (11.77%)
Tubular adenoma	02 (1.68%)	01 (0.84%)	00 (00%)	00 (00%)	00 (00%)	03 (2.52%)
Benign phyllodes tumour	01 (0.84%)	02 (1.68%)	01 (0.84%)	00 (00%)	00 (00%)	04 (3.36%)
Intraductal papilloma	01 (0.84%)	00 (00%)	00 (00%)	00 (00%)	00 (00%)	01 (0.84%)
Total	37 (31.09%)	53 (44.54%)	26 (21.85%)	02 (1.68%)	01 (0.84%)	119 (100%)

As per the study, Fibroadenoma was most common lesion among age group of 21-30 years of age (28.57%).

TABLE 7: SYMPTOMS OF BREAST LESIONS

Presentation	No. of cases	Percentage
Breast lump only	**75**	**63.02%**
Breast lump + Pain	36	30.25%
Breast lump + Nipple discharge	04	3.36%
Breast lump + Pain + Nipple discharge	03	2.52%
Nipple discharge only	01	0.84%
Total	119	100%

In the study most common presentation was breast lump (63.02%) followed by breast lump and pain (30.25%).

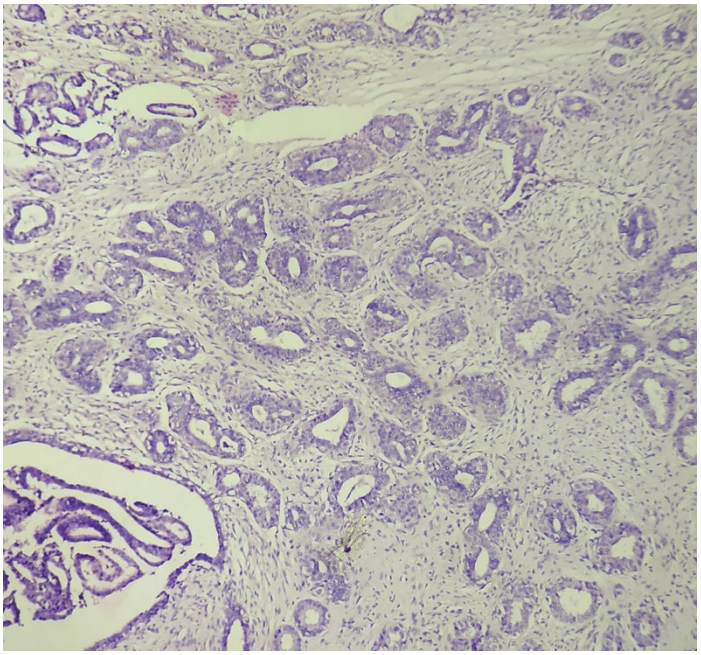


FIGURE 1: Usual Ductal Hyperplasia: Presence of hyperplasia of ductal epithelial cells (H & E Stain 4x)

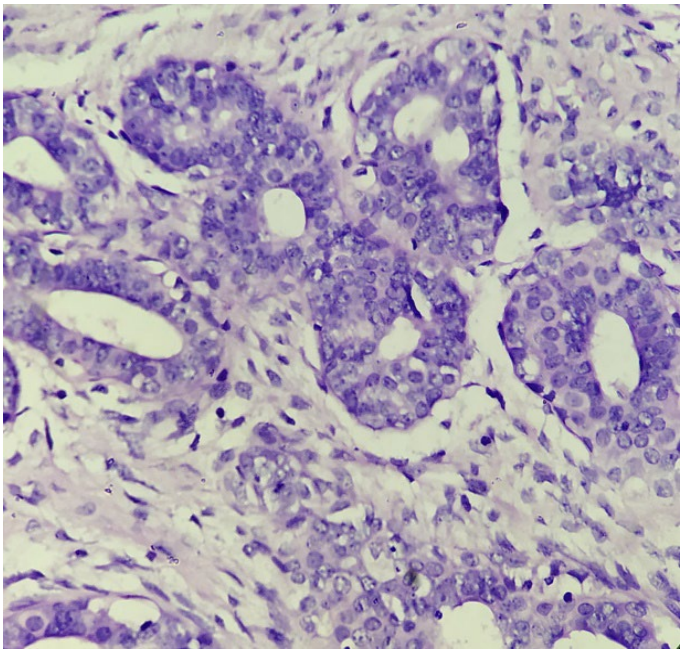


FIGURE 2: UDH: Presence of hyperplasia of ductal epithelial cells (H & E Stain 40x)

