A two Year Study of Breast Lesions with Immunohistochemistry in Selected Cases in A Tertiary Care Hospital

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ABSTRACT *Breast diseases are showing a rising trend worldwise.In India,carcinoma breast has surpassed Cervical Cancer,the topmost cause of cancer death of late.Our study included all cases of breast lesions which were reported from a tertiary care hospital from August 2013 to July 2015.Out of 280 cases reported,235(83.93%) were benign and 45 cases(16.07%) were malignant.Among benign breast lesions Fibroadenoma was most common with-184cases(65.71%).While Infiltrating Duct Carcinoma constituted major part of all malignant breast lesions with 40 cases(14.29%).Age distribution of cases ranged from14-65 years.Most benign cases were in age group of 10-20 years,while most malignant cases were in the group 31-40 years.Selected cases of malignant breast lesions were subjected to IHC examination.ER/PR +ve cases constituted 36% cases,while Triple negative constituted 12% cases.*

INTRODUCTION

Breast lesions are a common heterogenous group of disorders ranging from self limiting inflammatory lesions to life threatening invasive cancers.[1,2]

In India,for decades together,cervical cancer was the most common cancer among women,but now breast cancer is the most common cancer accounting for 1,44,937 newly detected cases(Ferlay et al 2013)[3].Robbins et al mentions that due to adoption of Western social lifestyle,the rates of Breast Carcinoma is increasing in developing countries and by 2020 it is estimated that 70% cases will be in these countries.

While most breast lesions can be distinguished on routine H&E stained section,in several scenarios, such as morphologically equivocal cases or metastatic tumours of unknown primary,the appropriate application of IHC adds true value in reaching an accurate diagnosis.Besides application of IHC enlightens the biological characteristics of tumour and hence carry an immense role in prognosis and selecting an appropriate therapy for the patient

MATERIALS AND METHODS:

The study was carried out for a period of 2 years from August 2013 to July 2015 at a tertiary care hospital of North East India.A total number of 280 cases which attended the SOPD & Obs &Gynae OPD with various complaints related to breast(Swelling,pain,nipple discharge etc) were selected for study purpose.

Clinical records and details of information such as age, onset of illness,duration, site, size, lymph node status etc which carry special importance in pathological diagnosis were obtained from the Clinical records department. Specimen were ideally fixed in 10% formol saline,maximum within 1 hour after being removed from the body[5]A fixation time of atleast 6 hours duration was maintained.[5]Multiple sections were taken after conventional processing.Paraffin section of 5um thickness was stained by H&E for Histopathological study.In addition 3um section was cut from a paraffin block of tumour tissue on glass slides coated with L-lysin for IHC For interpretation of IHC results,the number of tumour cell nuclei stained & the intensity of the reaction was taken into account.Tumours having 1% or higher invasive cells staining were regarded as +ve for ER,PR expression.[5]

For HER2neu, uniform,intact membrane staining of >30% of invasive tumour cells were taken as positive.[5]

RESULTS

Out of 280 cases,233 cases of lumpectomy and 47 cases were of Mastectomy.235 cases i.e. 83.93% were benign,while 45 cases i.e. 16.07% cases were malignant. The statistical distribution of frequent benign and malignant breast lesions are shown in Fig1.Fibroadenoma was the most common breast lesion with 184(65.71%) of all cases.While Intraductal Carcinoma NOS was the second most common lesion with 40 cases(14.29%).In IHC evaluation 36% (12cases) were positive for both ER&PR,while 12% (3cases) showed Triple Negative(ER,PR and HER2neu negative).While ER alone was positive in 64%(16 cases),PR alone in 36%(9 cases) and HER2neu in 36%(9cases)
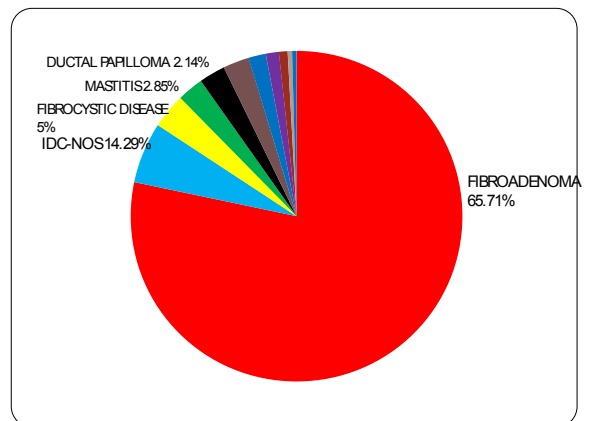

Fig 1:Pie diagram showing distribution of breast lesions

DISCUSSION:

In our study Benign cases accounted for 83.92% of cases and Malignant cases constituted 16.08% .This was close to the findings of Malik et al in his study of 1724 cases over a period of 20 years which reported benign lesions in 72.97% & malignant in 27.03% cases[6,7].

Presenting complaint was palpable breast lump in 92.85% cases.Breast pain which is usually associated with benign breast diseases was seen in 23.21% cases(65no.s),30 out of 65(46.15%)had carcinoma which can be attributed to the advanced stage of the disease.

