Breast Carcinoma in Pakistani Females: A. Morphological Study of 572 Breast Specimens

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Abstract

Objective: To study the tTtorphological features in breast carcinoma which have proven prognostic value.
Methods and Setting: A retrospective analysis of 572 mastectomy specimens received over a period of three years at the department of pathology, The Aga Khan University Hospital.
Results: A total of 572 mastectomy specimens were analyzed which were received over a period of three years. Most of the patients were in the 5th and 6th decades of life. The mean age at diagnosis was 48 years. The most common tumour was infiltrating ductal carcinoma (81 %). 'fumour size was >2 cms. in 80% of the cases. According to Modified Bloom and Richardson system most of the tumours were in grade 11(65%) followed by grade III (24%). The number of cases with >3 lymph node metastasis was significantly higher (70%) in tumours of >2cms size. High grade tumours also showed increased number of lymphnode involvement.
Conclusion: In Pakistani females breast carcinoma occurs at a younger age group. They are of large size at the time of presentation and show more frequent axillary lymph node metastasis. Infiltrating ductal carcinonia is the most common type of tumour with predominance of high grade lesions (JPMA 50:174, 2000).

Introduction

Breast carcinoma is the most common cancer in women in Various parts of the world including USA [1,2] In Pakistan, multicentric studies have revealed that breast carcinoma is the most common malignant tumour and accounts for approximately 25% of all malignant tumours in the female population[3,4] There are certain morphological features including tumour size, histological type, histological grade and lymph node metastases which show well-established prognostic signif'icance. We are presenting the data regarding these morphological features, which is collected at the Aga Khan University Hospital. We have tried to document these prognostic features in our female population.

Materials and Methods

The pathology department of the Aga Khan University hospital caters not only to the population of Karachi city but also receives samples through its collection points from all over the country. The laboratory receives around 25,000 surgical pathology specimens per year. The outside referral specimens comprise 60% of the cases and the inside hospital cases constitute 40% of the total specimens. In this study the records of all the mastectomy specimens from patients who were admitted in the Aga Khan University Hospital and outside referral cases were included. A total of 572 cases were analyzed over a period of three years i.e.; from 1995-97. The specimens were received in 10% buffered formalin and processed in auto-processors. Paraffin embedded sections were stained with the routine hematoxylin and eosin method. Special stains and immunohistochemistry were performed whenever required. Grading was done according to modified Bloom and Richardson system[5,6]

Results

The study comprised of 572 cases of breast carcinoma. The mean age at presentation was 48 years and the age range was 20-90 years. Most of the patients were in the 5th and 6th decades (Figure 1).

