

3 50-75% of tumor cells showing cytoplasmic positivity

4 >75% of tumor cells showing cytoplasmic positivity

A combined score for immunostaining based on both qualitative and quantitative immunostaining was composed by adding both qualitative and quantitative score, which was then divided into 5 main groups:

*No immunostaining score 0

*Weak immunostaining score 1-2

*Moderate immunostaining score 3-4

*Strong immunostaining score 5-6

*Very strong immunostaining score 7-8

Lymphocytes in the stroma and lamina propria were consistently positive and served as internal control and regarded as very strongly positive according to above scoring system⁽¹⁰⁾ (Figure 1). Bcl₂ expression was also positive in the basal cells of the normal colonic crypts (Figure 2).

Statistical analysis was performed using the chi-square test. At level of significance $\alpha = 0.05$ and $p < 0.05$ regarded as statistically significant.

Results

Regarding the sex of the patient, bcl₂ expression was more frequently positive in female cases (55.6%) than male cases (25%) but this was not statistically significant ($p=0.129$) (Table 1). Concerning the age of the patient, bcl₂ expression was more frequently positive in age group more than 40 years (77.8%) than age group ≤ 40 years (50%) but the results were also statistically not significant ($p=0.127$) (Table 1). Considering tumor grade, bcl₂ was expressed in all the well-differentiated Adenocarcinoma (100%) and in the moderately differentiated Adenocarcinoma it was (82.6%) and

that is more than the poorly differentiated Adenocarcinoma

(33.3%). The results were statistically significant ($p=0.013$), (Figure 3, 4) (Table 2). Bcl₂ expression was found to be positive in early stages of colorectal carcinoma being (100%) in stage A, (86%) positive in stage B while in stage C it was (66%) and (33%) in stage D (Table 3). although Bcl₂ expression was not significantly correlated to the tumor stage when comparing its expression among all the stages together ($p=0.0999$), but when taking bcl₂ expression in stage A and B each apart versus stage D, the results were statistically significant ($p=0.035$, $p=0.043$) respectively (Table 4,5). Regarding the tumor type, non mucinous adenocarcinoma expressed bcl₂ (77.8%) more than the mucinous type (22.2%) and the results were statistically significant ($p=0.031$) (fig5). There was no correlation between the tumor location and bcl₂ expression ($p=0.651$), although the distal colon showed more bcl₂ positivity (92.6%) than the rectum (7.4%) (Table 6). The extent of bcl₂ expression by tumor cells decreased significantly with respect to increasing tumor greatest diameter ($p=0.036$), so (66.7%) of the tumors of ≤ 5 cm in greatest diameter were positive for bcl₂ compared to (33.3%) of tumors > 5 cm in greatest diameter (Table 7).

An inverse correlation was found between bcl₂ expression and the lymph node status. (66.7%) of the tumors with negative lymph node metastasis were positive for bcl₂ compared to (33.3%) of the tumors with positive lymph node metastasis and the results were statistically significant ($p=0.036$). (Figure 6)