



Cytomorphological Spectrum of Breast Lesion in Kumaon Region

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Abstract

Background: Breast lesions shows a wide spectrum of lesions including inflammatory, benign, and malignant conditions. This spectrum varies according to sex, age, regional geographical factors. There are diverse regional and environmental conditions which affects the cytomorphological spectrum of breast lesions in Kumaon region.

Methods: A retrospective study was carried out in Department of Pathology, Government Medical College from March 2015 to February 2019. A total of 414 cases were included in the study and lesions were divided into inflammatory, benign, and malignant conditions.

Result: A total of 414 cases were included in the study and divided into three broad categories including inflammatory, benign, and malignant lesions. 65 cases (15.7%) were inflammatory, 295 cases were benign (71.26%), and 54 cases (13.04%) were malignant. Among benign lesions, most common age group was 21 to 30 years and in malignant lesions, most common age group were 31 to 40 years and 41 to 50 years.

Conclusion: Wide spectrum of lesions can be seen in breast including inflammatory, benign, and malignant conditions. They may show overlap of signs and symptoms in different age groups. Different parameters like age, sex, laterality and quadrant helps in diagnosing its cytomorphological spectrum.

Keywords: Breast, inflammatory, benign, malignant.

Introduction

Breast lesion constitutes a heterogeneous spectrum including inflammatory, benign, and malignant lesions. They show remarkable heterogeneity. The spectrum varies markedly according to age, sex, geographical and regional factors. The developed countries have high incidence of breast carcinoma while inflammatory condition like tuberculosis and

mastitis are markedly less as compared to developing countries. In India, while inflammatory condition such as mastitis and tuberculosis are most common, the incidence of breast carcinoma is increasing. This country has diverse regional and environmental condition; therefore, we are attempting to study cytomorphological spectrum of breast lesion in Kumaon region.

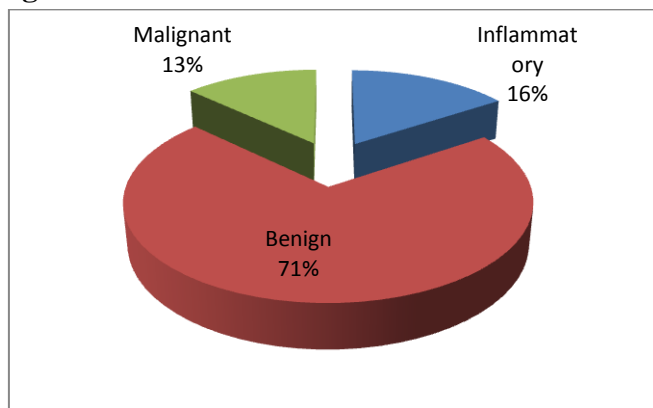
Material and Methods

This retrospective study was carried out in Department of Pathology, Government Medical College from March 2015 to February 2019. A total of 414 cases were included in study. Age, sex, clinical features, duration, and size were noted. The cytological diagnoses of all the lesions were noted. The lesions were divided into inflammatory, benign, and malignant condition. The above mentioned features were studied among three groups. The results were tabulated, analyzed, and interpreted by applying appropriate stats including mean, median, and percentage, wherever necessary.

Result

The study was conducted in Department of Pathology, Government Medical College, Haldwani, Nainital, Uttarakhand. A total of 414 cases were included in the study. The cases were divided in to three broad categories including inflammatory, benign, and malignant. 65 cases (15.7%) were inflammatory, 295 cases were benign (71.26%), and 54 cases (13.04%) were malignant (Figure 1).

Figure 1: Distribution of breast lesions.



The most common age group for inflammatory breast lesion was 31 to 40 years with 20/65 cases (30.77%), followed by 21 to 30 years with 18/65 cases (27.69%). Among benign lesions, most common age group was 21 to 30 years with 96/295 cases (32.54%), followed by 11 to 20 years with 72/295 cases (24.41%) and 31 to 40 years with 66/295 cases (22.37%). In malignant lesions, most common age group were 31 to 40 years and 41 to 50 years with 15/54 cases (27.7%) in each age group

followed by 51 to 60 years with 10/54 cases (18.52%) (Table 1).

Table 1: Age wise distribution of breast lesions

Age	Inflammatory		Benign		Malignant	
	N	%	n	%	n	%
0-10	0	0	1	0.34	0	0.00
11-20	6	9.23	72	24.41	0	0.00
21-30	18	27.69	96	32.54	4	7.41
31-40	20	30.77	66	22.37	15	27.78
41-50	14	21.54	35	11.86	15	27.78
51-60	5	7.69	9	3.05	10	18.52
61-70	1	1.54	11	3.73	9	16.67
71-80	1	1.54	5	1.69	1	1.85
Total	65		295		54	

A total of 377 females and 37 males were included in the study. In both males and females, benign breast disease was most common constituting 262/377 cases (69.50%) and 33/37 cases (89.19%), respectively followed by inflammatory lesion 62/377 cases (16.45%) and 3/37 cases (8.11%), respectively. Malignant lesion constitutes 53/377 cases (14.06%) in females and 1/37 cases (2.70%) in males (Figure 2 and 3).

