

Spectrum of Histopathological Study of Breast Lesions in Correlation with Radiology at a Tertiary Care Centre

Dr. Thiriveedi R.S.N. Lakshmi ¹, Dr. Sekharreddy ²,
Dr. Anusha Mulka ³

¹ TRRIMS, ^{2,3} Mahaveer Institute of Medical Sciences

Abstract

Introduction

Breast malignancy is one of the commonest cancers of incidence and mortality in India. Radiological investigations like mammography and ultrasound are primary non-invasive mode of investigations in which histopathology plays a key role in final conformation and future treatment plan.

Objective

Aim of this study was to study the histopathology of breast lesions in relation to radiological findings.

Materials and Methods

The study comprised of 238 cases of breast lesions radiologically categorized and confirmed with histopathology at Mahaveer Institute of Medical sciences, Vikarabad during the period from 2016 June to 2022 may. Among those 161 cases were benign and 77 malignant. Fibroadenoma was the commonest benign neoplasm and Invasive duct cell carcinoma the most common malignant.

Conclusion

Histopathology is the critical tool for accurate diagnosis especially of neoplastic lesions in breast where radiology plays a key role of primary categorization.

Keywords: Breast Lesions, Histopathology, Radiology

Introduction

Breast malignancy is one of the leading causes of cancer related deaths in women in India. Vast group of breast lesions are divided primarily into non neoplastic and neoplastic among which most of the cases are benign presenting in 2nd decade usually.

Common clinical presentation is a lump in breast, occasionally with symptoms like pain and nipple discharge.

Common benign lesions of the breast include fibroadenoma, lactating adenoma, tubular adenoma. Benign proliferative lesions include fibrocystic disease and inflammatory lesion is either abscess or a granulomatous lesion in most of the centres.

Malignant lesions include invasive duct cell carcinoma, lobular carcinoma, medullary carcinoma and the list goes on. Early screening and diagnosis can prevent aggressive growth of the tumour in malignant lesions thus improving the survival rate by defining a better treatment modality.

Benign lesions are equally important as some of them have the potential to turn into malignancies and need early diagnosis with prompt treatment.

Materials and Methods

This prospective study was conducted in the department of pathology, Mahaveer Institute of Medical Sciences, Vikarabad, a tertiary care hospital and college during the period between June 2016 and may 2022.

The specimens received were composed of trucut biopsies, lumpectomies, modified radical mastectomies. The study was approved by the institute ethical committee.

All the specimens were fixed in 10% neutral buffered formalin, processed, embedded, sectioned, stained using haematoxylin and eosin and finally analysed histopathologically with key reference to radiology along with clinical features.

Variables concentrated were age and sex. The tumours were categorized using WHO classification 2019.

Results

Among a total of 238 specimens received, 161 cases were benign accounting for 67%, 77 cases were malignant accounting for 33%. Maximum incidence was found to occur in third and fourth decade accounting for 59% among which most of the lesions were benign. Fifth decade cases were found to be malignant predominantly. Fibroadenoma was commoner among benign and invasive duct cell carcinoma dominated in malignant lesions.

Other benign lesions encountered in the study are phyllodes, lipoma, intra ductal papilloma and lactating adenoma. Breast abscess was commonly seen among the inflammatory lesions.

Other less common malignancies which were seen in the present study include invasive lobular carcinoma, Mucinous carcinoma, medullary carcinoma and malignant phyllodes. Table 1 shows number and percentage wise distribution of lesions.

Radiological correlation was possible in 119 cases among the total of 238. Correlation yielded a positive predictive value of 72.7%, negative predictive value of 95%, accuracy of 84.8%, Sensitivity and specificity of 93% and 80.2% respectively. BIRADS and histopathological correlation is depicted in the table 2.

Table 1: n238

Lesion	Type	Number	Percentage (n238)
1. Inflammatory Lesions	Breast abscess	10	4.2
	Granulomatous mastitis	5	2.1
	Duct ectasia	1	0.4
2. Benign Proliferative Disorders	Fibrocystic change	24	10
	Sclerosing adenosis	1	0.4
3. Benign Neoplasms	Fibroadenoma	104	43.6
	Phyllodes	9	3.7
	Lipoma	1	0.4
	Intraductal papilloma	1	0.4
	Lactating adenoma	1	0.4
4. Others	Gynaecomastia	3	1.2
5. Malignant	Invasive duct cell carcinoma	65	27.3
	Duct cell carcinoma in situ	7	2.9
	Invasive lobular carcinoma	2	0.8
	Mucinous carcinoma	1	0.4
	Malignant phyllodes	1	0.4
	Medullary carcinoma	1	0.4

