

Correlation between Modified Bloom Richardson Grade and Lymph Nodal Status in Infiltrating Ductal Type of Breast Carcinoma

Gireesha Rawal¹, Chintamani², AK Mandal³

Abstract

Introduction: Breast cancer is one of the most common cancers in women. Among the various types, invasive ductal carcinomas (IDC), not otherwise specified (NOS) is the most common type. This study was conducted to describe the clinico-pathological parameters of breast cancer, and to find a correlation between two of the prognostic parameters, i.e., Bloom Richardson (BR) grade and lymph node metastasis.

Materials and Methods: It was a cross-sectional study with a sample size of 100 cases. Routine clinical details and investigations of the patients were recorded, including age, TNM stage of tumour, etc. Further, the specimens were evaluated for the histological typing, histological grading, and status of lymph nodes. Also, statistical correlations were established between two of the prognostic parameters, i.e., BR grade and lymph node metastasis.

Results: All the cases were NOS type of IDC. Majority of the cases belonged to pTNM stage III, followed by stage II. Maximum cases belonged to BR grade 2, followed by grade 3. Lymph node metastasis was present in 40% cases. A statistically significant correlation was seen between increasing BR grade and presence of lymph node metastasis in the tumour.

Discussion and Conclusion: Majority of the cases in our study belong to high grade and stage. This is probably due to lack of awareness and late detection of breast carcinoma in Indian scenario. A statistically significant correlation was found between increasing BR grade and presence of lymph node metastasis in the tumour. Thus, these can be used along with other clinico-pathological parameters for prognostic and therapeutic planning in breast carcinoma cases.

Keywords: Breast carcinoma, Stage, Grade, Lymph node status

Introduction

Human breast cancer has varied genetic alterations implicated in its pathogenesis. It is one of the most common cancers in women and is a leading cause of cancer-related deaths.¹ Among the various types, invasive ductal carcinoma (IDC), not otherwise specified (NOS), is the most common type of breast cancer. It accounts for about 88% of the primary breast cancers.² Among females, cancer of the breast and cervix are the leading sites of cancer in 18 of 25 population-based cancer registries (PBCRs).³

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Various prognostic parameters have been described and validated, but the search for newer prognostic factors continues since the existing parameters do not provide sufficient information for accurate risk assessment and treatment planning.¹

Thus, this study was conducted to describe the clinico-pathological parameters of breast cancer, and to find a correlation between two of the prognostic parameters, i.e., Bloom Richardson grade and lymph node metastasis.

Materials and Methods

This study was conducted in the Department of Pathology and Department of Surgery, Vardhman Mahavir Medical College and Safdarjung Hospital, New Delhi. It was a cross-sectional study with a sample size of 100 cases, and the study population comprised of females with breast carcinoma operated in the Department of Surgery, Safdarjung Hospital. All cases included in the study were not-otherwise-specified (NOS) type of infiltrating ductal carcinoma (IDC). Routine

clinical details and investigations of the patients were recorded, including age, TNM stage of tumor, etc.

Further, breast cancer specimens sent for routine histopathological diagnosis were grossed, appropriate sections were taken, followed by routine processing and hematoxylin and eosin staining. They were then evaluated for the histological typing of the tumor, histological grading of the tumor, using Nottingham Modification of Bloom and Richardson grading system, and status of lymph nodes.

Also, statistical correlations were established between two of the prognostic parameters, i.e., Bloom Richardson grade and lymph node metastasis.

Results

The patients were in the age group of 45 years to 70 years.

All the cases were NOS type of infiltrating ductal carcinoma (Fig. 1).

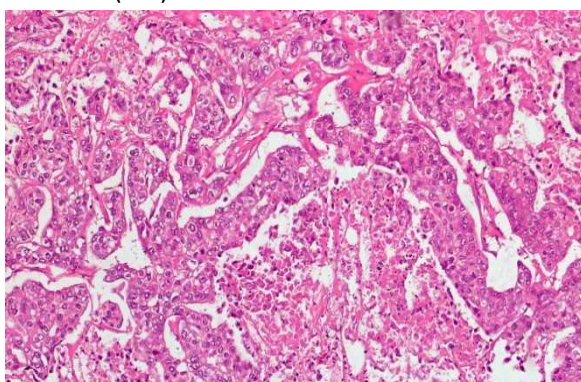


Figure 1.H & E Section Showing Infiltrating Ductal Carcinoma (X20)

On observing the tumor stage, 42% [42/100] cases belonged to pTNM stage III. This was followed by 36%

[36/100] cases in stage II, 16% [16/100] cases in stage I, and 6% [6/100] cases in stage IV (Fig. 2).

