Clinicopathological Analysis of Breast Lump in Women above Forty Years: Tertiary Hospital, Northern Kerala, India

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Abstract: *This is a cross sectional study that included 384 patients of age above 40 years with history of breast lump. Data for the study was collected from the patients reporting to Department of General Surgery, Government Medical College, Kannur for a period from July 2016 to September 2017. A structured case proforma was used to enter the clinical history, physical examination and the pathological fine needle aspiration findings. 384 women above forty years with breast lump were studied, majority of them were belonging to the peri-menopausal age group followed by post-menopausal age group. 234 benign breast diseases and 150 malignancies were diagnosed. The probability of a marginally higher number of benign breast diseases could possibly be attributed to the cumulative summarization of the myriad presentation of benign conditions as in comparison to the sole presentation of malignancy in 150 cases. Of the 98.7% women presented with lump in the breast, 62.76% had associated pain in the breast. Hence, breast lump was the most common presentation in our study followed by mastalgia. 95.3% of carcinoma breast cases were seen in upper outer quadrant. Rest of the pathological conditions had an equivocal distribution of lumps across various quadrants. Restricted mobility was pathognomic of malignancy. Axillary lymph node enlargement was majorly seen in inflammatory conditions and carcinoma breast. The above study strongly emphasizes on the clinical acuity and skillful examination of breast diseases which will aid in the right route of cost effective investigative procedures and a definitive diagnosis.*

Keywords: benign, malignant, breast lump

1. Background and Objectives

The female breast has always been a symbol of beauty, fertility and femininity. In disease, however, it has challenged physicians since antiquity [1]. Breast is a glandular organ and possesses a dynamic structure that undergoes changes throughout the women's reproductive life. These changes involve disturbances in the breast physiology extending from an extreme of normality to well defined disease process. The most common presentation of breast disease is a palpable lump. Every woman with a breast lump, breast pain or discharge from nipple fears that she has breast-cancer. Public education in cancer seems to focus on lump in the breast, thereby an increase in the number of patients with breast condition being diagnosed [2].

A *breast neoplasm* is an abnormal mass of tissue in the breast as a result of neoplasia. Approximately 7% of breast lumps are fibroadenomas and 10% are breast cancer, the rest being other benign conditions or no disease [3]. Breast self-examination (BSE) is an easy but unreliable method for finding possible breast cancer. Factors that appear to be implicated in decreasing the risk of early diagnosis or recurrence of breast cancer are regular breast examinations by health care professionals, regular mammograms, self-examination of breasts, healthy diet, and exercise to decrease excess body fat [4].

Early presentation and prompt diagnosis is essential to relieve anxiety of non-neoplastic conditions, and in case of carcinoma, it can save the patient from metastases. However, malignancy imparts importance of accurate diagnosis and treatment and for knowing the magnitude of the problem, there is a need to conduct clinico-pathological study on breast lump. The purpose of this study is to understand the different modes of clinical presentation and to study with respect to various pathological presentation and to correlate the clinical diagnosis with the histopathological diagnosis.

2. Materials and Methods

Our study was a cross sectional study that included 384 patients of age above 40 years with history of breast lump. Data for the study was collected from the patients reporting to Department of General Surgery at Academy of Medical Education And Sciences, Pariyaram, Kerala, India for a period of 15 months from July 2016 to September 2017. A structured, pre-prepared case proforma (CP) was used to enter the clinical history and physical examination findings. Thereafter, tissue diagnosis was obtained in all 384 cases and the results were correlated with clinical findings by statistical analysis.