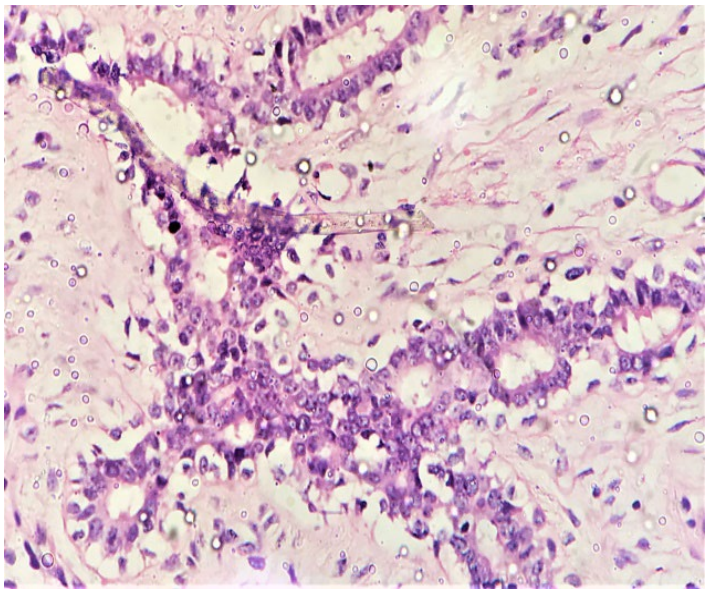


FIGURE 3: Fibroadenoma: Mixed glandular and stromal growth. Along with presence of mild epithelial hyperplasia. (H & E Stain 10x)

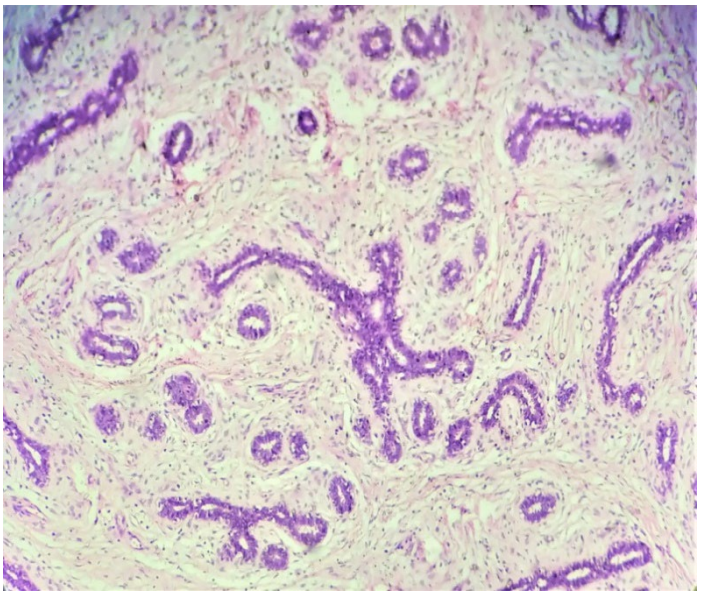


FIGURE 4: Fibroadenoma: Mixed glandular and stromal growth along with epithelial hyperplasia (H & E Stain 40x)

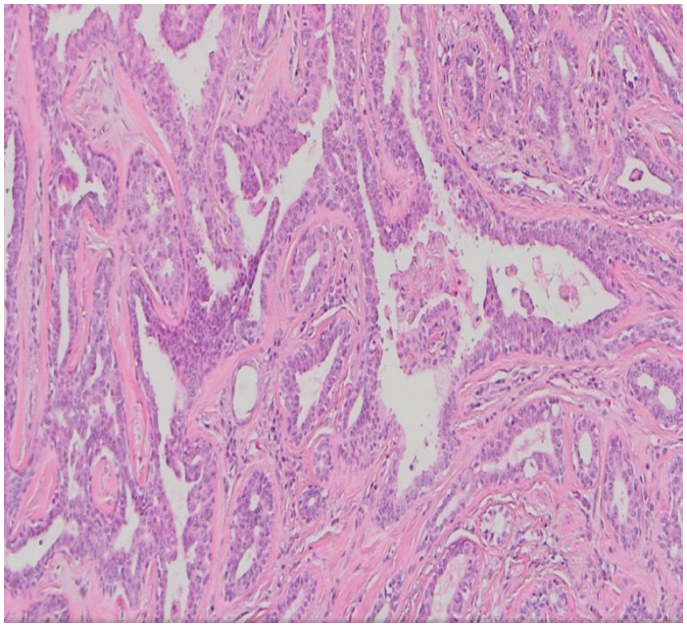


FIGURE 5: Nipple adenoma: Complex architectural pattern with papillomatosis (H & E Stain 10x)