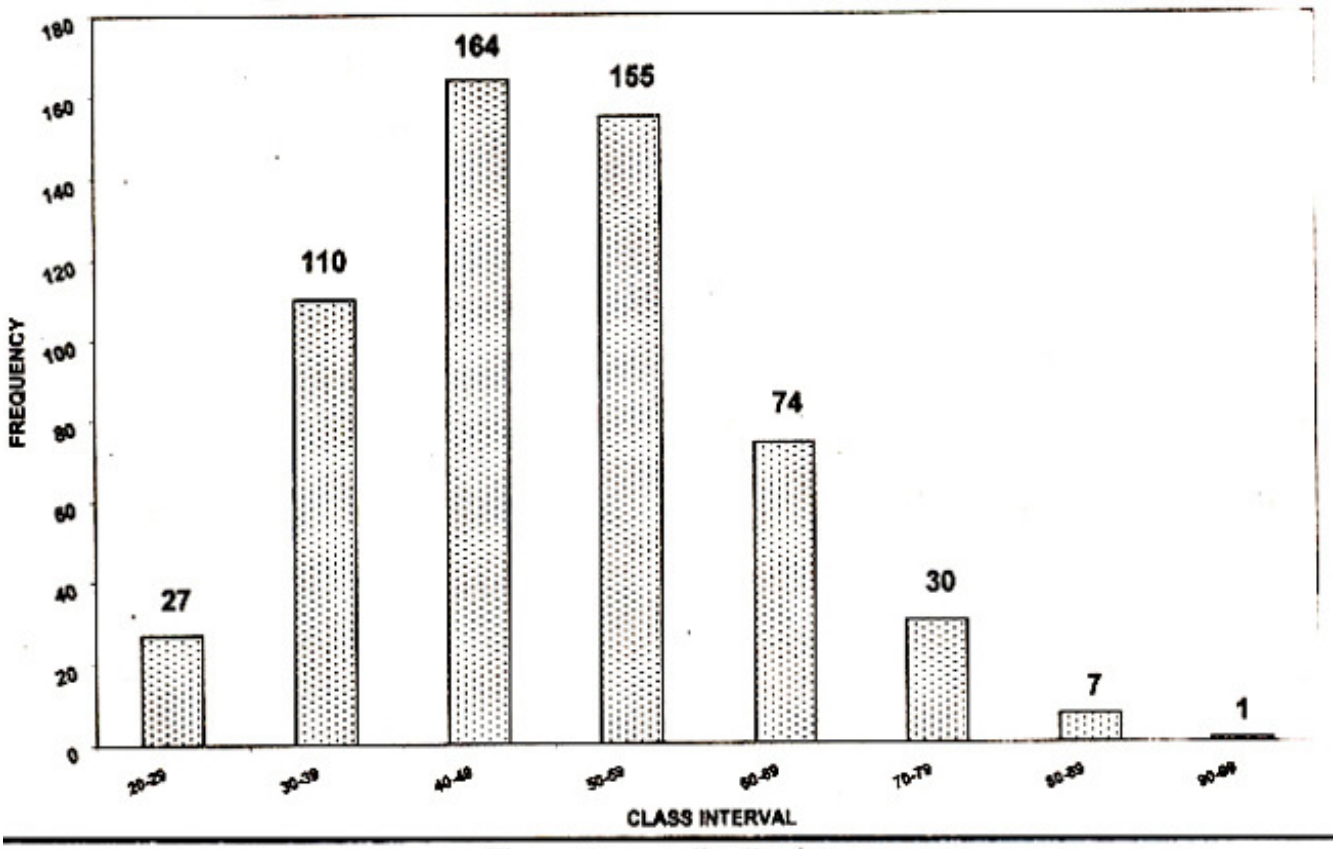

Figure 1. Age distribution.

Tumour size was <2 cms in 55 (9.6%) cases, whereas in 430 (75%) cases tumour size was >2cms (Figure 2).

