The indirect role of site distribution in high-grade dysplasia in adenomatous colorectal polyps

ABSTRACT

Background: The appropriate application of Endoscopic modalities for polypectomy depends on the likelihood that the adenoma in question harbors invasive cancer. While prior studies have evaluated polyp size and morphology in assessing the risk of malignancy, in recent decay some authorities have paid more attention to dysplasia. All in all, the relative risk of cancer based on polyp distribution in correlation with dysplasia has not been statistically studied which is done in our study.

Methods and Materials: Between June 2001 and March 2004, the distribution of 130 adenomatous polyps was compared with synchronous invasive or in situ cancer. Factors such as Patient age, Patients gender, location of lesion, size of polyp, histological subtype of adenoma on biopsy, degree of dysplasia, synchronous cancer, color of polyp, and number of polyps were included in the data collection.

Results: Multivariate logistic regression test was used to evaluate the association between malignancy and various clinical variables. It revealed histological subtype, high grade of dysplasia and size to be independent predictor of malignancy. However; left-sided location and histological subtype to be independent risk factor for high-grade dysplasia.

Conclusion: Lesions greater than 1 cm in diameter with high-grade dysplasia after speleinc flexure should be managed as presumptive malignancies with segmental colon resection. In intermediate-risk lesions the physician should decide individually.

KEY WORDS: Adenomatous Polyp, Dysplasia, Colorectal Distribution

INTRODUCTION

Colorectal Cancer is the most important malignancies in Iran and the second most common cancer overall.[1] Most colorectal cancers are believed to arise from benign adenomatous polyps,[2,3] and this concept regarding the adenoma-carcinoma sequence is the main reason for the preventing screening and removal of the adenomatous polyps using colonoscopy.[4] To this end, a great number of studies have focused on endoscopically or surgically removed adenomas, correlating different epidemiologic and pathologic features of the patient and the adenoma respectively with the finding of invasive cancer or future risk.[5] The two factors that have been repeatedly shown to be independent risk factors for malignancy include the size of the lesion and its histologic subtype of adenoma, with the risk of invasive cancer increasing with large, villous type growth. The aim of this study was thus to determine whether the distribution of adenomatous polyps with that of colorectal cancer. We therefore have examined the extent correlation between high-grade dysplasia on biopsies and their distribution has not been studied.

MATERIALS AND METHODS

From approximately 23329 biopsies performed at Milad Hospital Tehran, from Jun 2001 to March 2004, 156 consecutive patients who had undergone biopsy of a solitary adenoma or synchronous invasive or in situ colorectal carcinoma were reviewed. Patients were excluded from analysis if they had been previously diagnosed with familial adenomatous Polyposis or inflammatory bowel disease, or if correlation of the lesions on endoscopy and surgical resection could not be confirmed. All in all, 130 patients were included in our study. Factors such as patient age, patient gender, location of lesion, size of lesion, histologic subtype of adenoma on biopsy, degree of dysplasia on biopsy and resection, synchronous cancer, color of polyp and number of polyps were included in the data collection. Polyps were classified as tubular if they had 0% to 25% villous component, tubulovillous lesion if they contained 26% to 75%
villous component, and villous lesions if greater than 75% villous component. Dysplasia was divided into high grade or low grade based on the pathologist’s interpretation. All pathology specimens received intradepartmental review. Univariate and multivariate logistic regression was used to evaluate the association between malignancy and various clinical variables. Variables included patient age (by decade), location of lesion and its position to splenic flexure, size of lesion (< 10 mm, >= 10 mm), histologic subtype of adenoma on biopsy (tubular, tubulovillous, villous), and degree of dysplasia (low or high grade). However, color of polyps and clinical indications of colonoscopy were included in our study.

All variables were treated as unordered categorical variables.

RESULTS

Twenty-one of 130 patients (16.2%) were found to have adenocarcinoma on pathologic examination of the surgical specimen. The distribution of adenomatous polyps and general characteristics of adenomas and carcinomas presenting with polyps were summarized in Table 1. However, the variety of polyps’ color and colonoscopic indication were explained in Table 2.

In our study, high-grade dysplasia, villous histology, left-sided location, and increasing size were all features associated with an increased chance of malignancy. The rate of malignancy rose from 4.1% in biopsies showing low-grade dysplasia to 53.1% in biopsies revealing high-grade dysplasia. Likewise, the histology of the biopsy was predictive of malignancy with tubular, tubulovillous, and villous features corresponding, respectively, to a 2.7%, 22.2%, and 44.4% risk of malignancy in the surgical specimen. Size of the lesion revealed an increase in malignancy risk with =< 1 cm and > 1 cm lesions harboring occult malignancy in 10%, and 36.7% of cases, respectively.

On multivariate analysis, only size, degree of dysplasia, and histologic type of adenoma were independent predictors of a lesion harboring a malignancy. Odd ratios for adenomas greater than 1 cm compared with lesions that were less than 1 cm demonstrated a 3.6-fold increased. High grade of dysplasia on biopsy was associated with a 12.95-fold increased risk of occult cancer compared with low-grade lesions (95% confidence interval = 4.5 to 37.9). However, there was an 16.4-fold increased risk for villous component compared with tubular lesions (95% confidence interval = 4.8 to 83.6). Interestingly, on multivariate analysis, left-sided location and histologic type of adenoma were independent predictors of a lesion harboring a high-grade dysplasia. The shift to left was predictive of dysplasia with before and after splenic flexure, respectively, to a 5.4%, 32.3%. Segregation of all studies lesions into three risk categories based on the location of adenoma, sized and dysplasia suggests the lowest risk tumors were always benign, whereas the highest risk tumors were almost malignant (Table 3).

We did not find any significant correlation between color, age, sex and malignancy.

DISCUSSION

The presence or absence of invasive cancer is one of the most important determinants of appropriate management of a colonic adenoma. Size, high-grade dysplasia, and histologic type were all found to be associated with an increased incidence with occult invasive cancer within an adenoma. A number of studies examining large numbers of resected polyps have demonstrated an association between these factors and the incidence of invasive cancer. (Table 3) We did find there is not the mutual under-
standing in all studies. The absence of such an association may be due to their selection of risk factors or the environmental and genetic factors. In Thailand, Rerknimitr showed that right-sided colorectal polyps were more risky than recto sigmoid. Similarly, however, Yasser H. studied just site distribution between Hispanics and whites. In our study, high-grade dysplasia on biopsy was a powerful predictor of the presence of invasive cancer in the resected specimens. Similar studies confirmed our conclusion.

CONCLUSION

Lesions less than 1 cm in diameter without high grade dysplasia located before splenic flexure can be managed by endoscopic or laparoscopic resection when this expertise is available. Lesions greater than 1 cm in diameter with high grade dysplasia after splenic flexure should be managed as presumptive malignancies with segmental colon resection. In the remaining intermediate-risk lesions, treatment decisions will be predicted on the condition of the patient and the physician’s treatment philosophy, but can be made with greater precision if the presence or absence of high-grade dysplasia in the biopsy specimen is taken into account.

REFERENCES


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M=Malignancy synchronously D=Dysplasia M(D→P)=Effect of distal malignancy on proximal lesions + =positive effect - =negative effect →=the studied variable NC= Not Consider