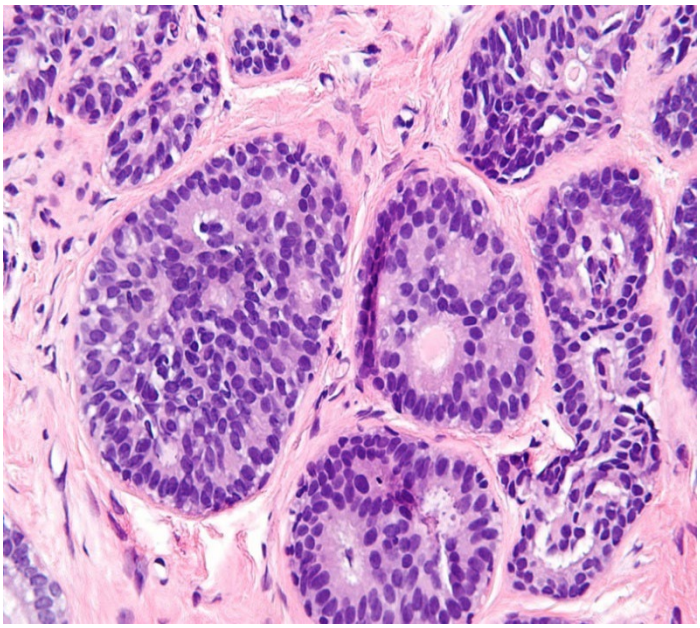
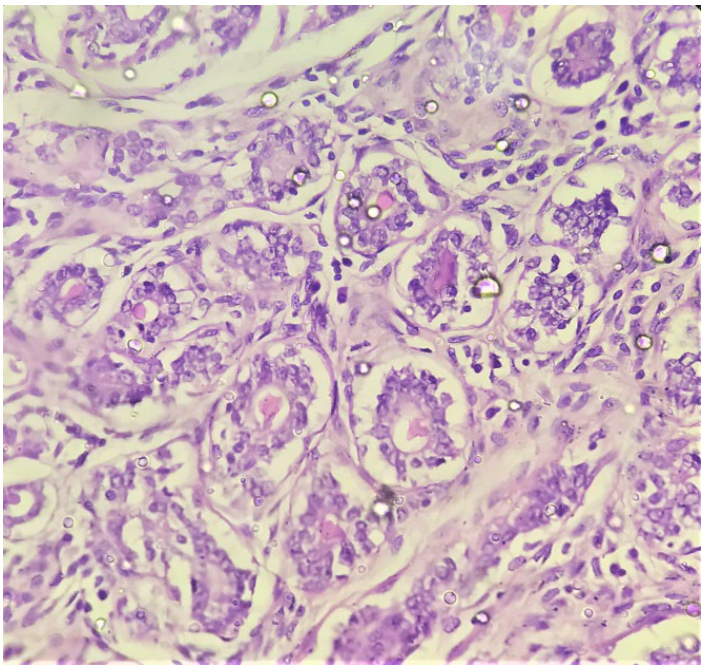


FIGURE 6: Atypical ductal hyperplasia: monomorphic cells with ovoid to rounded nuclei (H & E Stain 40x)