3. Results and Discussion

In the analysis of 384 females above forty years, majority of the women were belonging to 40-50 years (150) followed by 51- 60 years (100) and then descended by those above 60 years. Out of the total 384 cases, a total of 70 cases of fibroadenoma,150 carcinoma breast, 65 fibrocystic diseases, 20 granulomatous mastitis, 25 cases of breast abscess and benign proliferative disease each and 15 benign proliferative disease with atypia, 10 galactocele and 4 cases of duct ectasia were seen.
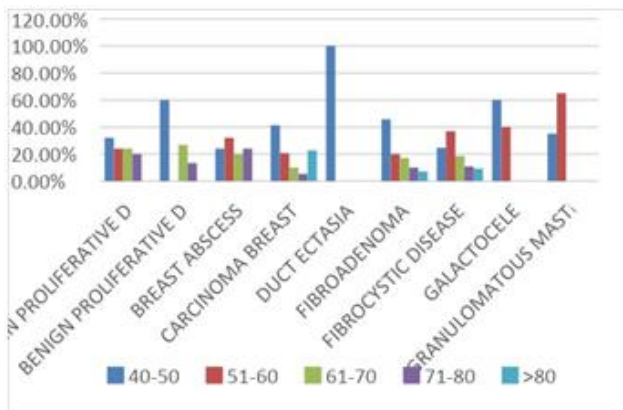
Figure 1: Bar Chart Depicting Distribution Of Various Breast Lesions With Age (In Percentage)
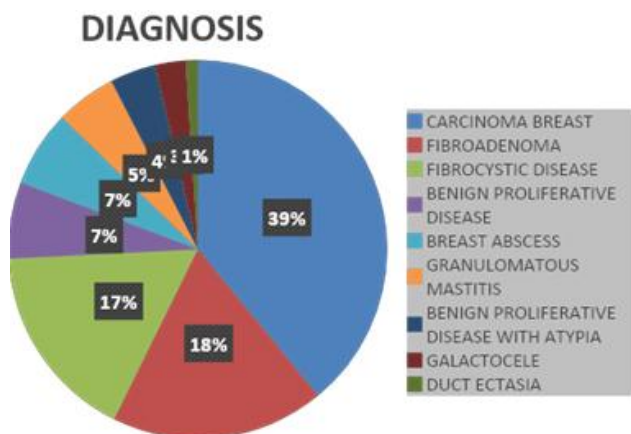

Figure 2: Frequency of Various Pathologically Diagnosed Breast Lesions

The higher percentage of benign breast disease can be attributed to the cumulative summarization of the myriad presentation of benign conditions as compared to the malignant counterpart.

In a retrospective cross sectional study conducted by Pervin Et Al in Mymensingh Medical College, Bangladesh from 2007- 2008. 100 female patients coming to the OPD were subjected for clinic-pathological examination of breast lump. the results were 58% lumps were benign and 42% were malignant [5].

Study	% of Benign Cases	% of Malignant Cases
Present Study	61	39
Pervin et al	58	42

98.7% of women presented with lump in the breast (p value < 0.001) and all the above observed cases had a palpable lump except for a single case of duct ectasia, benign proliferative disease with atypia and fibrocystic disease. 62.76% had associated pain in the breast which was commonly seen with carcinoma breast (83.33%), fibrocystic

disease (100%) and inflammatory conditions like granulomatous mastitis and breast abscess of 100% each. 37.24% had no pain which included conditions like fibroadenoma, galactocele and duct ectasia. Hence breast lump was the most common presentation in our study followed by mastalgia.
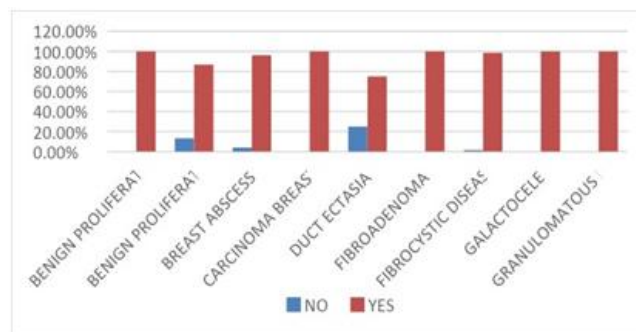

