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Evaluation of A Benign Breast Lesion with A Clinicohistopathological Pattern

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KEYWORDS

CHP,
BBL**,**
SES,
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H&E stain method,
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PAS staining**,**
excisional/lumpectomy procedure.

ABSTRACT:

Various studies have shown that the breast is the site of a wide range of pathological changes. So, a diverse range of malignant, benign, and non-neoplastic diseases can impact the breast. Therefore, research has been pointing out since ages that an examination of both Western and Indian literature reveals mainly breast masses, i.e., BC. Therefore, our study aimed to analyze and evaluate the CHP pattern of BBL in SES. After conducting a thorough analysis of the medical records of 273 patients, we found that the excisional/lumpectomy procedure was the most common, accounting for 153 out of 273 cases. The remaining cases consisted of 20 core needle biopsies and 100 mastectomies. In addition, the tissue fragments were subsequently treated using the standard paraffin embedding method. Thin sections measuring 4-5 microns in thickness were carefully prepared and stained using the H&E stain method. In addition, ZN (20%) staining and PAS staining were also performed as needed. In our study, we found that of the BBL, the maximum number of cases (77.14%; 118/153 cases) were BN, followed by IL (7.85%; 12/153 cases) and BPL (7.18%; 11/153 cases). NPL were 6.53%, and miscellaneous cases were 1.3%. As a result, we have determined that CHP is the diagnostic standard of excellence.

INTRODUCTION

Research has indicated that non-cancerous breast conditions can result in detectable lumps accompanied by discomfort and discharge from the nipple. Thus, fear of cancer and the potential impact on appearance following surgery make breast lumps a cause for worry among both patients and surgeons, especially in younger individuals. Furthermore, research has indicated that medical interventions often yield unsatisfactory results, and the justification for surgical procedures remains a topic of ongoing discussion.[1] According to various studies, generic term “ANDI” (Aberrations of Normal Development and Involution) was introduced to allow breast problems to be placed within an overall framework of pathogenesis.[2,3,4] Studies have shown that better imaging methods and more use of fine needle aspiration cytology (FNAC) have made it much easier to check for breast lesions before surgery. However, studies have also shown that the classification between benign and malignant lesions still rests on histological inspection.[5] So our study was undertaken in our tertiary care center to study various BBL in surgically excised specimens received in the CHP section.

AIM

To evaluate & assess clinicohistopathological (CHP) pattern of benign breast lesion (BBL) in surgically excised specimen(SES).

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www.jchr.org
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INCLUSION CRITERIA

Both male & female of any group diagnosed with BBL were included.

EXCLUSION CRITERIA

Patients with any obvious or biopsy proven malignant disease or had been treated for malignancy earlier or operated were excluded.

MATERIAL & METHOD

Our study conducted an descriptive cross sectional type of research in department of pathology , KIMSDU over period of 2 years starting from June 2017 ending to May 2019. A total of 273 specimens were included of these excisional/lumpectomy specimen were maximum & accounts for 153 out of 273 cases, remaining 20 & 100 cases were of core needle biopsy & mastectomy respectively. Malignant cases were excluded from the study which found after detailed history regarding age, sex, c/o,h/o of menstrual cycle, lactation etc collected from biopsy requistion forms.

Materials

1. Fixative = 10% neutral buffered formalin.
2. Slide = clean, grease free slide
3. Other material = Hematoxylin & Eosin (H&E) stain, Paraffin wax, xylene, alcohol, D.P.X. etc for routine tissue processing & preparation of slides.

Method

Small specimens were fixed whole, but larger ones were inked prior to immersion in formalin. Then they were sliced and immersed in 10% neutral buffered formalin. The number of tissue bits taken from each lump depended on the overall size of the lesion. A minimum of four bits were taken. The tissue bits were then processed by the routine paraffin embedding technique. Sections of 4-5 microns in thickness were cut and stained with H&E stain. Addition to this, Ziehl-Neelsen(ZN) (20%) stain & Periodic-Acid Schiff (PAS) stain were also done whenever required.

RESULT

TYPE OF BL	NO. OF CASE	PERCENTAGE
BBL	153	56
MALIGNANT(M)	120	44
TOTAL	273	100

Table 1: CHP

In our study, we found that out of 273 cases, 153 (56%) were benign breast diseases(BBD) and 120 (44%) were MBN (Table 1).