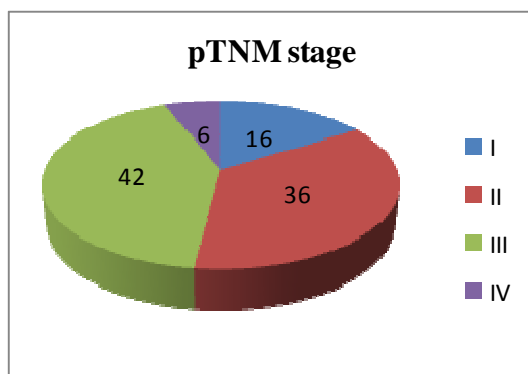


Figure 2.pTNM Stage of Cases

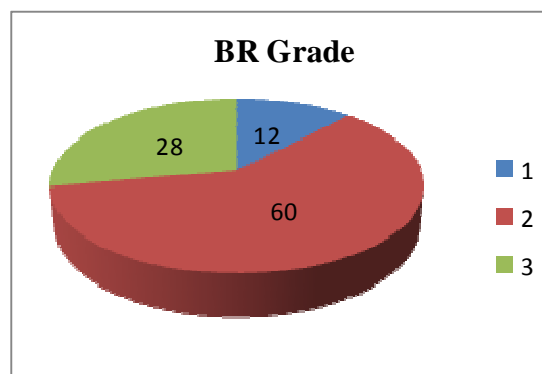


Figure 3.BR Grade of Cases

The BR grading of the cases was done, and majority (60%) [60/100] of the cases belonged to BR grade 2,

followed by 28% [28/100] cases in grade 3, and 12% [12/100] cases in grade 1. (Figure 3)

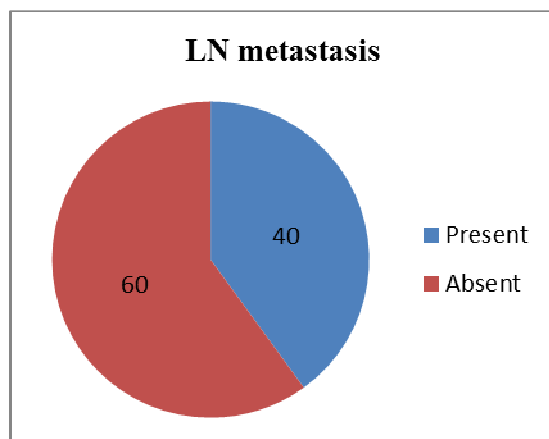


Figure 4. Lymph Node Status of Cases

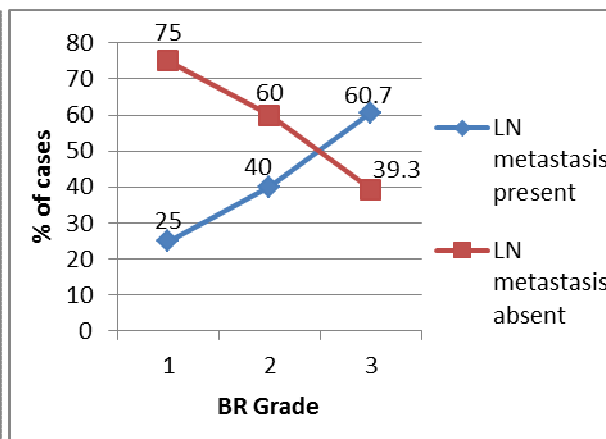


Figure 5. Correlation of BR Grade with Lymph Node Metastasis

Lymph node metastasis was present in 40% [40/100] of the cases (Fig. 4).

On correlating Bloom Richardson grade with lymph node metastasis, it was seen that lymph node metastases was shown by majority (60.7% [17/28]) of the BR grade 3 tumors, 40% [24/60] of the BR grade 2 tumors, and 25% [3/12] of the BR grade 1 tumors (Fig. 5). The correlation was found to be statistically significant (p value ≤ 0.05). Thus, there was a statistically significant correlation between increasing BR grade and presence of lymph node metastasis in the tumor. In other words, higher the grade of the tumor, more are the chances of nodal metastasis.

Discussion and Conclusion

Breast carcinoma is one of the most common cancers in women and is a leading cause of cancer-related deaths.¹ Among the various types, invasive ductal carcinomas (IDC), not-otherwise-specified (NOS) is the most common type of breast cancer. It accounts for about 88% of the primary breast cancers.² In the present study, all cases were IDC NOS type.

On observing the tumor stage, 42% cases belonged to pTNM stage III, followed by 36% in stage II, 16% in stage I, and 6% in stage IV. Our findings are comparable with those of Saxena et al.,² in whose study, stage III-b (35.2%) followed by stage III-a (27.1%) and II-b (16.3%) predominated. Stage IV patients constituted 7.9%, and only 1.4% had stage I disease. This is probably due to lack of awareness, late detection and advanced stage of breast carcinoma in Indian scenario.

The BR grading of the cases was done, and majority (60%) of the cases belonged to BR grade 2, followed by 28% cases in grade 3, and 12% cases in grade 1. Similar results were seen by Dinshaw et al.⁴ in their study, where 70% patients were reported as having grade III

disease. This can be explained by the late clinical presentation of breast cancer cases in India, thus leading to advanced stage at presentation.

In the present study, a statistically significant correlation was found between increasing BR grade and presence of lymph node metastasis in the tumor. This is in concordance with other studies in literature.⁵⁻⁸

Thus, we come to the conclusion that BR grading and lymph node metastasis show significant correlation, and are good prognostic indicators of breast carcinoma. They can be used along with other clinico-pathological parameters for prognostic and therapeutic planning in breast carcinoma cases.

Conflict of Interest: None

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