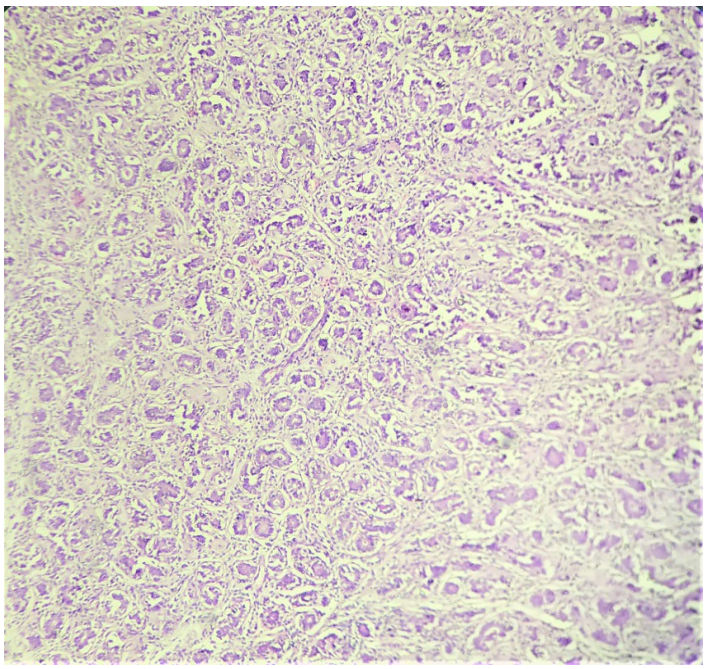


FIGURE 7: Micro glandular adenosis: haphazardly scattered small round glands (H & E Stain 4x

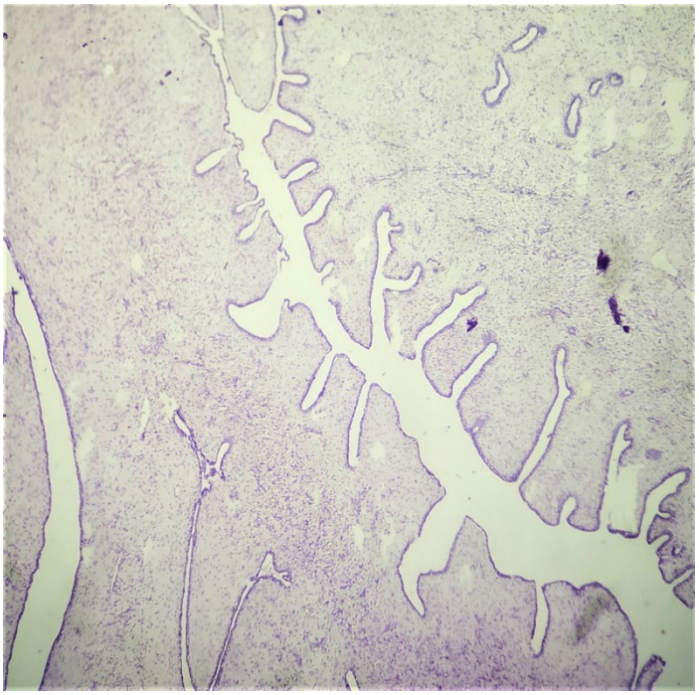


FIGURE 8: Micro glandular adenosis: the glands contain bright eosinophilic luminal secretion. There is no myoepithelial cell layer (H & E Stain 40x)

