TO GRADE BREAST CARCINOMAS ACCORDING TO MODIFIED BLOOM RICHARDSON GRADING SYSTEM IN LUMPECTOMY AND MASTECTOMY SPECIMENS.

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Abstract

The study was conducted in the Department of Surgical Pathology, Patliputra Medical College and Hospital, Dhanbad. Cytological study of breast lumps was done. All patients who were clinically suspected of having breast carcinoma were subjected to FNAC of breast lump under aseptic precautions after explaining the procedure, its potential complications and taking written consent. Local examination was done and details were recorded as per proforma. FNAC was performed by following technique.

It is a useful parameter to be taken into consideration when selecting mode of therapy for breast carcinoma and to predict the tumor behavior. Cytological grading is especially useful in low resource settings, where core biopsy is not routinely performed for diagnosis of breast carcinoma. The cyto-prognostic grading helps in identifying fast growing tumors (Grade III& II). Such tumors are more likely to respond to chemotherapy than the low grade, slow growing tumors, which are better suited to pre-treatment with tamoxifen. Therefore, assessment of biological aggressiveness by cytological grading without removing the tumor is valuable approach.

Keywords: Robinson's Grade, Breast, Carcinoma & Cytological Aspirates.

Introduction

Material & Method

The study was conducted in the Department of Surgical Pathology, Patliputra Medical College and Hospital, Dhanbad

Type of Study: A cross-sectional study.

Study Design: The study included a retrospective study of mastectomy specimens received from May 2016 to October 2017 (1year 6 months) and a prospective study from November 2017 to April 2019 (1 year 6 months).

Inclusion Criteria:

Patients of both genders cytologically diagnosed as having breast carcinomas and confirmed on histopathology were included in the study.

Exclusion Criteria:

1. All non-malignant lesions of the breast.
2. Cytologically proven breast carcinomas without histopathological confirmation.

Data Collection and Methods:

- **For prospective study** - All newly diagnosed cases of breast carcinomas proven on histopathologic study were included. Clinical details were taken from the patients and recorded.

- **For retrospective study** – Cytological and Histological slides were retrieved from Department of Surgical Pathology and clinical details were noted from hospital records.

Methods of Evaluation:

1. Clinical parameters: Clinical details pertaining to age, gender, site of tumor, clinical signs & symptoms were noted. Tumor size, location and ultrasound/Mammography findings were noted.
2. Cytological study of breast lumps was done. All patients who were clinically suspected of having breast carcinoma were subjected to FNAC of breast lump under aseptic precautions after explaining the procedure, its potential complications and taking written consent. Local examination was done and details were recorded as per proforma. FNAC was performed by following technique.

Results

Table 10: Robinson's Cytological Grading^[13]

Characters	Score 1	Score 2	Score 3
Cell	Cells mostly in clusters	Mixture of single and cell clusters	Cells mostly single
Dissociation			
Cell Size	1-2 x RBC size	3-4 x RBC size	> 5 x RBC size
Cell Uniformity	Monomorphic	Mildly Pleomorphic	Pleomorphic
Nucleoli	Indistinct	Noticeable	Prominent
Nuclear Margin	Smooth	Folds	Buds or Clefts
Chromatin	Vesicular	Granular	Clumped and cleared
Grade 1= score 6-11, Grade 2=score 12-14, Grade 3= score15-18. RBC= Red Blood Cell			

All those cytologically proven cases of breast carcinomas whose lumpectomy and mastectomy specimens were obtained in the Department of Surgical Pathology were further studied histologically. Macroscopic findings of all specimens were noted and grossing was done. The tissues were processed and blocked sections were stained by Hematoxylin and Eosin. Tissue processing & staining Methods:[141]

Tumor sections were fixed in 10% neutral buffered formalin, kept in cassettes labeled by graphite pencil. Tissue was processed by Automated processor following overnight processing schedule –

Table 24: Multiple regression Analysis on Robinson's cytological Grade

Predictor	Regression coefficient	t-value	p-value
cell dissociation	0.885	3.549	0.001
cell size	0.711	3.386	0.001
Uniformity	0.865	2.419	0.017
Nucleoli	0.457	6.172	0.001
nuclear margin	0.330	4.541	0.001
Nuclear chromatin	0.170	2.404	0.018

On Univariate analysis and multiple regression analysis of cytological features, cell dissociation was the most potent feature for grading of breast carcinoma followed by cell uniformity, cell size, nucleoli, nuclear margin and nuclear chromatin.

Discussion

Patil VS et al. (2014)[127] graded 38 patients of IDC of breast who underwent FNAC and mastectomy, cytologically and histologically (employing Taniguchi's cytological grading system and SBR grading method respectively). Statistical analysis was done using 'Z' test and 'χ²' test. Total concordance between Cytological grade (CG) and Histological grade (HG) was seen in 78.95% of cases and Positive correlation between the two grading systems was also noted. Lymph node metastasis was seen in 52.63% of cases which was maximum in grade III cases.

Conclusion

It is a useful parameter to be taken into consideration when selecting mode of therapy for breast carcinoma and to predict the tumor behavior. Cytological grading is especially useful in low resource settings, where core biopsies not routinely performed for diagnosis of breast carcinoma. The cyto-prognostic grading helps in identifying fast growing tumors (Grade III& II). Such tumors are more likely to respond to chemotherapy than the low grade, slow growing tumors, which are better suited to pre-treatment with tamoxifen. Therefore, assessment of biological aggressiveness by cytological grading without removing the tumor is valuable approach.

The discordance between cytological & histological grades sometimes reported could be due to the variation in cytological features in different areas of tumor on histology, which cannot be appreciated in cytology because of limited area of approach.

More studies are necessary to further evaluate whether the discordant cases could be improved by the addition of new features such as the study of the proliferative activity and DNA ploidy pattern of the tumor in the decision-making approach of the breast carcinomas aspirates.

References

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