Diseases of the Colon & Rectum

Original Contributions

Immediate Radical Resection After Local Excision of Rectal Cancer: An Oncologic Compromise?

Dieter Hahnloser, M.D., Bruce G. Wolff, M.D., David W. Larson, M.D., Jennifer Ping, M.D., Santhat Nivatvongs, M.D.

Division of Colon and Rectal Surgery, Mayo Clinic, Rochester, Minnesota

PURPOSE: Local excision for early-staged rectal cancers is controversial. Preoperative understaging is not uncommon and radical resection after local resection may be needed for a curative treatment. The aim of this study was to determine the frequency and outcome of radical resection (within 30 days) after local excision for rectal adenocarcinoma. METHODS: All locally excised rectal cancers (curative intent) that required radical surgery within 30 days were reviewed (1980–2000). T2–3N0–1 stage cancers were each matched to three primary radical surgery controls for stage, age (±5 years), gender, date (±1 years), and type (abdominoperineal resection or low anterior resection) of operation. T1N0–1 cancers were compared with stage-matched rectal cancers treated by either primary radical surgery (n = 78) or local excision alone (n = 77). RESULTS: Fifty-two locally excised rectal adenocarcinomas (29 transanal and 23 polypectomies) were followed by radical surgery (24 abdominoperineal resection and 28 low anterior resection) within 7 (range, 1–29) days. Radical surgery was performed because of a cancerous polyp (n = 42), positive margins (5), lymphovascular invasion (3), and T3-staged cancer (2). Twelve of 52 cancers (23 percent) were found to have nodal involvement and 15 of 52 (29 percent) showed residual cancer in the resected specimen. The T2–3N0–1 stage controls were well matched. No significant difference in tumor location, size, adjuvant therapy, or length of follow-up was noted. Local and distant recurrence occurred in 2 of 4 T2–3N1 tumors and in 2 of 11 T2–3N0 cancers and were comparable to the matched controls, as was survival, with the exception of shorter survival in T3N1 cases, but numbers were too small for a definitive conclusion. Length of follow-up was not different. For T1 cancers, the controls were also comparable regarding patient and tumor demographics and adjuvant therapy. Nodal involvement was 21 percent in T1 study cases and 15 percent in T1 primary radical-surgery controls, with a trend toward location in the lower third of the rectum in both groups (58 percent and 50 percent, respectively). Local recurrence rates were 3 percent in the study group, 5 percent for patients undergoing primary radical surgery, and 8 percent for local excision alone. Distant metastasis (11 percent, 12 percent, and 13 percent, respectively) and overall five-year survival were also not significantly different (78 percent, 89 percent, and 73 percent, respectively). CONCLUSIONS: Nodal involvement in attempted locally excised rectal cancers is not uncommon. Local excision of rectal tumors followed by radical surgery within 30 days in cancer patients does not compromise outcome compared with primary radical surgery. Even after radical surgery for superficial T1 rectal cancers, recurrence rates are not insignificant. Future improvements in preoperative staging may be helpful in selecting tumors for local excision only. [Key words: Rectal cancer; Local excision; Radical resection; Recurrence; Survival]

Radical *en bloc* resection of the rectum and mesorectum, by either abdominoperineal (APR) or low anterior resection (LAR), is the mainstay of treatment for rectal cancer.[1] In recent years, local excision has become an alternative treatment for selected patients with early-stage cancers with favorable clinicopathologic characteristics and for patients unfit to undergo major surgery.[2,3] However, local recurrence rates after local excision can be as high as 18 percent for T1 cancers and 37 percent for T2 cancers.[4,5] Although local excision for early-staged rectal cancers is

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D. Hahnloser's current address is: Visceral and Transplantation Surgery, University Hospital Zurich, Switzerland.

Correspondence to: Bruce G. Wolff, M.D., Division of Colon and Rectal Surgery, Mayo Clinic, 200 First Street SW, Rochester, Minnesota 55905, USA, e-mail: wolff.bruce@mayo.edu

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a less morbid alternative to radical surgery,[3] its role as a curative procedure remains controversial. Disease-free survival and overall survival rates are the main criteria by which any surgical treatment of rectal cancer must be evaluated.