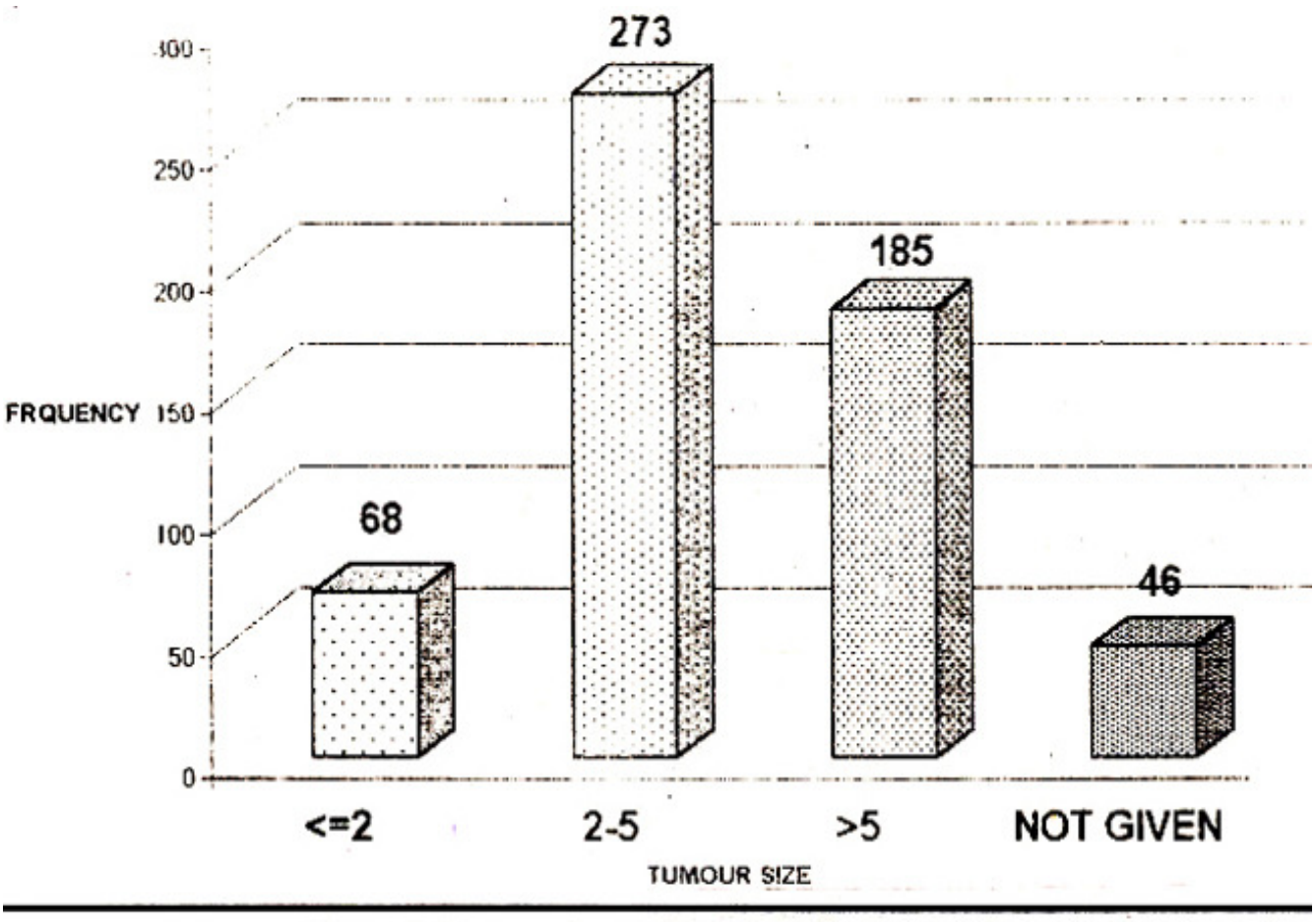

Figure 2. Tumour size and their relative frequencies.

The infiltrating duct carcinoma was the most common type comprising 469 (81.99%) cases. Ductal carcinoma in-situ was seen in 93 (16.25%) cases. There were 3 (0.52%) cases of mucinous carcinoma, 2 cases (0.34%) of infiltrating lobular carcinoma and 1 case (0.17%) of papillary carcinoma. In 4 cases (0.69%) tumour typing could not be done because the mastectomy specimens were received after the lumpectomy procedure which was done elsewhere. In these cases report was not available. According to the Modified Bloom and Richardson system 35 (6.11%) cases were in grade I, 371 (65%) in grade II, and 141 (24%) in grade Ill. In 25 tumour typing. The axillary lymph node metastasis was seen in 485 (85%) cases. In tumours of <2 crns. size lymph node metastasis was seen in 68 (11.88%) cases. On further break down of cases of <2 cms tumour size, 36 showed <3 lymph nodes involvement whereas in 17 cases >3 lymph nodes were positive. In tumours of >2 crns and upto Scms size which were 273 (47.72) in number, <3 lymph nodes were positive in — 43 cases whereas in 104 cases >3 lymph nodes were involved. In tumours of >5 cms size which were I 85 (32.34%) in number, <3 lymph nodes were positive in 72 cases where as >3 lymph nodes were positive in 195 cases (Figure 3).