Figure 2: Gender wise distribution of breast lesions (Female)

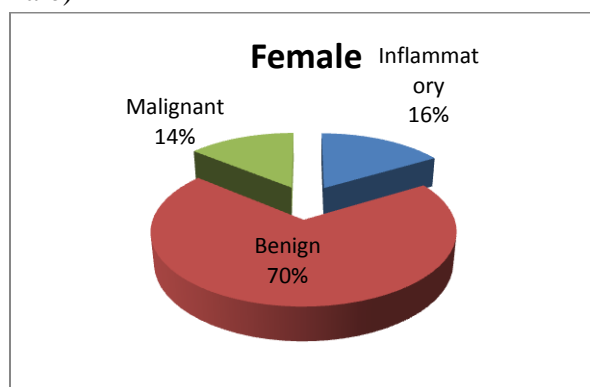
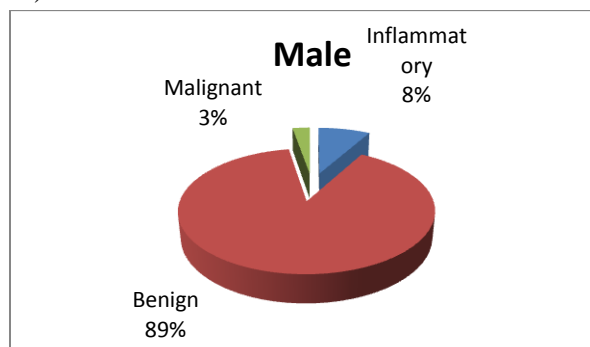


Figure 3: Gender wise distribution of breast lesions (Male)



Right breast was more commonly involved in inflammatory lesion 36/65 cases (55.38%), benign lesion 141/295 cases (47.80%), and malignant lesion 29/54 cases (53.70%) followed by left breast 27/65 cases (41.54%) in inflammatory, 130/295 cases (44.07%) in benign, and 25/54 cases (46.30%) in malignant lesion. Bilateral involvement of breast was seen in 2/65 cases (3.08%) in inflammatory lesion and 24/295 cases (8.14%) in benign lesion.

In inflammatory condition, upper outer quadrant 29/65 cases (44.62%) were most commonly involved followed by retroareolar 18/65 cases (27.69%), and upper inner quadrant 10/65 cases (15.38%). Among benign lesion also, upper outer quadrant 137/295 cases (46.44%) was most commonly involved followed by upper inner 68/295 cases (23.05%) and retroareolar 49/295 cases (16.61%). In malignant lesions, upper outer quadrant 29/54 cases (53.70%) were most commonly involved followed by upper inner quadrant 9/54 cases (16.67%) and retroareolar 6/54 cases (11.11%), whereas lower outer and lower inner quadrants includes 3/54 cases (5.56%) each (Table 2).

Table 2: Quadrant-wise distribution of breast lesions

Quadrant	Inflammatory		Benign		Malignant	
	n	%	N	%	N	%
Upper outer	29	44.62	137	46.44	29	53.70
Upper inner	10	15.38	68	23.05	9	16.67
Lower outer	5	7.69	20	6.78	3	5.56
Lower inner	3	4.62	16	5.42	3	5.56
>1 quadrant	0	0.00	4	1.36	0	0.00
Retroareolar	18	27.69	49	16.61	6	11.11
Whole breast	0	0	1	0.34	4	7.41
	65		295		54	100

Most of the inflammatory lesions 34/65 cases (52.31%) were painful, whereas most of the benign lesions 216/295 cases (73.22%) and malignant lesions 44/54 cases (81.48%) were not associated with pain. Mean size of inflammatory, benign, and malignant lesion was 2.55 cm, 2.09 cm, and 3.95 cm, respectively. Mean duration for inflammatory lesion

was 3.1 months and for benign lesion was 11.42 months, whereas mean duration for malignant lesion was 5.7 months.

In inflammatory condition, most common cause was mastitis 22/65 cases (33.85%) followed by abscess 18/65 cases (27.69%), and granulomatous mastitis 12/65 cases (18.46%). Tubercular mastitis constitutes 2/65 cases (3.08%) (Table 3).