Figure 3: Bar Chart Depicting Distribution of Various Breast Lesions With History of Breast Lump (In Percentage)
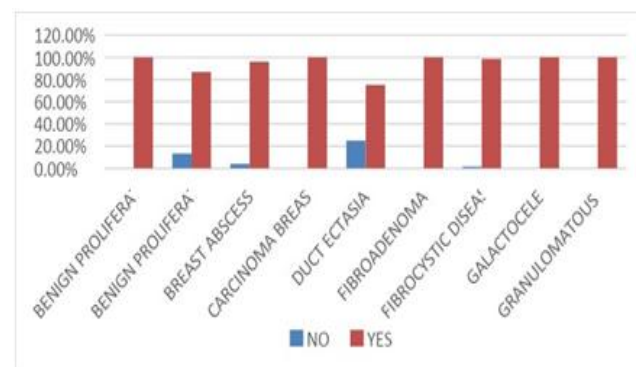

Figure 4: Bar Chart Depicting Distribution of Various Breast Lesions and History of Pain (In Percentage)

Chi-Square Tests			
	Value	df	P value (significant if <0.05)
Pearson Chi-Square	233.050	8	<0.001
N of Valid Cases	384		

Meagre number of patients had nipple discharge (12.8%) which was mainly constituted by 18% of carcinoma breast cases, 24.6% of fibrocystic diseases, 5% of granulomatous mastitis, 40% of galactocele and 25% of duct ectasia. The discharge was mostly blood (13.3%) that is 20 out of 150 cases in carcinoma breast. Greenish discharge (13.8%) that is 9 out of 65 cases of fibrocystic diseases and four cases of galactocele out of a total 10 (40%) had milky discharge. Nipple retraction was seen exclusively in carcinoma breast (57%). Hence it is a pathognomic clinical sign of malignancy unless otherwise ruled out.
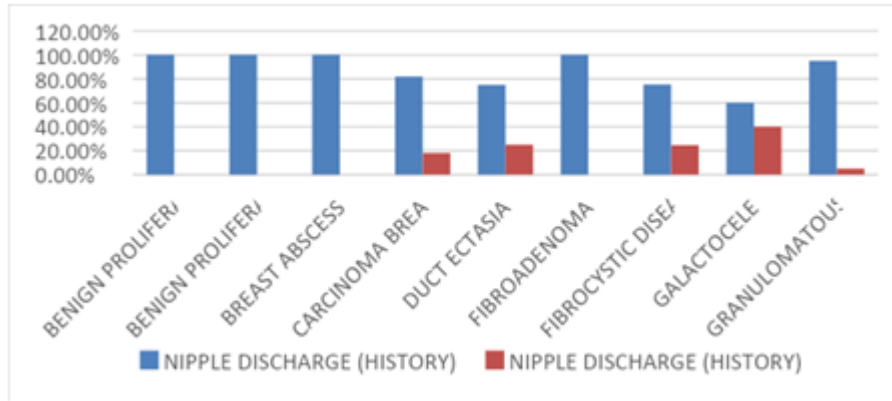
Figure 5: Bar Chart Depicting Distribution of Various Breast Lesions and History of Nipple Discharge (In Percentage)

Chi-Square Tests			
	Value	df	P value (significant if <0.05)
Pearson Chi-Square	39.937	8	<0.001
N of Valid Cases	384		
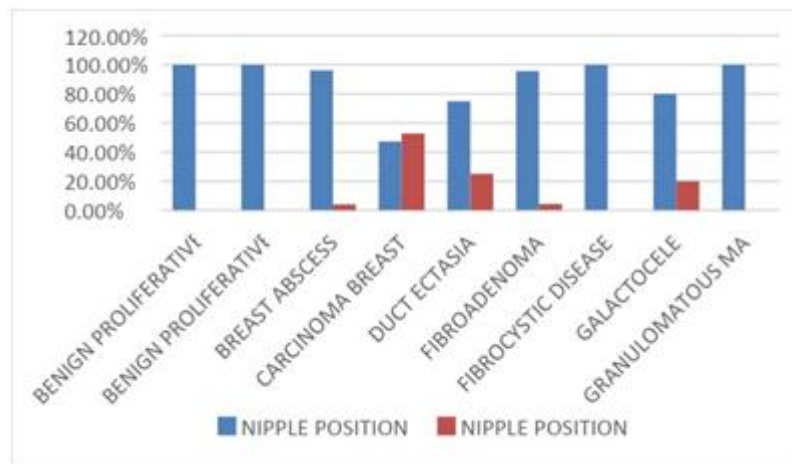
Figure 6: Bar Chart Depiction Distribution of Breast Lesions And Nipple Position

