



A STUDY OF CLINICOPATHOLOGICAL PATTERNS OF BREAST LUMPS IN TERTIARY CENTER OF SOUTHERN RAJASTHAN

Breast Surgery

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ABSTRACT

Background: Breast lumps range from benign physiological conditions like adenosis to advanced malignancy with variation in prevalence and clinical profile according to different regions. The present study is aimed to describe the clinicopathological patterns of breast lumps in a tertiary center of Udaipur, southern Rajasthan. **Methods:** This was a hospital based prospective descriptive study conducted in the Department of General Surgery, Rabindra Nath Tagore Medical College, attached to Maharana Bhupal Government Hospital, Udaipur over a period of 1 year. A sample of consenting inpatients presenting with breast lump were enrolled based on inclusion and exclusion criteria and then evaluated. Clinical presentation, diagnosis and treatment for each case was noted. The collected data was tabulated and analyzed. **Results:** Out of 60 patients included in the study, 58 (96.7%) were female and 2 (3.3%) male with mean age of 42.1 years. Incidence of benign (51.7%) and malignant (48.3%) was comparable with more malignancies from rural areas. Most patients presented with only lump (51.7%) with fibroadenoma being the most common in benign (38.7%), and IDC- no specific type most common (89.6%) in malignant. Our study included 2 male patients, both with gynecomastia. Surgical management was undertaken for most (96.7%), with Modified Radical Mastectomy being most common for malignancies. **Conclusions:** Our study noted an almost equal prevalence of benign and malignant pathology in the region as well as a comparable rural and urban incidence. Premenopausal women mostly presented with benign etiology while most malignancies were noted in postmenopausal women. All the benign breast lumps underwent surgery while most of the malignant breast lumps underwent modified radical mastectomy (82.7%).

KEYWORDS

Breast, Carcinoma, Fibroadenoma, Lump, Mastectomy

INTRODUCTION

Breast lumps are quite common and are associated with a wide spectrum of disease, from benign physiological conditions like adenosis to advanced malignancy. Though most of the breast lumps present in adult women, adolescents and men can be affected too. Male breast cancer requires a healthy dose of suspicion to catch it early.¹ For women, breast cancer is the most common type with an incidence of around 12%. The approach to an accurate diagnosis needs to be step wise involving clinical, imaging and pathological examination (triple assessment).^{2,3} Knowledge of clinical and pathological variants along with peculiarities of clinical presentation in a given region is essential for any surgeon for planning appropriate and timely management. It also sheds light on changes in disease progression and trends.

Breast as an organ is under hormonal control. It undergoes many changes during the lifetime of a person especially in a woman (puberty, menstruation, lactation and menopause). The breast in men is rudimentary and consists only of small ducts, often composed of cords of cells that normally do not extend beyond the areola. Both benign and malignant breast lumps have varied etiology (hormones, genetic factors, infections, aberrations in normal development, certain drugs etc.) Similarly, the clinical presentation varies according to the type of lump (benign/ malignant; infectious/ non-infectious). The time of presentation depends on the clinical course, socio-economic status and of the patient, accessibility to healthcare etc. Due to such a wide range of differences, the diagnosis and treatment for each case has to tailored individually.

This study aims to note the clinical profile of patients presenting with breast lumps and assess the distribution patterns of benign and malignant lumps.

METHODS

The study was conducted in the Department of General Surgery, Rabindra Nath Tagore Medical College, attached to Maharana Bhupal Government Hospital, Udaipur, Rajasthan. It included 60 patients above the age of 15 with clinically palpable breast lumps who were admitted in the in-patient department.

Patients below the age of 15, those who were pregnant and those with complaints related to the breast but without any lump were excluded from the study. Consent of all patients and guardians (for those below 18 years) was taken, after all the pertinent information regarding the study had been provided to them. Patient's details and in depth history was taken. A thorough clinical examination of was done. Hematological investigations and Imaging studies were carried out as necessary. This was followed by FNAC and/or Tru cut biopsy as indicated. The treatment (Medical/Surgical) carried out based on established diagnosis. The clinical presentation, diagnosis and treatment was noted in detail. For patients who underwent surgery, histopathological report was obtained and diagnosis was confirmed. Collected data was then tabulated and patterns studied.