GENDER	NO OF CASES	PERCENTAGE
FEMALE	151	98.70
MALE	2	1.30
TOTAL	153	100

Table 2: Gender -Wise

In our study, we found that 151/153 cases (98.7%) were females and 2/153 patients (1.30%) were males (Table 2).

Journal of Chemical Health Risks
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AGE GROUP(IN YEARS)	NO OF CASES	PERCENTAGE
11-20	37	24.18
21-30	41	26.82
31-40	56	36.60
41-50	11	7.18
51-60	5	3.26
61-70	3	1.96
TOTAL	153	100

Total 3: Age

In our study, we found that the maximum number of patients, i.e., 36.6%, belonged to the age group of 31–40 years, followed by 26.82% of patients in the age group of 21–30 years (Table 3).

LATERALITY	NO OF CASES	PERCENTAGE
BILATERAL	15	9.80
LEFT	59	38.56
RIGHT	79	51.64
TOTAL	153	100

Total 4: BBL based on laterality

Unilateral lesions (90.2%) were more common than bilateral lesions. Bilateral involvement was observed only in 9.8% of patients. The right breast was affected in 51.64% of patients, while the left breast was affected in 38.56% of patients (Table 4).

QUADRANT	NO OF CASES	PERCENTAGE
UPPER OUTER	60	39.24
UPPER INNER	26	16.99
LOWER OUTER	25	16.33
LOWER INNER	9	5.88
CENTRE	13	8.49
MULTIPLE QUADRANTS	20	13.07
TOTAL	153	100

Table 5:Distribution of different quadrant by BBL

In our study we found that majority of the lesions were located in the upper outer quadrant (39.24%) followed by upper inner quadrant (16.99%). Multiple quadrants involvement was seen in 13.07% cases and 8.49% were located in central region (Table 5).

Journal of Chemical Health Risks
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SYMPTOMS	NO OF CASES	PERCENTAGE
BREAST LUMP	125	81.72
LUMP +PAIN	21	13.72
LUMP+NIPPLE DISCHARGE	1	0.65
LUMP+PAIN+NIPPLE DISCHARGE	4	2.61
NIPPLE DISCHARGE	2	1.30
TOTAL	153	100

Table 6 : Clinical Presentation (CP)

In our study, we found that most of the cases, i.e., 81.72%, presented with breast lumps(BL) that were painless, followed by 21 cases (13.72%) presented with L with pain, 4 cases (2.61%) presented with L with pain and nipple discharge(ND), 1 case (0.65%) presented with L and ND, and 2 cases (1.30%) presented with ND(Table 6).

CLINICAL DIAGNOSIS	NO OF CASES	PERCENTAGE
Breast abscess(BA)	5	3.26
Chronic Mastitis(CM)	10	6.53
Cyst	2	1.30
Fibroadenoma(FA)	94	61.43
Phyllode	4	2.61
Lipoma	3	1.96
Carcinoma breast(CB)	9	5.88
Lump in breast	10	6.53
Fibrocystic change(FC)	14	9.2
Gynecomastia	1	0.65
Galactocele	1	0.65
TOTAL	153	100

Table 7: CD at CP with BL

In our study, we found that the most frequent CD for BBL was FA, seen in 61.43% of cases, followed by CM and clinically undiagnosed cases.

TYPES OF BENIGN BREAST LESIONS	NO OF CASES	PERCENTAGE
Inflammatory lesions(IL)	12	7.85
Non proliferative lesions(NPL)	10	6.53
Benign proliferative lesions (BPL)	11	7.18
Benign neoplastic (BN)	118	77.14
Others	2	1.30
Total	153	100

Table 8: BBL on CHP

Journal of Chemical Health Risks
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In our study, we found that of the BBL, the maximum number of cases (77.14%; 118/153 cases) were BN, followed by IL (7.85%; 12/153 cases) and BPL (7.18%; 11/153 cases). NPL were 6.53%, and miscellaneous cases were 1.3%.

TYPES OF LESIONS	NO OF CASES	PERCENTAGE
BA	1	8.33
Duct ectasia(DE)	1	8.33
Non specific mastitis(NSM)	2	16.67
Granulomatous mastitis(GM)	3	25
Tuberculous mastitis(TM)	2	16.67
Lymphocytic mastitis(LM)	2	16.67
Epidermal cyst(EC)	1	8.33
Total	12	100

Table 9: IL & reactive condition(RC).

In our study, we found that among the IL, GM was the most common lesion.

TYPE OF LESIONS	NO OF CASES	PERCENTAGE
Fibrocystic(FC) changes	9	90
Simple cyst	1	10
Total	10	100

Table 10: Distribution of NPL

In our study, we found that among NPL, FC change was the most common lesion.