Chi-Square Tests			
	Value	df	P value (significant if <0.05)
Pearson Chi-Square	133.284	8	<0.001
N of Valid Cases	384		

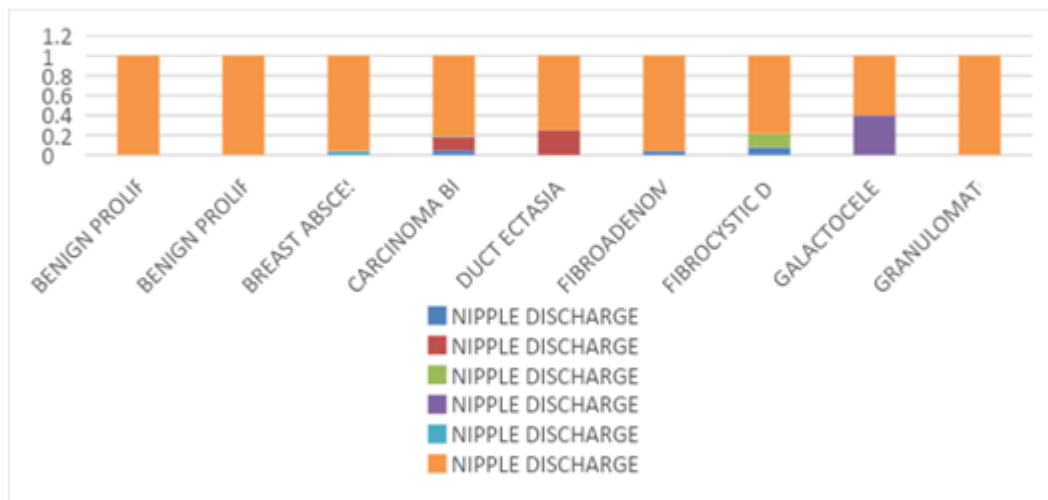**Figure 7: Bar** Chart Depicting Distribution of Breast Lesions and Nipple Discharge (In Percentage)

Chi-Square Tests			
	Value	df	P value (significant if <0.05)
Pearson Chi-Square	243.584	40	<0.001
N of Valid Cases	384		

75.8% of patients gave history of exclusive breast feeding which included 92% of breast abscess and 100% of all galactocele. Paradoxically majority of the carcinoma breast and proliferative diseases of the breast also gave a higher percentage of exclusive breast feeding history. Hence it can be concluded that exclusive breast feeding is not a sole protector from carcinoma breast but it is the cumulative effect of various protective factors like first child birth before the age of 30 years, number of menstrual cycles (that is reduced exogenous and endogenous oestrogen exposure) which decide the path oncogenesis of malignancy. Many life style related modifiable factors over shadow the protective effect of exclusive breast feeding – obesity, smoking, alcoholism, unhealthy eating habits etc. Non modifiable factors - first degree relatives with breast diseases, genetic predilection, race has a propensity for development of carcinoma breast [6].