RESULTS:

All the patients included in the study presented with breast lump initially discovered by the patient themselves. None of them were found incidentally or during screening. We only had one patient who presented with a recurrent lump and the rest all presented with a lump for the first time. The study noted 2 male patients out of 60 (3.3%) of age 20 and 64 years and both were diagnosed with gynecomastia.

Age Distribution Of Lumps And Their Nature

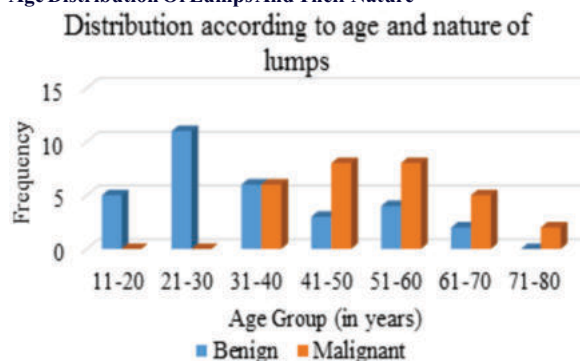


Figure 1

Benign lumps presented between the age of 15 and 65 years while age range for malignant lumps is 34 to 75 years. Most common age group for benign lumps is 21 to 30 years. While malignant lumps were more common in the age groups for 41 to 50 and 51 to 60 years. Mean age of the patients with benign lumps was 33.7 years while the mean age for malignant lumps was 51.2 years. (Figure 1)

Distribution of study population according to residence

The study population was almost equally divided on the basis of residence. In rural patients, 17 cases were of malignant etiology as compared to 12 patients from urban areas. The number of benign cases in urban patients were more than in rural areas. (Figure 2)

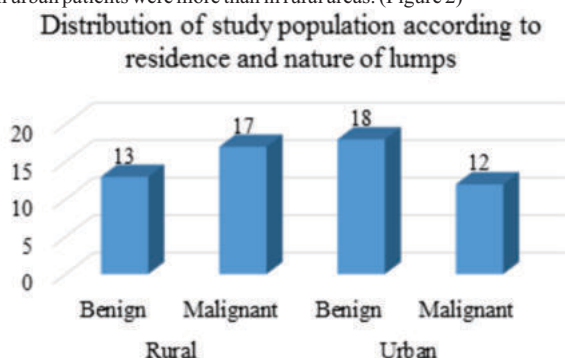


Figure 2

Clinical Presentation

The patients presented with a range of complaints along with breast lump from pain to ulcer and nipple discharge. The most common presenting complaint was lump only (31 patients) followed by complaints of lump associated with pain (19 patients). Nipple retraction was present in 9 patients (15%) and all were of malignant etiology. More patients (38 out of 60) presented with lumps in right breast with only 2 patients presenting with bilateral lumps. Only 2 patients had multiple lumps, 1 with benign etiology and 1 with malignant.

The duration of presenting complaints was between 7 days and 48 months, with most of the patients presenting between 2 to 6 months (29 patients). This duration was most common for both benign and malignant lumps. Only 10 patients presented within 1 month and all had benign lumps. The longest duration noted was 48 months in a female patient with phylloides tumor.

Of the 58 female patients in the study, 11 were nullipara, 5 primipara and 42 were multipara. All the nullipara patients presented with benign lumps while 72.4% of multipara patients presented with malignancies. 39 out of 58 female patients were premenopausal while the rest 19 were post menopausal. Of the 39 pre menopausal patients, 25 presented with benign lumps while the rest 14 were malignant. Of the 29 post menopausal women, 15 were malignant.

The most common size of the presenting lump was 2 to 5 cm, of which 21 patients had benign lumps while 10 were malignant. Out of 22 patients with lumps larger than 5 cm, 16 patients had malignant etiology. The largest lump was a 25x25 cm, phylloides tumor. The most common location was the upper outer quadrant.

