A review of 282 patients with carcinoma of the rectum treated by local excision suggests that some patients are best managed and perhaps preferably managed by local means. *In situ* cancer is treated adequately by local excision regardless of size or grade. Well-differentiated lesions, particularly those less than 3 cm in diameter, probably are managed best by local excision. Moderately or poorly differentiated lesions, regardless of size, probably are managed best by radical techniques until more information is available to document results with local excision. [Key words: Rectal cancer; Local excision; Rectal polyps; Transanal excision]

**Historically, cancer of the rectum** has been treated by radical excision in preference to local excision. The nature of the disease seemed to demand an attempt to resect beyond the regional spread of the disease. An approach to take as much as possible seemed logical. The abdominoperineal operation, as described by Mayo in 1904, became the standard to which all other procedures were compared.

High morbidity and mortality rates encouraged White-way et al., Culp and Jackson, Morson et al., and others to pursue alternative modes of therapy, and results have been favorable. Success of these options seems to depend on criteria for patient selection, including tumor size, grade, location, histologic appearance, mobility, and other conceptually difficult parameters. To assess survival of patients treated with local excision, we reviewed the experience at the Mayo Clinic with local excision of rectal cancers from 1956-1980.

**Methods**

From 1956-1980, 282 patients with carcinoma within 12 cm of the dentate line were managed by local techniques. Of these, 234 had adenocarcinoma. Forty-eight patients had carcinoid or other malignancies of the rectum and are not included in this study. Each of the 234 patients were evaluated by multiple parameters, including age, sex, pathohistologic findings, location of lesion, presenting symptoms, presence of synchronous disease, and tumor size and shape. Follow-up data to July 1981 were obtained. Computer analysis of this patient group was then undertaken to establish overall survival as well as survival as predetermined by separate and combinations of preoperatively perceptible parameters. Survivorship was estimated using the Kaplan-Meier method. The log-rank test was used to compare survival curves.

**Results**

The group comprised 234 patients (118 men and 116 women) with adenocarcinoma of the rectum that was managed locally. Nine patients had received local treatment at their request, three because of excessive surgical risk of a transabdominal procedure, and 222 had received local treatment as the procedure of choice. One hundred thirty-five (58 percent) of the patients had symptoms
directly referrable to their tumors. Eighty tumors were polypoid, 14 were ulcerated, and 37 were sessile. In 108 tumors, the morphology remained unclear. There were 151 Grade 1, 78 Grade 2, and five Grade 3 tumors. One hundred eighty-eight patients had their tumor excised, and 46 had their tumor destroyed by other methods (fulguration, cryosurgery, laser, and radiation). No clear difference in survival was noted in patients treated by these techniques. Six percent of patients had complications, including bleeding in 2 percent, and local infection, urinary retention, and other minor problems in 4 percent. Two patients died within 30 days of treatment, but neither death was related to the treatment.

The average size of the tumors was 2.3 cm (range, 0.5 to 8 cm). Fourteen percent of the patients had more than one carcinoma in the rectum.

Among the 234 patients were 93 patients with in situ disease (47 men and 46 women with an average age of 65.1 years, range, 40 to 88 years). Eighty-one of the in situ tumors were Grade 1 tumors, 11 were Grade 2, and one was Grade 3. When compared with age- and sex-matched controls of the general population, this group showed no significant difference in survival. There were 141 patients with invasive cancers (71 men and 70 women, with an average age of 64.6 years, range, 32 to 101). Seventy of the lesions were Grade 1, 67 were Grade 2, and 4 were Grade 3. The survival of the 141 patients with invasive cancers was not as good as survival for patients with noninvasive tumors ($P < 0.01$, log-rank test) (Fig. 1).

Among patients with Grade 1 tumors, there was no significant difference in survival between those with in situ lesions and those with invasive lesions ($P = 0.12$, log-rank test) (Fig. 2). Among the patients with tumors that were not classified as Grade 1, those with in situ tumors seem to have a better survival than those with invasive tumors, but the difference was not significant ($P = 0.08$, log-rank test).

Patients with invasive Grade 1 lesions had better survival than those with invasive Grade 2 or 3 lesions ($P < 0.02$, log-rank test). Survival was statistically improved for patients with invasive Grade 1 tumors less than 3 cm (58 percent at ten years) over that for patients with invasive Grade 2 or 3 lesions greater than 3 cm (13 percent at ten years) ($P < 0.01$, log-rank test).

Of the 234 patients, 180 never had a recurrence, five had documented distant recurrence, and 49 had local recurrence. The cumulative probability of recurrence at five years was 11 percent for those with in situ disease and 27 percent for those with invasive disease (Fig. 3, $P < 0.01$, log-rank test). Of the 49 patients with local recurrence, 36 (73 percent) had Astler-Coller A, B1, or B2 disease at the time of radical excision. At last follow-up, of the 234 patients, ten had died of rectal cancer, 46 had died of other causes, and 29 had died of unknown causes.

**Discussion**

Most patients with rectal cancer are treated by radical excision. This mode of treatment reflects our understand-