In a Review of the Epidemiologic Literature: History of Breast-Feeding in Relation to Breast Cancer Risk by Loren Lipworth Et Al, it is stated that the protective effect of long-term breast-feeding is stronger among and confined to exclusively premenopausal women. The biology underlying a protective effect of breast-feeding and its restriction to premenopausal women remain unknown, although several mechanisms have been postulated (hormonal changes, such as reduced oestrogen; removal of oestrogens through breast fluid; excretion of carcinogens from breast tissue through breast-feeding; physical changes in the mammary epithelial cells, reflecting maximal differentiation; and delay of the re-establishment of ovulation).
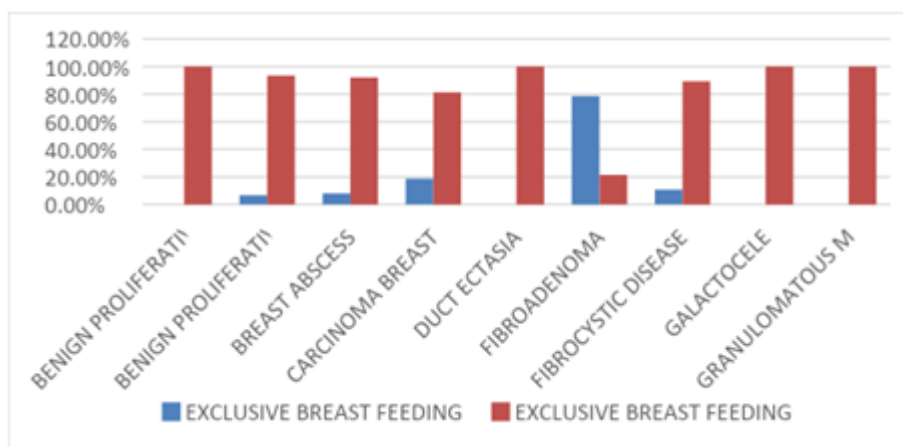

Figure 8: Bar Chart Depicting Various Breast Lesions and Exclusive Breast Feeding (In Percentage)

Chi-Square Tests			
	Value	df	P value (significant if <0.05)
Pearson Chi-Square	146.557	8	<0.001
N of Valid Cases	384		

24.2 % of women used contraceptive pills of which 26.7% of women had carcinoma breast, 38.5% had fibrocystic disease, 68% had benign proliferative diseases and 73.3 % had benign proliferative diseases with atypia. We can conclude that exogenous oestrogen exposure produces proliferative lesions and malignancies of the breast. 38.3% of women had a family history of breast diseases of which 80% of the cases had carcinoma breast, 28% with benign proliferative disease 13.33% had benign proliferative disease with atypia and 15% had fibroadenoma.
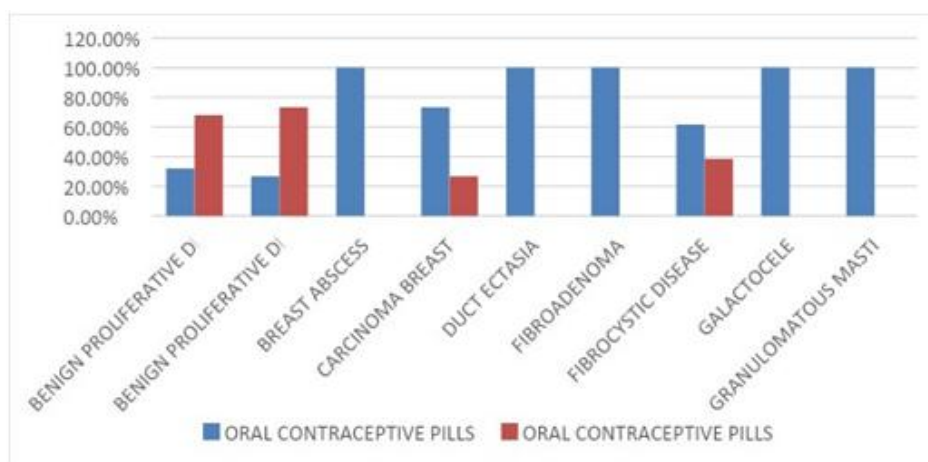