Histopathological Diagnosis

During clinical examination, 14 patients were suspected to have fibroadenoma while only 12 cases of fibroadenoma in histopathology. The 2 other patients were diagnosed with breast cyst and lactating adenoma of breast in histopathology. None of the 5 patients clinically suspected to have fibrocystic disease were confirmed after histopathology. Etiology in all 5 of them was found to be inflammatory. (Table 1)

Table 1

Histopathological diagnosis	Frequency	Percentage
Fibroadenoma	12	38.7
Fibroadenosis	0	0
Galactocoele with superadded infection	1	3.2
Lactating adenoma of breast	1	3.2
Breast Cyst	1	3.2
Lipoma	0	0

Phylloides	3	9.7
Granulomatous mastitis	4	12.9
Breast Abscess/Mastitis	6	19.4
Accessory breast	1	3.2
Gynecomastia	2	6.5
Total	31	100

28 out of 29 patients with malignant breast lumps had Invasive ductal carcinoma while 1 had Infiltrating ductal carcinoma with Paget's disease. Of the 28 cases with Invasive ductal carcinoma, 26 were of No Specific type (NST), while 1 had medullary carcinoma and another metaplastic. (Figure 3)

Histopathology of malignant lumps

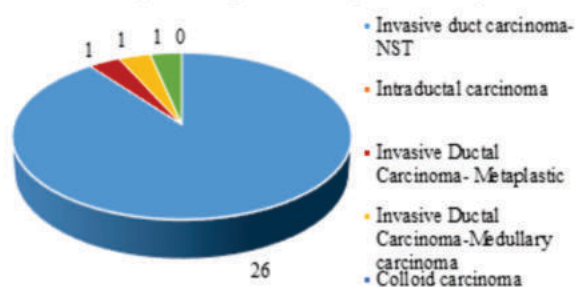


Figure 3

Lymph Node status:

9 out of the 11 patients with N0 status, 2 patients were found to have positive nodes in histopathology. 5 out of 8 patients of N1 status had 0 positive lymph nodes in histopathology. All the patients with N2 had positive lymph nodes in histopathology. 2 out of 7 patients of N2a status had more than 10 positive lymph nodes. All 3 patients with N3a status had metastatic disease and axillary dissection was not carried out.

Grading, clinical staging and receptor status of malignant breast lumps:

21 out of the 29 patients with malignant breast lumps had Grade II tumors in according to Modified Scarff Bloom Richardson histological grading system. 7 had Grade III tumors and 1 had Grade I. (Figure 4)

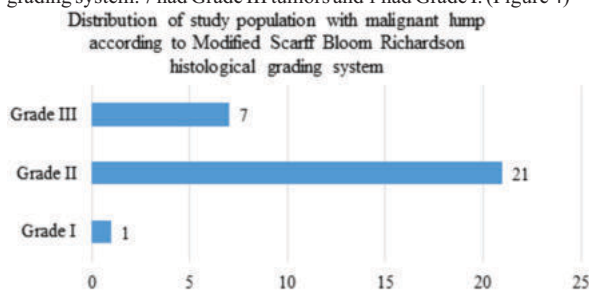


Figure 4

Most of the cases malignant lumps presented in stage II and III. 34.5% of the lumps presented in Stage IIIA, followed by 12 cases in Stage II. Three cases presented Stage IV with metastasis. (Figure 5)

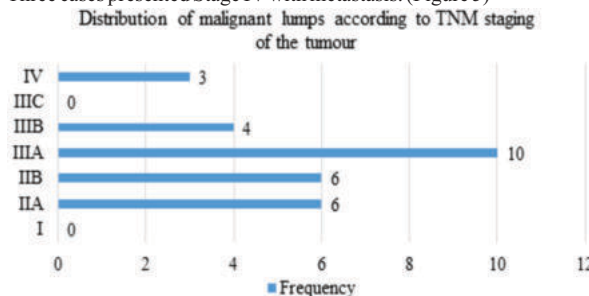


Figure 5

On immunohistochemistry, 3 patients had ER positive tumor, 2 had ER and PR positive status and 5 had Her2/neu positive status. 4 patients had triple positive status while 14 had triple negative status. The most common receptor status in our study population was triple negative. (Figure 6)