Table 3: Distribution of inflammatory breast lesions

Inflammatory	n	%
Mastitis	22	33.85
Abscess	18	27.69
Granulomatous mastitis	12	18.46
Inflammatory pathology	11	16.92
Tubercular mastitis	2	3.08
	65	

Among benign lesions, most common lesion was fibroadenoma constituting 135/295 cases (45.76%). 48/295 cases (16.27%) were reported as benign breast disease. Benign proliferative breast disease included 50 cases (16.95%) and gynecomastia included 33 cases (11.19%) (Table 4).

Table 4: Distribution of benign breast lesions

Benign	n	%
Fibroadenoma	135	45.76
Benign breast disease	48	16.27
Benign proliferative breast disease	50	16.95
Gynecomastia	33	11.19
Fibrocystic disease of breast	17	5.76
Galactocele	5	1.69
Lactational changes	2	0.68
Benign cystic lesion	2	0.68
Duct papilloma	2	0.68
Phyllodes	1	0.34
	295	

In malignant lesions, most common was ductal carcinoma 53/54 cases (98.15%). 1/54 case (1.85%) was of malignant phyllodes.

Discussion

In this study, a total of 414 cases were studied, out of which 65 cases (15.70%) were inflammatory, 295 cases (71.26%) were benign, and 54 cases (13.04%)

were malignant which is comparable to studies conducted by Rasheed et al^[1] (80.7% benign,19.30% malignant), Hatim et al^[2] (80% benign), Kamra T et al^[3] (83.86% benign,11.19% malignant), Khanna R et al^[4] (61.40% benign,39.60% malignant), Tawfeek T et al^[5] (60.20% benign,21.20% malignant) and Parajuli S et al^[6] (87% benign, 13% malignant).

In this study, most common age group for benign lesion was 21 to 30 years involving 96 cases (32.54%) which is comparable to studies conducted by Patil V et al^[7], Amruthavalli et al^[8], Singh UR et al^[9], Gogoi G et al^[10] in which most common age group of benign breast lesion was 21 to 30 years. Rathi M et al^[11] reported 30 to 39 years and Reddy M et al^[12] reported ≤40 years as most common age group for benign lesions.

For malignant lesions, most common age group in this study was 31 to 40 years and 41 to 50 years comprising of 27.78% cases each which is in contrast to study conducted by Rathi M et al^[11] in which most common age group was 50–59 years (47.60%). Reddy M et al^[12] reported >40 years (85.10%), Singh UR et al^[9] reported 40–50 years and Gogoi G et al^[10] reported 40–60 years as most common age group for malignant breast lesion.

In our study, females (91.06%) were more commonly involved than males (8.94%) which is comparable to studies conducted by Malik R et al^[13] (94.52% female, 5.48% male), Bauer S et al^[14] (56.34% female, 43.66% male), Jayanandhini M et al^[15] (92.70% female, 7.30% male), Kulkarni S et al^[16] (97.16% female, 2.84% male).

In our study, right breast(49.76%) involvement was more common than left(43.96%), bilateral involvement is seen in 6.28% which is comparable to studies conducted by Patil V et al^[7] (50.90% right, 43.30% left, 5.60% bilateral), Geethamala et al^[17] (51.40% right, 47.40% left), Rathi M et al^[15] (49.18% right, 44.26% left, 7% bilateral), Jayanandhini M et al^[15] (47.90% right, 45.81% left, 6% bilateral) and Hussain et al^[18] (54.00% right, 46.00% left).

In our study, upper outer quadrant was most commonly involved (47.10%) which is comparable to studies conducted by Rathi M et al^[11], Hussain et

al^[18], Khemkha et al^[19] and Jayanandhini M et al^[15] in which the most common involved quadrant was also upper outer quadrant.

In our study, fibroadenoma was most common benign lesion(45.76%) which is comparable to studies conducted by Patil V et al^[7] (65.70%), Kulkarni et al^[16] (62.32%), Reddy M et al^[12] (50.50%), Kamra A et al^[4] (47.07%), Gogoi G et al^[10] (48.48%), and Amruthavali et al^[8] (43.24%) in which fibroadenoma is the most common benign lesion of breast. Among inflammatory lesions, mastitis is most common in our study which is comparable to studies done by Kamra A et al^[4] (51.02%). In malignant lesions, ductal carcinoma is most common in our study which is comparable to studies conducted by Reddy M et al^[12] and Gogoi G et al^[10].

Conclusions

Breast lesions encompasses wide spectrum of lesions including inflammatory, benign, and malignant lesions with marked overlap of sign and symptoms among different groups. Knowledge of different parameters like age, sex, laterality, and quadrant will help in diagnosis of these lesions.

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