Figure 9: Bar Chart Depicting Various Breast Lesions and Use of Oral Contraceptive Pills (In Percentage)

Chi-Square Tests			
	Value	df	P value (significant if <0.05)
Pearson Chi-Square	94.726	8	<0.001
N of Valid Cases	384		

Small lumps of <2cm was commonly seen in fibroadenoma (51.4%), fibrocystic disease (92.3%), benign proliferative disease (76%), galactocele (60%) and duct ectasia (100%).
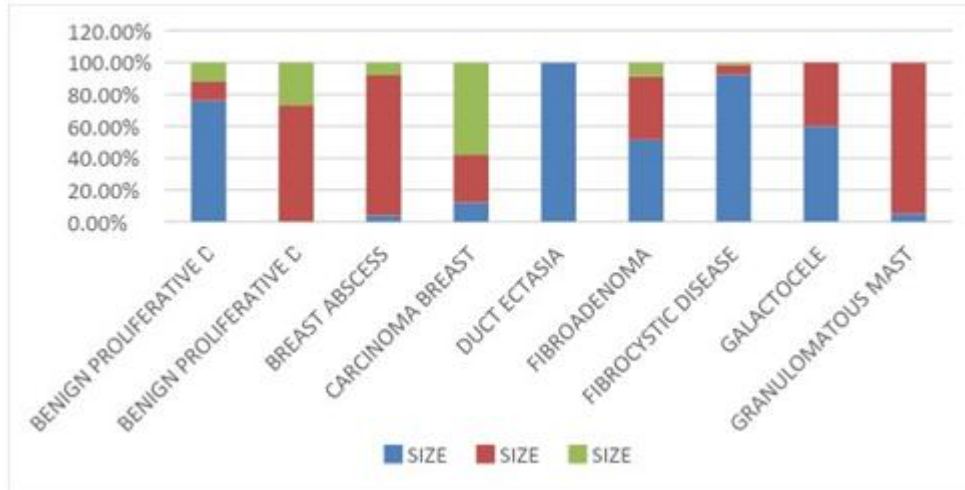
Lumps of size 2.1 – 4cm mostly constituted fibroadenoma (40%), granulomatous mastitis (95%), breast abscess (88%) and benign proliferative disease with atypia (73.3%). Big lumps of >4.1 cm was mostly constituted by carcinoma breast (58%).

Figure 10: Bar Chart Depicting Distribution of Various Breast Lesions and Size of Breast Lump (In Percentage)

Chi-Square Tests			
	Value	df	P value (significant if <0.05)
Pearson Chi-Square	276.419	16	<0.001
N of Valid Cases	384		

54.2% of lumps were seen in upper outer quadrant followed by upper inner (21.1%), lower inner (13.3%) and lower

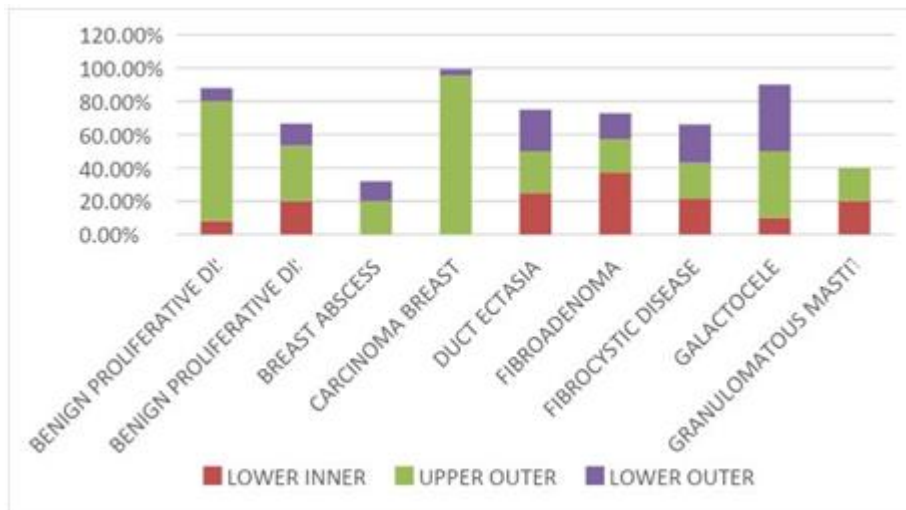outer (12.51%). 95.3% of carcinoma breast cases were seen in upper outer quadrant. Rest of the various pathological conditions had more or less an equivocal distribution of lumps across the various quadrants.