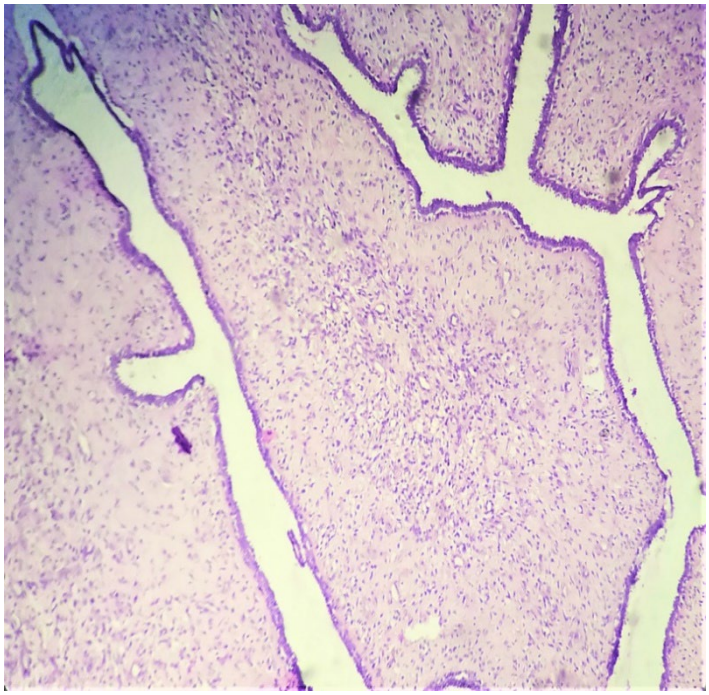


FIGURE 9: Benign phyllodes tumor: Cleft like spaces (H & E Stain 4x) epithelium

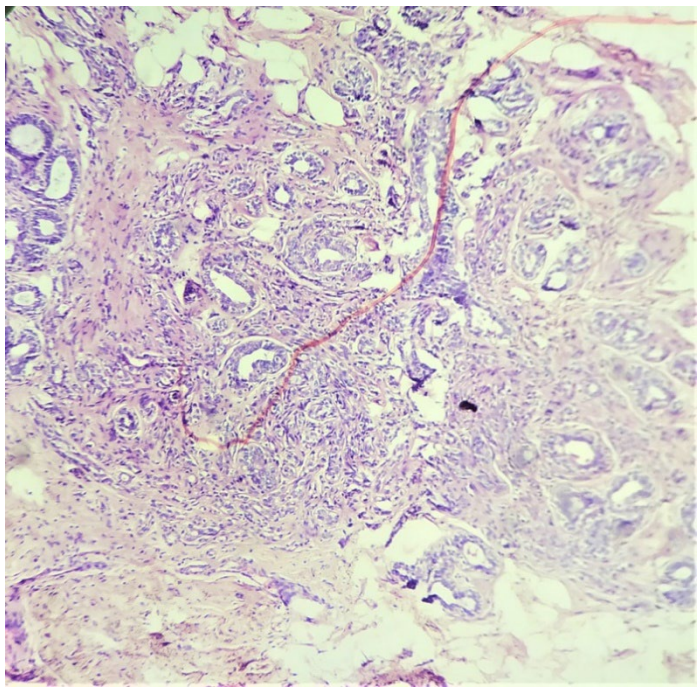


FIGURE 10: Benign Phyllodes Tumor: Stromal cell condensation under

(H & E Stain 4x)

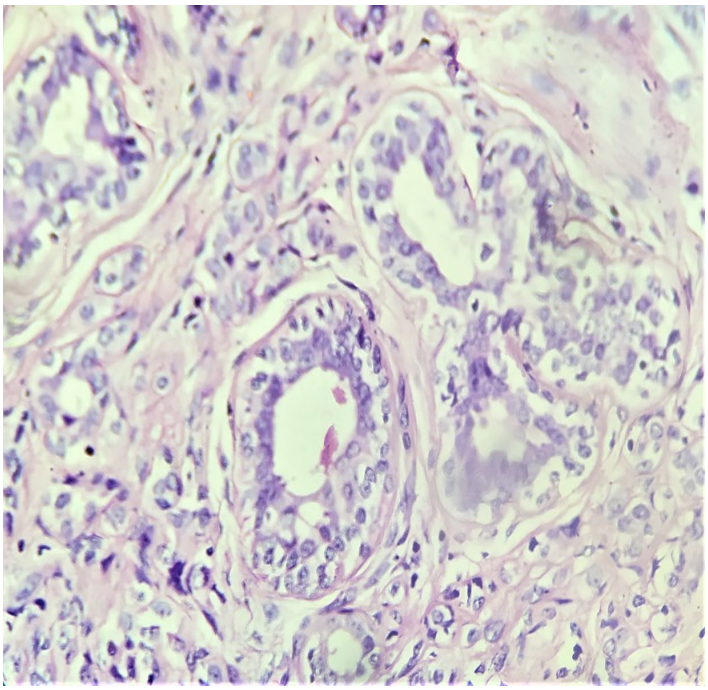


FIGURE 11: Sclerosing adenosis: Lobular configuration of the small glandular proliferation (H & E Stain 4x)

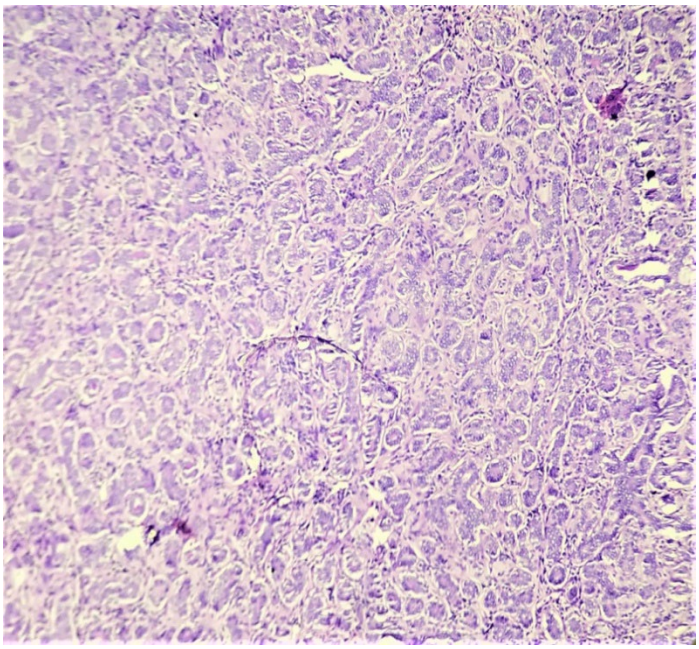


FIGURE 12: Sclerosing adenosis: Spindle shaped myoepithelial cells (H & E Stain 40x)

