Conservative Surgery for Early Cancer of the Distal Rectum

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From 1967 through 1988, 36 patients underwent local excision of a distal rectal cancer as an initial operative procedure with curative intent. A diagnostic, preoperative protocol was performed to assess the histologic grade of the tumor, the depth of penetration in the rectal wall, and the presence of positive lymph nodes or distant metastases. All patients had a transanal local excision performed under general anesthesia. If preoperative criteria were not confirmed by histopathologic specimen examination, a major operation was advised. To increase the chance of local control, external adjuvant radiotherapy was used in T2 cancers. Postoperative mortality was 0 percent. The postoperative complication rate was 9.3 percent. The observed local recurrence rate was 3 percent, and the rectal cancer-specific death rate was 6 percent. We compared these results with those obtained in 70 concomitant patients operated on by us employing a traditional resection for Dukes' A rectal cancer. There are no statistically significant differences between groups. In light of our findings, a policy of curative local excision is justified in accurately selected cases of distal rectal cancer. [Key words: Rectum; Rectal cancer; Conservative treatment; Local excision]


The standard surgical procedure for carcinoma of the rectum is low anterior resection (LAR) or abdominoperineal resection (APR). However, conservative surgery for early cancer of the distal rectum is receiving greater attention since local tumor excision (LE) performed for cure in selected patients has shown survival rates comparable to those achieved by more radical procedures. Since APR is associated with considerable mortality and morbidity rates, especially in older patients, and colostomy is always required, there is evidence that some patients are jeopardized by a major ablative operation whereas a lesser procedure could be sufficient.

We report our experience with LE of early rectal cancer.

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PATIENTS AND METHODS

From 1967 through 1988, 36 patients underwent local excision of a distal rectal cancer as an initial operative procedure with curative intent. This constituted 8.5 percent of all patients treated for rectal cancer in our department during that period. Local excisions performed for in situ rectal carcinoma or infiltration limited to the mucosa were excluded. We also excluded malignant rectal polyps, patients with familial adenomatous polyposis coli, and patients who were treated palliatively. We included those patients in whom local excision was considered insufficient postoperatively and for whom a major operation was advised later.

There were 19 males and 17 females with a mean age of 65 ± 11 years. Tumor sizes ranged from 1.5 to 4 cm in 35 patients. In one case, the diameter was 5 cm but the tumor was very mobile on the rectal wall and was therefore considered for LE. The average size was 3 ± 0.8 cm in diameter. The distance above the anal verge to the lowest edge of the tumor ranged from 2 to 8 cm, and the average distance was 5 ± 2 cm.

Patient Selection

A diagnostic, preoperative protocol was performed to assess the histologic grade of the tumor, the depth of penetration in the rectal wall, and the presence of positive lymph nodes or distant metastases.

Along with history and digital examination, preoperative tests included rectoscopy and biopsy, barium enema to exclude other colonic lesions, carcinoembryonic antigen test, chest x-ray, and liver ultrasound (US) scan. Before 1978 we used liver scintigraphy to assess the presence of metastases. Since 1980, a computer tomographic scan of the pelvis has been performed to evaluate extrarectal infiltration and nodal disease. Since 1985, we have used rectal endosonography to evaluate both
tumor infiltration in the rectal wall and nodal status. Rectal lymphoscintigraphy was employed in six cases. Table 1 shows our present diagnostic, preoperative protocol.

The choice of local excision for definitive surgery with curative intent was based on the following criteria: tumor site in the distal rectum, exophytic growth, maximum diameter less than or equal to 4 cm, tumor freely mobile on the rectal wall, and technical feasibility of total excision of the tumor with an adequate margin of healthy tissue.

Contraindications to LE with curative intent were the possibility of doing an anterior resection, extensive involvement of muscular rectal wall, the presence of clinically detectable retrorectal lymph nodes, a positive preoperative biopsy for a mucinous or poorly differentiated tumor, and high levels of tumor markers.

**Operative Technique**

All patients had a transanal local excision performed under general anesthesia. The anal canal was held open with a Parks™ (Waldemar-Link, Hamburg, Germany) retractor. A simple submucosal excision was used for freely mobile tumors judged as T1 (invasion limited to submucosa), or a full-thickness disk excision was employed in minimally tethered tumors judged as T2 (invasion of muscularis propria). Infiltration of a weak (1:300,000) adrenaline solution was generally used.6

The rectal wall area to be removed was outlined by traction sutures of 3/0 silk, held together like "parachute" wires.7 The rectal wall incision was made by needle diathermy 1 cm from the base of the tumor. The wound was usually closed with interrupted 3/0 Vicryl™ (Ethicon, Inc., Somerville, NJ) sutures. According to other authors,1,3,5-7 no special measure was taken to prevent loose tumor cells from "seeding" in the wound created by LE.

**Table 1. Preoperative Diagnostic Protocol**

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<tr>
<th>Procedure</th>
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<tr>
<td>Rectal digital examination</td>
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<tr>
<td>Rectoscopy and biopsy</td>
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<tr>
<td>Barium enema</td>
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<tr>
<td>Endorectal ultrasonography</td>
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<tr>
<td>Pelvic CT scan</td>
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<tr>
<td>Liver US scan</td>
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<tr>
<td>Chest x-ray</td>
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<td>Tumor markers</td>
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**Postoperative Histologic Examination**

The postoperative histologic examination was essential in evaluating the effectiveness of local excision as a curative operation. Surgical specimens were pinned to a corkboard and sent to the pathologist. Multiple sections were taken from around the periphery and from central areas of the specimen.8 Histologic type, grade of malignancy, depth of invasion in the rectal wall, and absence of neoplastic infiltration in the specimen margins were evaluated. Local excision was considered curative when tumor was not mucinous, carcinoma was well or moderately differentiated (G1-G2), rectal wall infiltration was limited to submucosa or muscularis propria but not beyond it (T1-T2), and deep and lateral specimen margins were tumor free. If these criteria were not fulfilled, local excision was considered a "total biopsy" and an APR was recommended.

**Adjuvant Radiotherapy**

To increase the chance of local control, external adjuvant radiotherapy was used in T2 cancers. A total dose of 4,700 cGy was given postoperatively, five fractions per week to a volume encompassing the primary lesion and the true pelvis. Patients with tumor limited to submucosa (T1) did not receive adjuvant treatment. Patients were followed at regular intervals (generally every six months) by clinical examination, endoscopy, and laboratory and imaging studies. Pelvic CT scan and endorectal ultrasonography to detect the presence of extramucosal recurrence have been employed in the follow-up protocol since their introduction in our department.

**RESULTS**

All tumors were adenocarcinomas. Histopathologic findings are reported in Table 2. Cancer was confined to the submucosa in 20 (T1), extended into the muscularis propria in 15 (T2), and invaded perirectal fat in one (T3). Adenocarcinomas were well differentiated in 24 (G1), moderately differentiated in nine (G2), and poorly differentiated in three (G3). Margins were clear in 33, doubtful in one, and involved in two. No vascular or lymphatic invasion was present in any patient. After postoperative histologic examination, patients were divided into two groups. Group 1 included four patients in whom histologic criteria were not ful-