Figure 11: Bar Chart Depicting Distribution of Various Breast Lesions in Quadrants of Breast

Chi-Square Tests			
	Value	df	P value (significant if <0.05)
Pearson Chi-Square	252.340	24	<0.001
N of Valid Cases	384		

41.7% of the lumps were hard in consistency followed by soft lumps (31.8%) and firm lumps (26.6%).92.7% of carcinoma breast had hard lumps. Soft lumps were
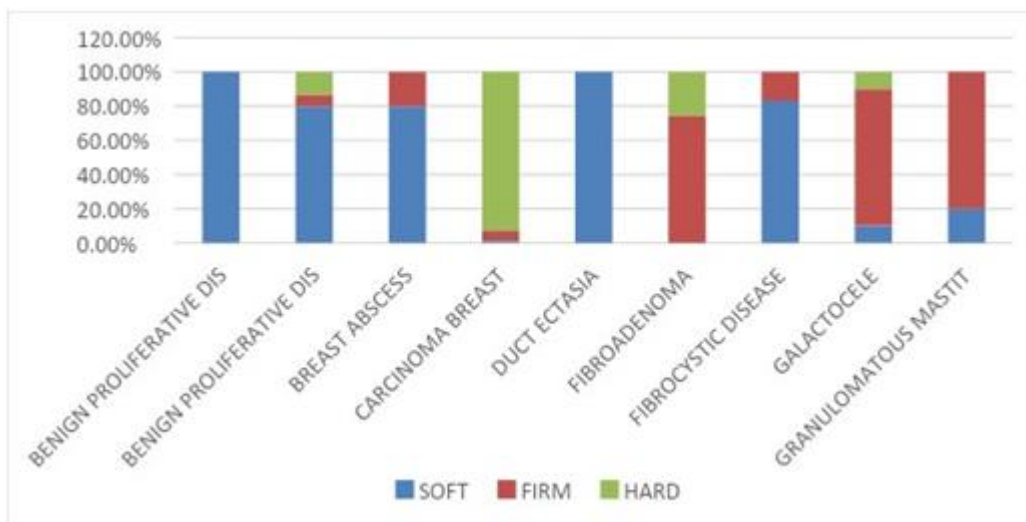
commonly fibrocystic disease (83.1%), breast abscess (80%), benign proliferative disease (100%), benign proliferative disease with atypia (80%) and duct ectasia (100%). Firm lumps were commonly fibroadenoma (74.3%), granulomatous mastitis (80%) galactocele (80%).

Figure 12: Bar Chart Depicting Distribution of Various Breast Lesions and Consistency (In Percentage)

Chi-Square Tests			
	Value	df	P value (significant if <0.05)
Pearson Chi-Square	483.865	16	<0.001
N of Valid Cases	384		