TYPES OF LESIONS	NO OF CASES	PERCENTAGE
Sclerosing adenosis(SA)	2	18.18
Fibroadenomatoid hyperplasia(FAH)	1	9.09
Juvenile papillomatosis(JP)	1	9.09
Intraductal papilloma(IP)	2	18.18
Tubular adenoma(TA)	4	36.37
Lactating adenoma((LA)	1	9.09
Total	11	100

Table 11: BPL

In our study, we found that among BPL, TA was the most common, comprising 36.37%.

TYPES OF LESIONS	NO OF CASES	PERCENTAGE
Fibroadenoma(FA)	101	85.3
Phyllodes	9	8

Journal of Chemical Health Risks
www.jchr.org
JCHR (2023) 13(3s), 52-61 | ISSN:2251-6727

Lipoma	4	3.4
Hamartoma	3	2.5
Nodular fasciitis(NF)	1	0.8
Total	118	100

Table 12 : BNL

In our study, we found that FA was the most common BN, i.e., 85.3%.

HISTOLOGICAL TYPES	AGE GROUP(YEARS)						
	11-20	**21-30**	**31-40**	**41-50**	**51-60**	**61-70**	**Total**
Adenosis		1	1				2
Adipomastia		1					1
Ductal ectasia	1						1
Epidermal cyst				1			1
Fibroadenoma	32	30	38	1			101
Fibrocystic changes			4	3	2		9
Fibroadenomatoid hyperplasia			1				1
Tubercular mastitis				1	1		2
Breast abscess		1					1
Granulomatous mastitis			3				3
Gynaecomastia	1						1
Hamartoma		2	1				3
Intraductal papilloma		1		1			2
Juvenile papillomatosis			1				1
Lactating adenoma		1					1
Lipoma	1	1		1	1		4
Lymphocytic mastitis		1	1				2
Non-specific mastitis			2				2
Nodular fasciitis						1	1
Phyllodes		2	1	3	1	2	9
Simple cyst			1				1
Tubular adenoma	2		2				4
TOTAL	**37**	**41**	**56**	**11**	**5**	**3**	**153**

Table 13: Age wise distribution of BBL on CHP

CLINICAL DIAGNOSIS	NO OF CASES	HISTOPATHOLOGICAL DIAGNOSIS	NO OF CASES
Breast abscess	5	Breast abscess	1
Chronic mastitis	10	Granulomatous mastitis	3
		Tubercular mastitis	2
		Lymphocytic mastitis	2
		Non -specific mastitis	2
Fibroadenoma	94	Fibroadenoma	101
Fibrocystic change	14	Fibrocystic change	9
Phyllodes	4	Phyllodes	9
Lump in breast	10	Sclerosing Adenosis	2

Journal of Chemical Health Risks
www.jchr.org
JCHR (2023) 13(3s), 52-61 | ISSN:2251-6727

		Tubular adenoma	4
		Adipomastia	1
		Juvenile Papillomatosis	1
		Fibroadenomatoid hyperplasia	1
Carcinoma breast	9	Nodular fasciitis	1
		Hamartoma	3
		Duct ectasia	1
		Intraductal papilloma	2
Cyst	2	Epidermal cyst	1
		Simple cyst	1
Lipoma	3	Lipoma	4
Galactocele	1	Lactating adenoma	1
Gynecomastia	1	Gynecomastia	1

Table 14: CHP correlation of BBL

In our study, we found that out of 153 cases, ninety-four cases of FA, one case of BA, nine cases of fibrocystic change, four cases of phyllodes, three cases of lipoma, and one case of gynecomastia diagnosed clinically were well correlated with HP. Additionally, out of 9 cases of clinically diagnosed CM, two cases were diagnosed as LM, two as NSM, three as GM, and two as TM -HP. Furthermore, cases that were clinically diagnosed as L in the breast were HP diagnosed as SA,TA,A,L,P,FA,FAH, and JP. Additionally, the diagnosis of CB was offered clinically in nine cases. HP: these cases were diagnosed as NF,H,DE, IDP, and P. One case clinically diagnosed as galactocele was HP diagnosed as LA. Out of two clinically diagnosed cysts, one was diagnosed as a simple cyst and the other as an EC. In five cases clinically diagnosed as FBC, it was HP diagnosed as FA.