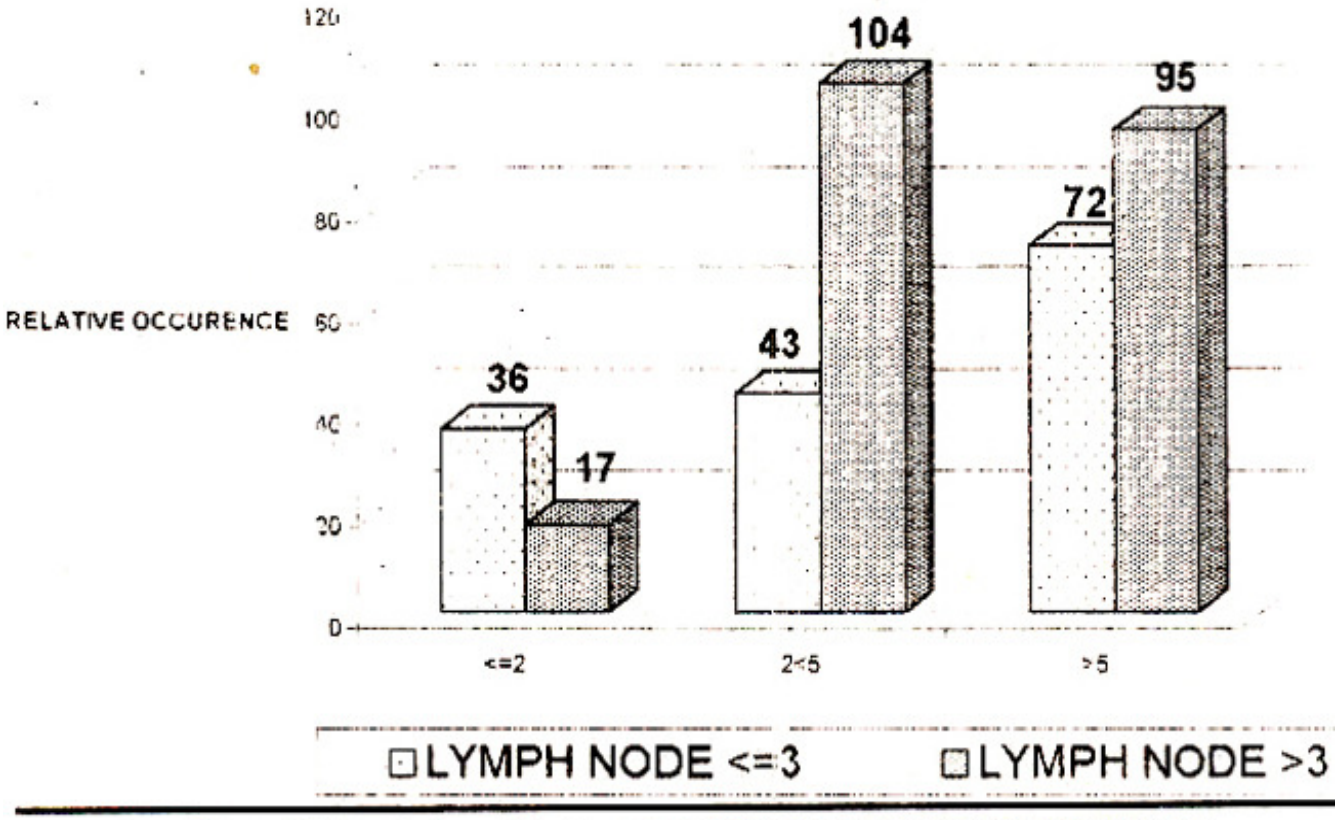

Figure 3. Correlation of tumour size with lymph node metastasis (n=485).