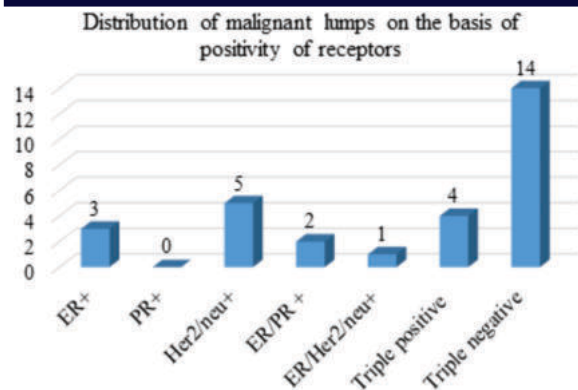


Figure 6

Treatment:

58 out of 60 patients in our study underwent surgical treatment. All the patients with benign lumps underwent surgery as compared to 93.1% of malignant cases. The 2 malignant cases managed non-surgically had Stage IV metastatic cancer. 16 patients underwent excision, out of which 12 patients had fibroadenoma, 1 had lactating adenoma breast, 1 had chronic mastitis, 1 accessory breast and 1 phylloides tumor. The 2 other patients with phylloides tumor underwent simple mastectomy. 2 patients with Ca breast underwent breast conservation surgery while 24 underwent modified radical mastectomy and 1 underwent toilet mastectomy. 2 patients with Stage IV carcinoma of breast underwent palliative systemic therapy, while 1 with Stage IV disease and a large fungating tumor underwent toilet mastectomy. (Table 2)

Table 2

Treatment	Frequency	Percentage
Excision	16	26.7
Incision and Drainage	4	6.7
Aspiration	1	1.7
Wide local excision	6	10
Simple mastectomy	2	3.3
Breast Conservation Surgery	2	3.3
MRM	24	40
Toilet Mastectomy	1	1.7
Subcutaneous mastectomy	2	3.3
Non surgical	2	3.3
Total	60	100

DISCUSSION

Many people across the globe have studied breast lumps and discovered appropriate surgical intervention. With the use of ultrasonography and mammography along with FNAC and biopsy, diagnosis of a malignant lump has become much easier. Though individually none except histopathology are confirmative. The younger female patients have denser breast tissue so ultrasonography works better for them while mammography is more useful in older patients. FNAC often times does not give the full picture as only cells can be studied but not their context. Though when FNAC is used in conjunction with USG and/ Mammography and clinical examination (triple assessment) the diagnosis is quite accurate.^{2,3}

According to a study by Karim M O et al³, when all the three modalities are positive for a diagnosis of malignant breast disease, surgical biopsy confirms the breast cancer diagnosis with a PPV of 100% and a sensitivity of 95.5%. With the improvement in diagnostic and surgical methods, there has been increase in the drive to study breast tumors and their behavioral patterns. The patterns of breast lumps have been studied across the world with their clinical presentation, radiological features, histopathology, outcomes etc. Since, the focus of our study is in India let us review the data available in Indian setting.

Breast cancer has also been steadily increasing in the country. Over the last few decades, the age-standardised incidence rate of Breast Cancer in females increased by 39.1% from 1990 to 2016, with the increase observed in every state of the country⁴. This is partially due to increase in awareness. In spite of dearth of prospective data and randomised clinical trials from India, there are large number of retrospective publications on various aspects of the disease including pathology, radiology, surgery, chemotherapy, radiation, palliative care and alternative treatment modalities. These published data provide an

insight into the trends of breast lumps in the country. Benign breast diseases are common in females among young age group. Most common presentation is painless lump in the breast. Clinical and pathological correlation is essential.

Rangabashyam N et al⁵ reported single fibroadenoma as most common presentation (71%).

