COLORECTAL POLYPS WITH EARLY INVASIVE CANCER ENDOSCOPIC REMOVAL OR RESECTION

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Today, colorectal cancer is a major cause of death and many, if not all colorectal cancers arise from adenomas (1-3). Since the early 1970's colonoscopic polypectomy has found wide- spread acceptance as the procedure of choice for the management of neoplastic colorectal polyps. A very small number of endoscopically removed colorectal adenomatous polyps harbour cancer (1).

Carcinoma in situ or intramucosal carcinoma is defined as the confinement of malignant cell population to the mucosa without an invasion of the muscularis propria or the submucosa. There is an adequate evidence from the literature that the risk of metastasis or recurrence in this situation is nearly zero and endoscopic removal of the polyp is regarded as the adequate treatment(1,4-7). Regardless of the gross morphology of the polyp (i.e., sessile or pedunculated) if the resection line or the subsequent part of the colonic wall demonstrates malignant cells, polypectomy alone is considered inadequate and surgical bowel resection is recommended (1,8).

A subset of cancerous colorectal adenomatous polyps constitutes an intermediary group in terms of the degree of cancerous involvement and is defined as early invasive cancer (4,5,7,8-10). In this intermediary group of cancerous polyps there is invasion of the submucosa by malignant cells but the resection line is free of tumor cells. In the management of this subset of cancerous polyps, polypectomy alone vs. surgical bowel resection is still contraversial. This review aims to explore whether or not a consensus can be established in the management of the polyps with early invasive cancer, with the information derived from the existant literature on this subject.

REPORT OF SERIES

In 1965 Manheimer reported a 3×3 cm. sigmoid polyp of which the microscopic examination revealed a small focus of mucin producing adenocarcinoma (11). The patient had a metastatic lesion in the liver which was histologically identical with the adenocarcinoma in the polyp. This was an interesting report which supported the necessity of colectomy in malignant polyps.

In 1975 Wolf and Shinya reported their experience with 855 polyps followed for 6 months to 4 years (4). Invasive cancer was observed in 5% of their series. Twenty five of those 46 patients with invasive cancer were subjected to abdominal exploration, as dictated by polyp size, gross morphology (sessile vs. pedunculated) histologic grade and adequacy of clearance between depth of invasion and plane of polyp resection. Seventeen cases showed no residual cancer, whereas 9 had tumor on the bowel wall. Of the remaining 21 patients for whom endoscopic polypectomy alone was considered adequate, none had shown residual or recurrent cancer. They concluded that endoscopic resection is adequate for pedunculated polyps with invasive cancer unless 1) the cancer is close to the plane resection; 2) the tumor is highly undifferentiated or 3) cancer is found in the lymphatics.

In 1978 Coutsoftides et al reported their experience with 17 invasive carsinoma in endoscopically removed colonic polyps (6). They found that tubular adenomas containing invasive carcinomas have a low incidence of metastatic lymph node involvement provided that the resection margin is free of tumor cells. Endoscopic polypectomy is an adequate treatment in such cases while operation is recommended for villous adenomas containing invasive carcinoma.

One other high metastasis rate was reported by Cooper et al in 1983 (12). Secondary colon resection was performed in 34 of 56 endoscopically removed polyps and lymph node metastasis was found in 14.7%.

In the following years large series of early invasive carcinoma cases were reported by Lipper et al (in 1983, 51 cases), Morson et al (in 1984, 46 cases), Cranley et al (in 1986, 37 cases) and Conte et al (in 1987, 30 cases). In all these reports the risk of metastasis or recurrence is found to be very low, but not zero and the high risk patients for metastasis or recurrence have one or more of the following features:

i) Tumor at the resection margin or very close to the resection line.
ii) Sessile polyps and/or incomplete excision

iii) Caner in the lymphatics or veins
iv) Poorly differentiated tumor (low histologic grade) (14,15,5,10).