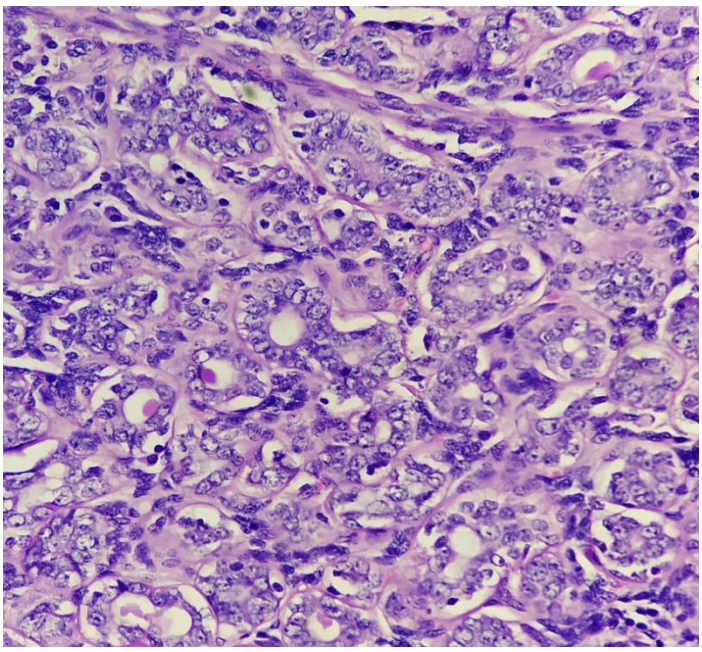


FIGURE 13: Tubular adenoma: closely packed uniform small tubules and the stroma are sparse (H & E Stain 4x)

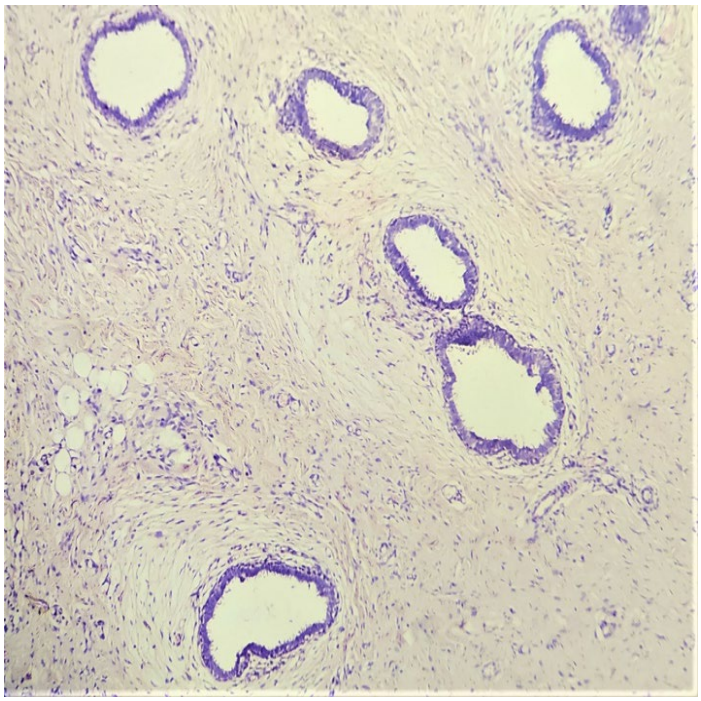


FIGURE 14: Tubular adenoma: tubules are lined by a single layer of epithelial cells and an attenuated layer of myoepithelial cells (H & E Stain 40x)