Mima Maychet B. Sangma et al⁶, also reported fibroadenoma 52.74% as the most common benign breast lesion.

Selvakumaran S et al⁷ studied 168 patients with benign breast lesions, including both male and female patients. They noted that the commonest was Fibroadenoma which formed 55.9% followed by fibroadenosis 20.8%. The other benign lesions observed were phylloids (2.3%), acute abscess (4.7%), chronic abscess (1.2%), tuberculous mastitis (0.6%), antiobioma (0.6%), cysts (1.2%), galactocoele (1.2%), gynaecomastia (4.1%), duct papilloma (1.2%) and mastalgia (6.0%).

Breast cancer, however, is underdiagnosed in our country. Though it is improving with increase in awareness, it is still not enough. In many of the regions, it is still neglected or patients come with late presentation. There are many other studies which have independently looked into either benign or malignant breast lesions. But very few encompassing both. Isolated studies of only benign lesions or only malignant lesions can only take us so far. It is difficult to get an idea about the predominance of either in a given region. It also hampers us from keeping the right degree of suspicion for malignant lesions.

In a study by Pradhan et al⁸ in Nepal (2008), 2246 cases were evaluated of which 50 were male while 2196 were female. Of 50 male patients, 49 were diagnosed as gynaecomastia and 1 as malignancy. The commonest cause of breast lump was fibroadenosis (975 cases, 43.4%) followed by malignancy (348 cases, 15.5%). In younger age group (below 30 years), malignancies were few (1.6%), while fibroadenosis (48%) was the commonest followed by fibroadenoma (12%) and abscess (7%). In patients older than 30 years, malignancy was diagnosed in 333 (25%), while in benign fibroadenosis (40%) was again the commonest followed fibroadenoma (5%) and abscess (4.5%) like younger patients. Of 348 malignancies 338 were ductal carcinoma NOS, 3 mucinous carcinoma, 3 medullary carcinoma, 1 lobular carcinoma, 1 squamous cell carcinoma, 1 non-Hodgkin's lymphoma and 1 metastatic small cell carcinoma.

In our study, of 60 patients included in the study of 96.7% were female and 3.3% were male. The youngest patient in the study was 15 years old while the oldest was 75 years with maximum number of patients between the age of 31 to 40 years and 51 to 60 years. In terms of residence, our study equal incidence of breast lumps from urban and rural settings, with a higher number of malignancies from rural areas. Though in literature, benign lumps are much more prevalent than malignant lumps, our study noted an almost equal prevalence of benign and malignant pathology. The malignant pathology was predominant in older and post menopausal women. The most common benign lump was found to be fibroadenoma (38.7%) followed by inflammatory pathology. Other benign lumps were granulomatous mastitis, phylloides, breast cyst, lactating adenoma of breast, galactocoele and accessory breast. Our study included 3.3 % male patients, both with gynecomastia. In malignant breast lumps, the most common type was invasive ductal carcinoma of no specific type. 72.4% of malignant lumps were Grade II according to Modified Scarff Bloom Richardson histological grading system, followed by 24.1 % of Grade III tumors and 3.4 % of Grade I. Most of the malignant cases presented in stage II (41.4%) and stage III (34.5%). 3 cases presented in Stage IV of which 1 presented with large fungating tumor.

All the benign breast lumps underwent surgery while most of the malignant breast lumps underwent modified radical mastectomy (82.7%). The one who presented with fungating breast mass needed an emergency toilet mastectomy.

In India, overall combined prevalence of TNBC is 31% as noted by Sandhu G S et al⁹. This high prevalence was noted in our study as well with 48.3% cases of triple negative carcinoma of breast.

CONCLUSION

Our study assessed the clinicopathological features of breast lumps in

tertiary center of Udaipur, Rajasthan. The patterns are mostly keeping with demography of the region. In spite of increasing awareness, there is a high percent of late presentation as well as poor follow up amongst patients. There is also need for more education and promotion of breast cancer awareness especially in rural regions.

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