On correlating the grading with lymph node involvement out of a total of 35 cases of grade I tumors, 30 cases with positive lymph nodes were in grade I. Out of these 25 cases showed <3 lymph node metastases and 5 showed> 3 lymph nodes involvement. In 5 cases of grade I tumours, no lymph node was recovered from the specimens. Out of a total of 371 grade II tumours, 330 (57%) showed lymph node involvement. Out of these in168 cases <3 lymph nodes were positive whereas in162 (28%) cases >3 lymph nodes showed metastases. There were 141 cases of grade III tumours. Out of these 122 showed lymph node involvement. In 64 cases <3 lymph nodes were positive and in 58 cases >3 lymph nodes showed metastasis (Figure 4).

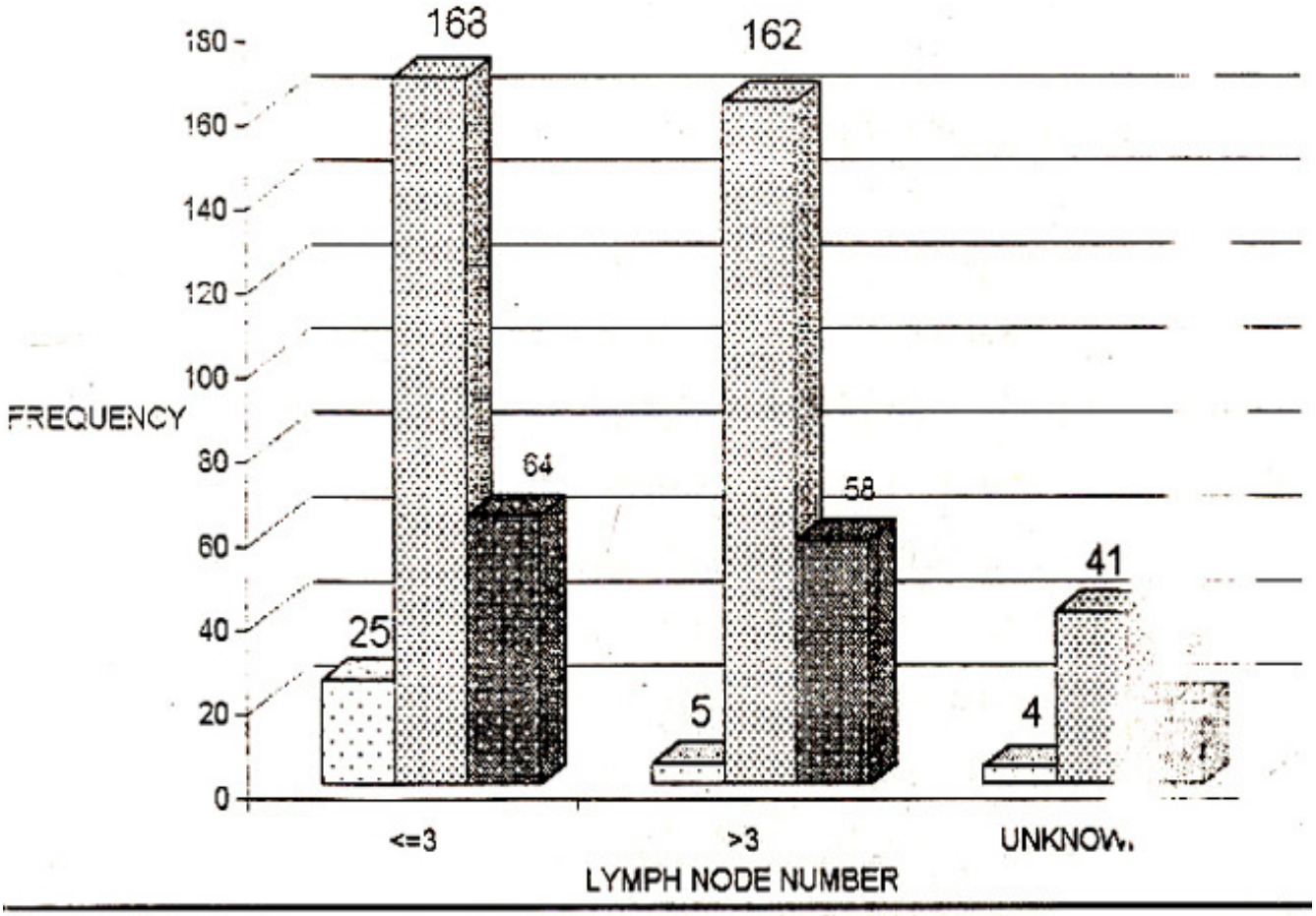

Figure 4. Correlation of grade with lymph node metastasis.

Discussion

A number of studies have been published regarding breast cancer statistics in Pakistan[4,7-9] but these represent either one center or multicenter based data. In our country due to the absence of population based tumour registries it is difficult to be certain about the significance of these figures. But the results from these data are more or less similar regarding different variables of breast carcinoma. It is now well known that the prognosis and biological behaviour of breast carcinoma is determined by certain factors such as age of the patient, size of the tumour, grade of the tumour, histological type, the lymphnodc metastases, hormone receptor status and a number of immunobiological markers [10-16]. In our study, we have concentrated on certain basic parameters, including patient's age, tumor size, tumor grade, type of the tumor and lymph node status. The majority of breast carcinomas in the western countries are seen in postmenopausal women and the mean age is 54 years [17]. In our study a significant number of patients were less than 50 years of age and most of the patients fallin 5th and 6th decades (Figure 5).