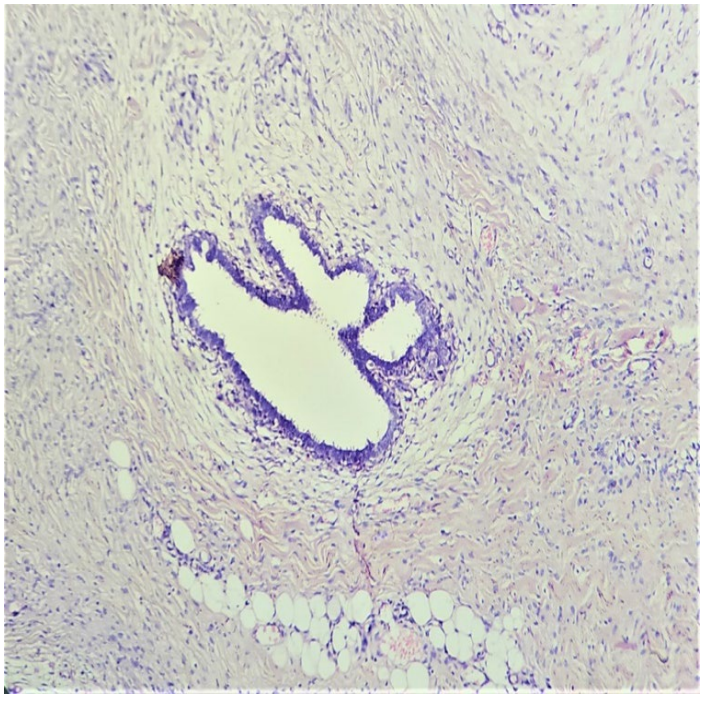


FIGURE 15: Gynecomastia: Epithelial proliferation surrounded by a hypocellular myxoid halo (H & E Stain 10x)

Age in years	Koorapati Ramesh et al [12]	Present study
11-20	20(08%)	37 (31.09%)
21-30	**15(60%)**	**53 (44.54%)**
31-40	55(22%)	26 (21.85%)
41-50	15(06%)	02 (1.68%)
>50	10(04%)	01 (0.84%)
Total	250(100%)	119 (100%)

DISCUSSION:

TABLE 8: COMPARISON AS PER AGE DISTRIBUTION

According to this study, the age group of 21–30 years old had the highest prevalence of breast illnesses (44.54%), which is comparable to the findings of Koorapati Ramesh et al.'s study (60%) [12].

A similar common age group (67.1%) in the study by Phillipo L. Chalya et al. was 21–30 years old [13].

TABLE 9: COMPARISON AS PER SEX DISTRIBUTION

SEX	**Dr. Deepika Hemrajani et al [14]**	**Present study**
Female	**287 (88.04%)**	**105 (88.24%)**
Male	39 (11.9%)	14 (11.76%)
TOTAL	326 (100%)	119 (100%)

According to this study, women (88.24%) were more likely than men to have breast illnesses (88.04%), which is consistent with the findings of Dr. Deepika Hemrajani et al's study [14].

TABLE 10: COMPARISON AS PER LATERALITY

Side involved	**Mima mychet B. Sangma et al[15]**	**Present study**
Right side	**48 (48%)**	**57 (47.90%)**
Left side	40 (40%)	49 (41.18 %)
Both side	12 (12%)	13 (10.92%)
Total	100(100%)	119(100%)

According to this study, the majority of breast disorders affected the right side of the breast (47.90%), which is consistent with the results of a study by Mima Mychet B. Sangma et al (48%) [15].

TABLE 11: COMPARISON AS PER MARITAL STATUS

Marital status	**Dr. B.V.Amruthavalli M.S. et al[16]**	**Present study**
Unmarried	49(28%)	47(39.5%)

Married	**126(72%)**	**72(60.5%)**
Total	175(100%)	119(100%)

According to this study, married women (60.5%) had the highest prevalence of breast illnesses. Dr. B.V.Amruthavalli M.S. et al study (72%)[16].

TABLE 12: COMPARISON ACCORDING TO BREAST LESION

Breast disease	Koorapati Ramesh et al [12]	Phillipo L. Chalya et al study [13]	Dr. Deepika Hemrajani et al[14]	Priya Bagale et al[17]	Present study
Usual Ductal Hyperplasia	00 (00%)	00 (00%)	03 (1.2%)	00 (00%)	18 (15.13%)
Atypical ductal hyperplasia	00 (00%)	06 (3.1%)	00 (00%)	00 (00%)	03 (2.52%)
Sclerosing adenosis	00 (00%)	00 (00%)	01 (0.4%)	29 (13.74%)	04 (3.36%)
Fibroadenoma	144 (89.44%)	177 (91.7%)	185 (75.5%)	151 (71.56%)	72 (60.5%)
Gynaecomastia	03 (1.86%)	00 (00%)	39 (15.9%)	11 (5.21%)	14 (11.77%)
Tubular adenoma	00 (00%)	00 (00%)	05 (2.04%)	00 (00%)	03 (2.52%)
Lactating adenoma	00 (00%)	00 (00%)	05 (2.04%)	02 (0.94%)	00 (00%)
Benign phyllodes tumour	09 (5.59%)	04 (2.07%)	04 (1.63%)	07 (3.31%)	04 (3.36%)
Intraductal papilloma	05 (3.1%)	06 (3.1%)	01 (0.4%)	11 (5.21%)	01 (0.84%)
Total	161 (100%)	193 (100%)	245 (100%)	211 (100%)	119 (100%)