Table 2

Radiological (119n)	Histopathology	Number	Percentage (n119)
BIRADS 1 (0)	Benign	0	-
	Malignant	0	-
BIRADS 2 (28)	Benign	28	100
	Malignant	0	-
BIRADS 3 (36)	Benign	33	27.7
	Malignant	3	2.5
BIRADS 4 (28)	Benign	14	11.7
	Malignant	14	11.7
BIRADS 5 (17)	Benign	1	0.8
	Malignant	16	13.4
BIRADS 6 (10)	Benign	0	-
	Malignant	10	8

Figure 1: Medullary Carcinoma

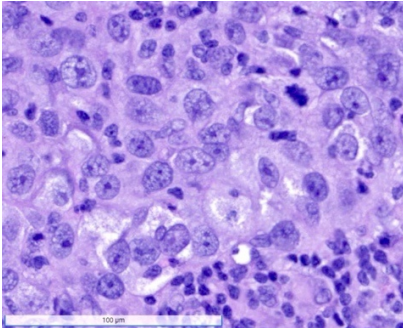


Figure 2: Mucinous Carcinoma

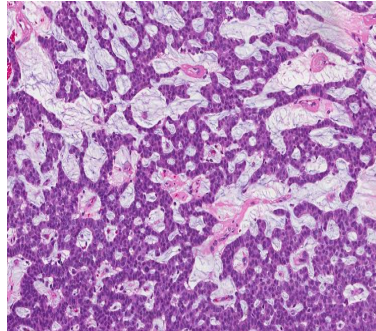


Figure 3: DCIS

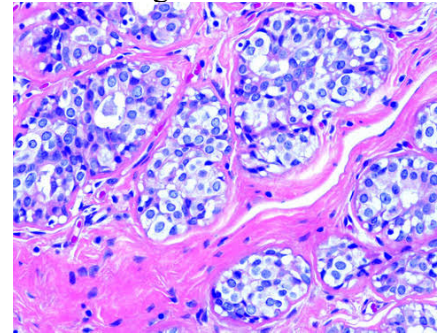


Figure 4: Fibrocystic Change

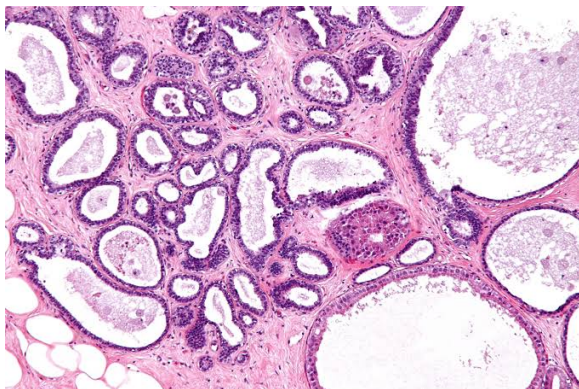
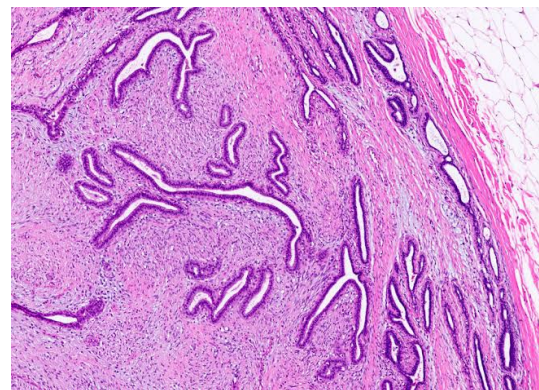


Figure 5: Fibroadenoma



Discussion

Breast tissue is composed of 2 important components with major capability of producing pathological lesions namely epithelial and stromal. Benign conditions involve proliferation of both the components predominantly whereas epithelial malignancies are common in breast. Present study showed benign lesions in dominance to the malignancies which were seen mostly in the 3rd decade, malignancies are frequently found in the older age groups both as per the statistics encountered in our and correlated studies. Fibroadenoma was the commonest benign lesion and Invasive duct cell carcinoma the malignant counterpart in the common group. Few studies correlated with our study^{7,8,9,14} which also showed similar distribution of benign lesions and the commonest malignancy of breast is almost same in every correlated study. Rare entities in our study were of similar percentage in Anusha et al study.

Radiological correlation showed some pitfalls in the diagnosis confirmed by the histopathology. 3 cases which were thought to be benign turned out malignant and 15 cases which were thought to be malignant turned out benign. Diagnoses were compared with the histopathology. These results were close to Taori et al and Anusha et al studies.

Conclusion

Though radiological investigations are primary non-invasive mode of diagnosis, ultimate confirmation of both malignant and benign lesions can only be done through histopathological studies.

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