Fibroadenoma was the most common benign neoplasm accounting for 65.71% cases.This was also the finding in other studies such as Malik et all(59%)However in reports from neighbouring Pakistan,fibroadenoma was documented as second common breast neoplasm that accounted for 29.4% cases[6.]

These findings in our study were different from the literature of Western studies such as in UK & US.In our study the mean age at diagnosis was 35 yrs which was much less than in Western literature which is 54 yrs[8]

Most commonly,the tumours were of 2-5 cm in size and this was also the finding in study of Sofi et al 2012.Tumours more than 5 cm carry a worse prognosis;while <1cm are associated with excellent outcome

Lymph nodes were found to be involved in 66.67% cases which was higher than the recent Indian study of Dayanand et al which showed positivity in 51.2% cases.Indian studies demonstrates higher percentage of lymph node involvement(Rao et al 2013,Sofi et al 2012)

In our study majority of Carcinomas (57.5%)belonged to Grade II category of Bloom Richardson system.While 25% cases belonged to Grade III,only 17.5% belonged to Grade I.This corresponds to findings of Geethamala K et al.While in a Western study 56.4% of carcinomas belonged to Grade I.It is believed to be due to rampant cancer screening programs in the West.

In our study 46.6% of malignant cases showed a NPI between 3.4-5.4,while 35.5% were more than 5.4.The 10 year survival rate of the former group was around 80%,while in the latter it was 49.3%

Few rare case entities like Angiosarcoma in Malignant Phylloides(Incidence is 0.05%),Neuroendocrine differentiation in Intraductal Carcinoma Fig 2,Intracystic Papillary Carcinoma(less than 3%)Fig 3,Granular cell tumour were encountered.

Despite resource constraints 25 cases were randomly selected for ER,PR,HER2/neu evaluation.

Triple Negative Breast Cancers(TNBC) constituted only 12% of all these cases while 'others' formed rest 88%.This was very less as compared to study of Zubeda et al 2014 which showed 46% cases of TNBC.

TNBC in Asian population were found to be associated withyounger age on onset,increasing prevalence of axillary lymph node involvement,higher grade of tumour &poor prognosis.(Ma et al 2013,Li et al 2014).In our study all three cases of TNBC showed such correlation

In our study 64% cases showed ER+VE and PR+ve was seen in 36% of cases.HER2/neu were positive in 36% of cases,This corresponds to recent Indian studies of Mungal et al,Shet el et al which showed 59% ER+VE,45% PR+ve and 27.1% Her2neu positive.Both ER &PR+ve cases constituted 36% of cases,ER+/PR- 32%,ER-/PR+ 20%,ER-/PR- 16% cases.

Traditionally ER+/PR +ve cases have been believed to have a better response to chemotherapy, lower relative risk of mortality and better survival than other groups.Lack of ER,PR is associated with a high histological grade.9

However Western literature shows 73% ER+VE,58%VE &17-30% HER2/neu +ve10,hence expression of ER,PR have a higher % than Indian literature.
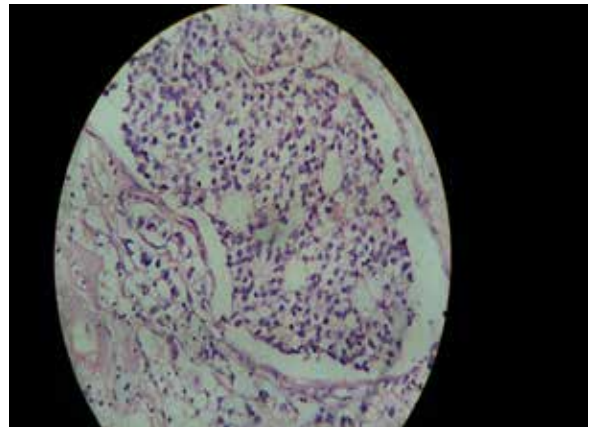

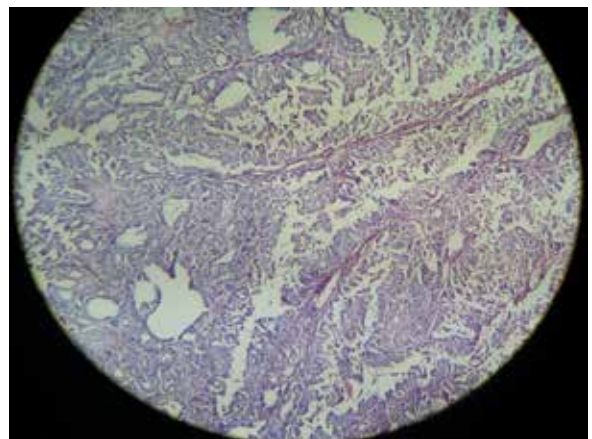**Fig 2:Intraductal Carcinoma showing Neuroendocrine differentiation.**

Fig 3:Photomicrograph of Intracystic Papillary Ca.

CONCLUSION:

This study highlights the importance of Histopathological examination and IHC evaluation in establishing the final diagnosis and also in predicting the prognosis of breast neoplasms.The pathologic features of breast cancer documented are consistent with patient presentation at relatively advanced stage of disease .In India,breast cancer occurs in younger age when compared to developed world.These findings underscore the need for urgent public health intervention ,notably the development of National Screening Program for one of the most common cancer in women.

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