51.8% of lumps were freely mobile followed by 28.6% lumps which were freely mobile within the breast tissue and descended by 14.8% lumps fixed to pectoralis major and 4.68% were fixed to skin and chest wall. 12% of carcinoma breast were showing fixity to skin and chest wall indicating that 18 out of 150 diag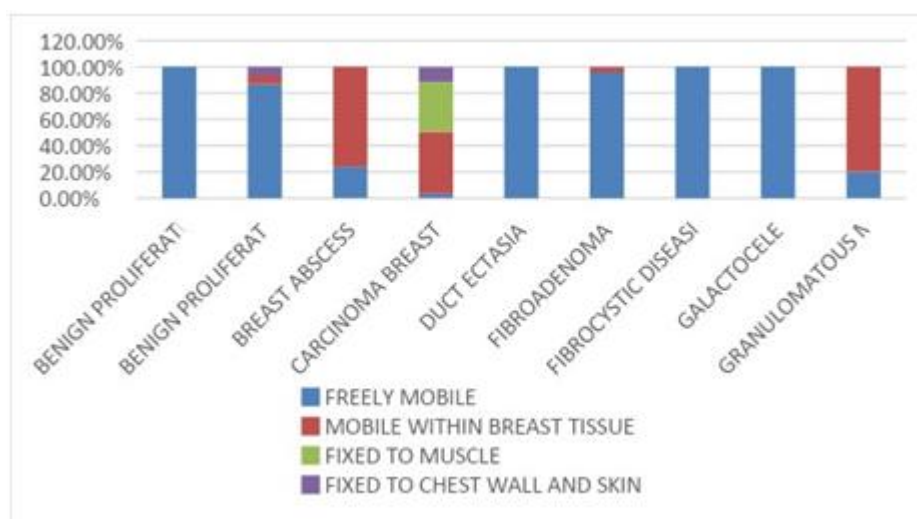nosed carcinoma breast cases were locally advanced. Majority of the breast lesions were freely mobile. Restricted mobility in the form of movement within the breast tissue and fixity to pectoralis major were seen in 88% of carcinoma breast cases (122 out of 150 cases). 41.7% of patients had presence of axillary lymph nodes majorly seen in breast abscess (92%), carcinoma breast (83.3%) followed by granulomatous mastitis (25%) and galactocele (20%).

Figure 13: Bar chart depicting distribution of breast lesions and mobility (in percentage)

Chi-Square Tests			
	Value	df	P value (significant if <0.05)
Pearson Chi-Square	368.350	24	<0.001
N of Valid Cases	384		
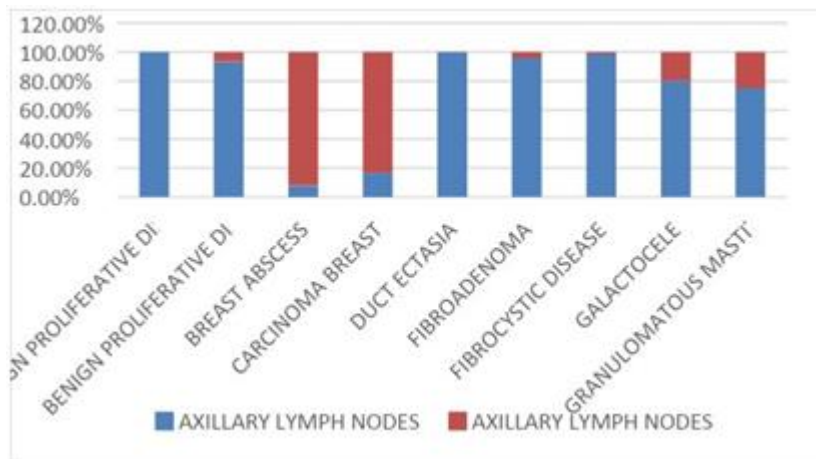
Figure 14: Bar Chart Depicting Distribution of Breast Lesions and Axillary Lymph Nodes

Chi-Square Tests			
	Value	df	P value (significant if <0.05)
Pearson Chi-Square	248.999	8	<0.001
N of Valid Cases	384		

4. To summarize the above study

- Most benign breast lumps are located in equivocally in all quadrants, soft to firm in consistency and mobile, whereas malignant lesions are commonly seen in upper outer quadrant with hard consistency and restricted mobility or fixity to skin or chest wall.
- The art of clinical examination in diagnosing various benign lesions of the breast is fairly accurate and Hence the role of triple assessment – clinical, USG and tissue diagnosis is very appropriate, in managing a breast lump.

References

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