AGE GROUP(IN YEARS)	NO OF CASES	PERCENTAGE
11-20	32	31.69
21-30	30	29.70
31-40	38	37.62
41-50	1	0.99
TOTAL	101	100

Table 15: Age range of FA

In our study, we found that the most common age group for FA was 31–40 years.

SIZE OF LUMPS	<2cm	2-5cms	5-10cms	>10cms
NO OF CASES	11	76	13	1

Table 16: Size of L of FA

In our study, we found that the size of the L of FA in the present study ranged from 1–13 cm.

Journal of Chemical Health Risks
www.jchr.org
JCHR (2023) 13(3s), 52-61 | ISSN:2251-6727

OVERALL ARCHITECTURE	NO OF CASES	PERCENTAGE
Pericanalicular (PC)	55	54.45
Intracanicular (IC)	31	30.70
PC/IC	15	14.85
Total	101	100

Table 17: ARCHITECTURE OF FA

In our study, we found that the PCP was observed in 55 cases, the ICP in 31 cases, and both patterns in 15 cases.

DISCUSSION

In our study, we found that, out of 153 cases, we observed that 151 were females (98.70%) and 2 (1.30%) were males. Koorapati et al. in 2017 reported 250 cases of benign breast lesions, out of which 247 (98.8%) were females and 3 (1.2%) were males, which is comparable to the present study.[6] Furthermore, the age of the patient varied between 11 and 65 years, with a mean age of 28.9 years. The majority of lesions, i.e., 36.6%, were noted in the age group of 31–40 years, followed by 26.82% in the age group of 21–30 years. Another study concluded , 540 BBL and found the maximum number of cases (237) in the 3rd decade of life (43.88%).[6] Unilateral lesions (90.2%) were more common than bilateral lesions. Bilateral involvement was observed only in 9.80% of patients. The right breast was more commonly affected (51.64%) than the left (38.56%). Aslam et al., in their study in 2013, found that 85.2% of cases presented with unilateral lesions, and 14.8% of cases were bilateral.[8] Additionally, we observed that the majority of BL (39.24%) were located in the upper outer quadrant, followed by the upper inner quadrant (16.99%). Multiple quadrant involvement was seen in 13.07% of cases. Kulkarni S et al.,also observed that out of 90 cases, the common location of involvement (66.33%) was the upper outer quadrant, followed by the upper inner quadrant (14.44%).[9]

PRESENTING COMPLAINTS	STUDIES			
	Rasheed etal 2014[10]	Najeeb et al 2010[12]	Ihekwoab etal 2009[11]	Present study
Lump	85%	84.5%	82.8%	81.72%
Lump with pain	10.14%	35.9%	10.6%	13.72%
Nipple discharge	4%	8.8%	2%	1.30%
Fever	-	0.8%	-	-

Table 18: BD c/o comparison

In our study we found , frequency of similar pattern c/o for BBL in many studies(Table 18).

BENIGN BREAST LESIONS	Mallikarjunaet al 2015 [13]	Bhargava etal 2015 [14]	Kulkarni etal 2016 [9]	Present study
Fibroadenoma	36	150	64	101
Fibrocystic changes	-	24	07	09

Journal of Chemical Health Risks
www.jchr.org
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Intraductal papilloma	-	36	01	02
Simple cyst	-	-	-	01
Breast abscess	-	33	02	01
Galactocele	02	03	01	-
Phyllodes	06	03	05	09
Duct ectasia	02	21	-	01
Tuberculous mastitis	-	-	01	02
Lipoma	02	-	01	04
Tubular adenoma	02	-	-	04
Lactating adenoma	-	-	01	01
Adenosis	-	-	02	02
Fat necrosis	-	-	01	-
Others	-	30	03	16

Table 19: CHP pattern of various BBL comparative studies 74,88,89

During our researh we found similar frequency of CHP pattern in various BBL related studies (Table 19).

CONCLUSION

BBD is a group of inflammatory lesions, tumors, and disorders linked to regular occurrences in a woman's reproductive life, such as pregnancy and even month-to-month variations like menstruation. FA was the most common benign breast lesion among BBL, which was more common than MN. Non-neoplastic lesions were more common in the fourth decade of life, whereas studies revealed that benign tumors were more common in the second and third decades. The most common spelling variation included an L in the B. Additionally, you may get BP and ND. Cancerous-looking BBL are often misdiagnosed as benign on CHP inspection because of their similarity to ML. Therefore, CHP is crucial. We also discovered a strong link between FA and CHP. As a result, we have determined that CHP is the diagnostic standard of excellence.

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