A contrary implication was reported in 1981 by Collachio et al (13). In their series, among 729 patients undergoing polypectomy, they found 39 patients (5.3%) with polyps harbouring early invasive cancinoma. Twenty-four of these underwent either polypectomy plus surgical resection or surgical resection alone. Fifteen patients were treated with polypectomy alone. No information was available for the outcome of the patients that were treated with polypectomy alone. Of the 24 patients undergoing surgical resection 6 patients (25%) had lymph node metastasis. However in this study, not all patients underwent polypectomy. Polypectomy would have possibly resulted in exclusion of some patients with tumor invasion of the resection line. Also, the depth of tumor invasion was poorly defined and the distinction between sessile and pedunculated polyps was not clearly defined. The authors concluded that the positive criteria for surgical resection such as lymphatic invasion, stalk invasion and the degree of differentiation of the tumor had a false negative rate of 33% and a false positive rate of 50%. Therefore the authors recommended surgical resection in all polyps with early invasive cancer.

In 1985 Haggit et al reported 129 colorectal carcinomas that arose in adenomas and in which invasion was no deeper than the submucosa of the underlying colonic wall (7). The following factors were evaluated; location, gross appearance (sessile vs. pedunculated), histologic type of the adenoma (tubular, villous or tubulovillous), histologic grade and the level of invasion. They defined the level of invasion as below:

level 0: carcinoma confined to the mucosa
level 1: carcinoma in the head of the polyp
level 2: carcinoma in the neck of the polyp
level 3: carcinoma in the stalk of the polyp
level 4: carcinoma in the submucosa in the underlying colonic wall.

Sixty-three patients were treated with polypectomy alone and 66 with additional colectomy. The mean follow-up was 81 months. They found that 7 of the 8 patients with adverse outcome (*) had level 4 invasion and this was the only statistically significant factor.

One of the largest series in the literature is reported by Eckardt et al in 1988 (16). They reviewed the records of 1219 patients who had endoscopic polypectomy between 1975 and 1984. Early invasive carcinoma was found in 61 patients. Endoscopic polypectomy was regarded sufficient for 25 patients only if pathologists reported non carcinomatous lymphatic or venous infiltration if the margin of the tumor was not poorly differentiated. The remaining 36 were operated after endoscopic polypectomy. They found that the five year survival rate was similar for patients with endoscopically removed polyps containing invasive carcinoma (84.3%) and carcinoma in situ (79.0%) but differed sharply from patients with malignant polyps who underwent colectomy (55.4%). Neoplasms of greater than 2 cm in diameter were significantly more common in patients whose polyps contained malignancy, according to their report. The patients with completely excised malignant polyps were concluded to need no further treatment.

CONCLUSIONS

As discussed above, the vast majority of the authors conclude that endoscopic polypectomy is sufficient in the management of early invasive carcinoma provided that the tumor has a good histologic grade and there is no evidence of invasion of the lymphatics or veins.

Wilcox et al. calculated that, in order to estimate the risk in early invasive carcinoma, 148 cases with no metastasis are required to conclude that the risk is less than the mortality of segmental colon resection with 95% confidence.

Regarding the literature, with the exception of Collachio's and Cooper's reports, the risk of metastasis and/or recurrence in early invasive carcinoma can be accepted to be below 10% but not zero.

While estimating the true risk a consensus on the definitions is also necessary. Invasion, by the definition of WHO, is the penetration of muscularis mucosa (17). The term "early invasive carcinoma" should only be remained for carcinomas which penetrate through the muscularis mucosa but do not pass beyond the resection line. Naturally the resection margin is accepted to pass from the stalk. The term "cancer cells very close to the resection line" may influence the true risk estimate because the level of cautery depends on the technique of the endoscopist.

We conclude that invasive carcinomas:
i) in which the polypectomy margin in the stalk is free of tumor cells
ii) which have no invasion of the lymphatics
iii) which have a good histologic grade.
are good candidates for follow-up with polypectomy alone. The endoscopist, pathologist and the surgeon should make the decision regarding all these parameters. In addition, long term follow-up studies are needed with larger number of cases in order to have more definite policies.

*Adverse outcome: death from colon carcinoma, alive with colon carcinoma of positive nodes found in colectomy.

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