The most prevalent breast disease in this study was fibroadenoma (60.5%), which was consistent with the results of studies by Dr. Deepika Hemrajani et al[14] study Dr. B.V.Amruthavalli M.S. et al[16], Koorapati Ramesh et al [12], Mima Maychet B. Sangma et al [15] ,Phillipo L. Chalya et al study [13]and Priya Bagale et al[17] study (75.5%, 43.24%, 89.44%, 48%, 91.7%, and 71.56% respectively).

COMPARISION ACCORDING TO AGE WISE DISTRIBUTION OF BREAST LESION

According to this study, fibroadenoma was the most prevalent lesion in the 21–30 age group (28.57%).

Similar results were observed in the study by Koorapati Ramesh et al. [12] (39.2%).

TABLE 13: COMPARISON ACCORDING TO PRESENTING SYMPTOMS

Presentation	**Mima Maychet B. Sangma et al[15]**	**Koorapati Ramesh et al** (12)	**Phillipo L. Chalya et al** **(13)**	Present study
Breast lump only	**63(63%)**	**170(68%)**	**234(67.6%)**	**75(63.02%)**
Breast lump + Pain	20(20%)	60(24%)	25(7.2%)	36(30.25%)
Breast lump + Nipple discharge	03(03%)	00(00%)	11(3.2%)	04(3.36%)
Breast lump + Pain + Nipple discharge	04(04%)	15(06%)	07(2.0%)	03(2.52%)
Breast pain only	09(09%)	00(00%)	51(14.7%)	00(00%)
Nipple discharge only	01(01%)	05(02%)	07(2.0%)	01(0.84%)
Other complaints like nipple deformity, skin changes	00(00%)	00(00%)	12(3.5%)	00(00%)
Total	100(100%)	250(100%)	346(100%)	119(100%)

Breast lumps were the most common manifestation of breast illnesses in this study (64.02%), which was consistent with the findings of Mima Maychet B. Sangma et al study [15] Koorapati Ramesh et al[12] and Phillipo L. Chalya et al [13] (63%, 68% and 67.6% respectively).

CONCLUSION:

The study was carried out over an 18 months period. The study included 119 cases of benign proliferative epithelial breast lesions. Women in their second decade of life had the majority of the lesions. The majority of patients only experienced one unilateral breast lump, no pain, and no secretion from the nipples.

- The study included 119 cases of breast lesions; the second decade of life was shown to have the highest age distribution for benign epithelial proliferative breast lesions (44.54%).
- The M:F ratio was 1:7.5, and the majority of affected individuals were females (88.24%).
- The most prevalent lesion in the 21–30 age group (28.57%) was fibroadenoma.
- Compared to single women (39.5%), married women (60.5%) had more breast lesions.
- The majority of the lesions were one-sided. Both 10.92% and (89.08%) were bilateral.
- Breast lumps were the most often reported presenting symptoms (63.02%), followed by breast lumps with pain (30.25%).
- The most prevalent form of breast lesion was fibroadenoma (60.5%), which was followed by normal ductal hyperplasia (15.13%).

Women frequently suffer from benign epithelial proliferative breast disorders. The most common presentation is a breast lump. The age group of 21 to 30 is the most commonly affected. Fibroadenoma is the most common type of breast lump, followed by normal ductal hyperplasia. All cases of breast lesions should be carefully evaluated to rule out the risk of

breast cancer, even if premalignant lesions of atypical hyperplasia were less common in this study.

CONSENT: As per international standard or university standard, patient(s) written consent has been collected and preserved by the author(s).
COMPETING INTERESTS: Authors have declared that no competing interests exist.
CONFLICT OF INTEREST: The authors declare that there are no conflicts of interest in this paper.
SOURCE OF FUNDING: None.

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