Original Contribution

Evaluation of Immunohistochemical Expression of p53 in Colorectal Carcinoma

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Abstract

Background: The most common gastrointestinal malignancy is colorectal carcinoma and is a major cause of morbidity and mortality. In colorectal carcinoma the most frequently mutated gene is p53 tumor suppressor gene. Mutation of p53 gene gives rise to abnormal protein which can be easily detected by immunohistochemistry. Expression of mutant p53 protein has been associated with poor clinical outcome and increased risk of death due to increased aggressiveness of the disease.

Objective: The aim of the study was to see the clinicopathological correlation of mutant p53 expression in colorectal carcinoma.

Method: Total 50 paraffin embedded tissue blocks of histopathologically diagnosed cases of colorectal cancer were evaluated by immunohistochemical staining for mutant p53 expression. The study was performed in Sir Salimullah Medical College, Dhaka (from March, 2018 to February, 2020).

Results: Out of 50 patients studied, 29 cases (58%) expressed mutant *p53* protein in the nucleus of malignant cells. There was significant association between p53 protein expression and clinicopathologic variables such as age (<40 years vs >40 years, p=0.032), site of tumor (left vs right colon, p=0.028), pathological type (mucinous vs non mucinous, p=0.039), grade (a greater tendency towards poor differentiation, p= 0.039), advanced stage (both TNM and Dukes), whereas no significant association was found between mutant p53 protien expression and other parameters like gender and morphological types.

Conclusion: The results of this current study revealed that mutant p53 positive colorectal cancer tended to be related to a higher grade of malignancy, advanced tumor stage and mucinous morphology. The results of this current study revealed that mutant p53 positive colorectal cancer tended to be related to a higher grade of malignancy, advanced tumor stage and mucinous morphology. So, p53 is an important immunohistochemical marker for colorectal cancer patients

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Keywords: Colorectal cancer, p53, Immunohistochemistry

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Introduction

Colorectal cancer (CRC) is the most common malignancy of gastrointestinal tract and it is one of the leading causes of cancer related morbidity and mortality in the world. Over 1.9 million new CRC cases and 930 000 deaths were estimated in 2020 and the burden of CRC is projected to increase to 3.2 million new cases and 1.6 million deaths by 2040.[1] Adenocarcinoma is the most common form of colorectal cancer (>95%).[2] The essential elements of the pathological assessment of colorectal cancer resection specimens include the pathologic determination of TNM stage, tumor type, histologic grade, status of resection margins, and vascular invasion.[3] ……

Methods
This cross sectional study was conducted in Department of Pathology, Sir Salimullah Medical College, Dhaka during the period from March 2018 to February, 2020. ……..

Results
The age range of study population was from 32 to 75 years and more than one third (42.0%) of patients belonged to age 50-59 years. Among the patients 64% were male. …….

Table I: Distribution of the study cases by P53 Expression (n=50)

P53 Expression	Number of cases	Percentage (%) of cases
<5% (Negative)	21	42.0
5-25% (Weakly positive)	11	22.0
26-75% (Moderately positive)	9	18.0
>75% (Strongly positive)	9	18.0

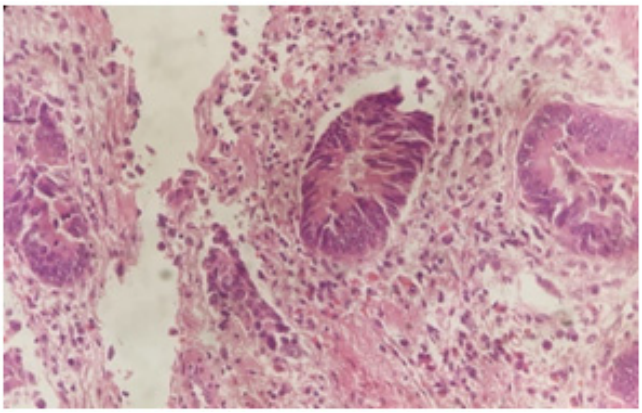

Figure 1. Photomicrograph showing H & E stained section well differentiated adenocarcinoma of colon

Discussion
Many studies reveal that the mutant p53 immunostain is very high in CRC. The positivity rate is reported being between 43% and 86.36%.[14,15,16] In the present study, out of 50 cases of colorectal carcinoma samples, 29 cases (58%) displayed mutant p53 protein overexpression. ……

References

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