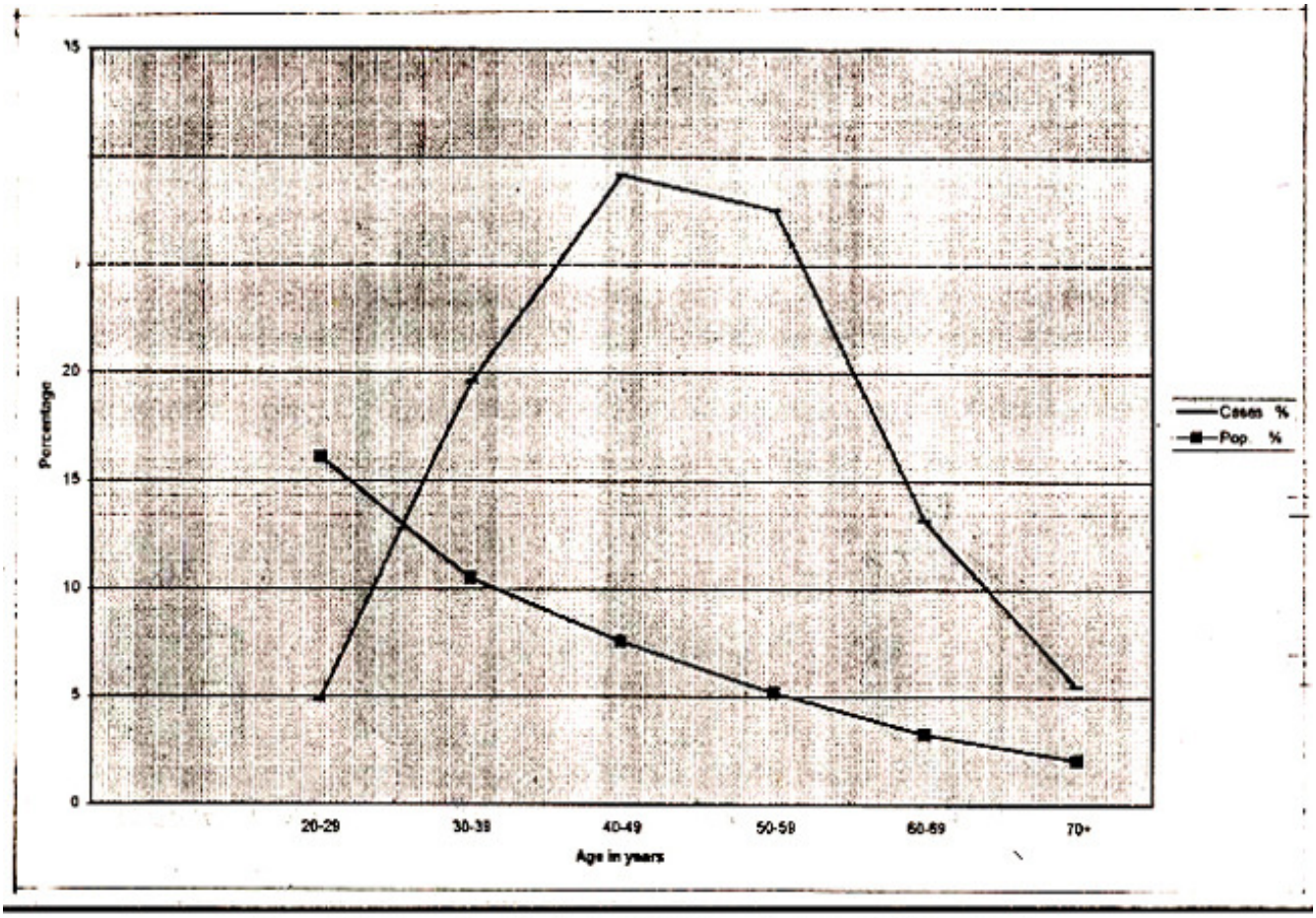

Figure 5. Age distribution of Ca breast cases and population.

More or less similar figures regarding age have been reported by other workers from different parts of the country [18]. Another well recognized prognostic feature is the size of the tumour. Breast carcinonias, which are greater than 2 cm are associated with a relatively poor prognosis as compared to those less than 2 cmc in size [19]. In the present study majority of breast carcinomas (75%) were >2 cms in size. In about (3 6%) of cases of >2 cnis tumour size, more than 3 lymphnodes were positive. This observation reflects that the• greater the size of the tumour, the more the lymph nodes will be involved resulting in the worsening of prognosis.The increased number of cases with larger tumour size may— be due to lack of public knowledge about this disease as well as cultural factors, which are causing delays for patients to seek medical treatment. Late presentation (Stage IV) in breast ëancer has been observed in another study from Pakistan [7]. The prognosis of breast carcinonia is extremely good if it is confined to the ducts and has no invasive component [20]. In our study there were 85 (15%) cases of intraduct carcinoma. Some of the histological types of breast carcinoma carry a relatively better prognosis. These include mucinous carcinoma [21], tubular carcinoma 20and adenoid cystic carcinoma [22]. These special types constitute a very small percentage of breast carcinoma cases all over the world. In our study only 3 cases (0.5%) were of mucinous carcinoma and 2 cases (0.35%) of lobular carcinoma.The histological grade is another important prognostic indicator[5]. In one study, histological grade and tumour type when evaluated together were found to be more accurate prognostic factors as compared to the tumour type alone [8]. In the present study, grading was done according to the Modified Bloom and Richardson system[6]. The majority of breast carcinomas were in grade II (65) followed by grade Ill tumours 141 (24%). The different grades of tumours were correlated with the number of lymph node metastases. It was observed that almost half of the high grade tumours (II and Ill) showed more than 3 lymph nodes

involvement as compared to the grade I tumours where >3 lymph nodes were positive in 1/3 of the cases. These figures imply poor prognosis in high grade tumours as also seen in other studies [5].One of the most important prognostic determinant in breast carcinoma is the status of lymph node involvement. The prognosis depends on the number of lymph node metastases[13]. In our study, axillary lymph node metastases was seen in 485 (85%) cases and in 229 (40%) cases more than 3 lymph nodes showed tumour involvement.

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