Preoperative staging of rectal carcinoma remains a challenging and essential component of patient management. Accuracy, sensitivity, and specificity of preoperative imaging have increased in recent years.[6–8] Underestimation of the extent of tumor growth is not uncommon, however, and for these patients radical surgery after local excision may be needed for a curative treatment. Furthermore, locally excised rectal polyps or adenomas that are assumed to be benign contain invasive carcinoma in up 10 percent to 20 percent of patients.[9–11] This situation may lead to the recommendation of radical surgery.[12,13] It is unknown whether immediate radical surgery after local excision of a rectal cancer will compromise outcome.

The aim of this study was to determine the frequency and outcome when the decision was made to proceed with radical resection within 30 days after local excision for rectal adenocarcinoma. We compared these results with those for patients who underwent either primary radical resection or only local excision in a stage-matched fashion.

PATIENTS AND METHODS

A retrospective review of all patients with curative-intent, locally excised rectal cancers who underwent radical surgery within 30 days at the Mayo Clinic from 1980 to 2000 was performed. The collected data included gender, age, size and location of the tumor in the rectum (upper, middle, or lower third), type of local excision (full-thickness transanal excision or colonoscopic polypectomy), interval to and reason for radical surgery, type of radical surgery (APR or LAR), and final pathology stage. Furthermore, after local excision, cancers were grouped into low-risk (<3 cm diameter, <33 percent circumference, completely removed, no adverse pathologic features) and high-risk tumors.

T2–3N0–1 stage cancer cases were then each matched to three primary radical-surgery controls for stage, age (±5 years), gender, and date (±1 year) and type (APR or LAR) of operation. T1N0–1 cancer cases were compared with stage-matched rectal cancers treated by either primary radical surgery (n = 78) or local excision alone (n = 77) during the same time period.

Only after all patients were matched was postoperative adjuvant therapy and outcome information obtained through the Mayo Clinic Cancer Registry (annual follow-up questionnaire) and by chart review or death reports. The outcomes were defined as the cumulative probability of recurrences (local recurrence and distant metastasis), overall survival, and disease-free survival.

Statistical Analysis

Demographic and baseline clinical data were compared by use of two-sample *t*-tests (or rank-sum tests when necessary and appropriate) for continuous variables and χ^2 tests for nominal variables. When low expected counts were observed, Fisher's exact tests were used. Ordinal variables were compared by means of Mantel-Haenszel χ^2 tests with ridit scores. Survival (including overall and cancer-free survival) was estimated through the Kaplan-Meier method. All statistical tests were two-sided, and $P < 0.05$ was considered significant. All analysis was conducted with SAS version 8.2 (SAS Institute Inc., Cary, NC).

RESULTS

Fifty-two locally excised rectal adenocarcinomas followed by radical surgery (24 APR and 28 LAR) within 7 (range, 1–29) days were identified during the study period. Patient and tumor demographics are shown in Figure 1. Preoperative investigations included digital rectal examination and colonoscopy in all cases. After 1990 endorectal ultrasound (ERUS) was performed in addition in ten patients and computed tomography (CT) scanning was done in five patients. Seven preoperatively known rectal adenocarcinomas were treated by full-thickness transanal excision and then followed by radical surgery because of advanced stage T3 (n = 2), positive margins (4), or lymphovascular invasion (1). Forty-five rectal polyps were initially removed by transanal excision in 22 cases or by colonoscopic polypectomy in 23 cases (20 snare and 3 piecemeal). Radical surgery was then performed because of a cancerous polyp in 42 patients (adenocarcinoma grade G4 in 3, G3 in 14, G2 in 24, and signet cell cancer in 1 case), incomplete removal of a cancerous polyp in 1 patient, and lymphovascular invasion in 2 cases.

After local excision, 27 cancers (52 percent) were classified as high-risk and 25 (48 percent) as low-risk tumors. Five of the 25 low-risk cancers (20 percent)

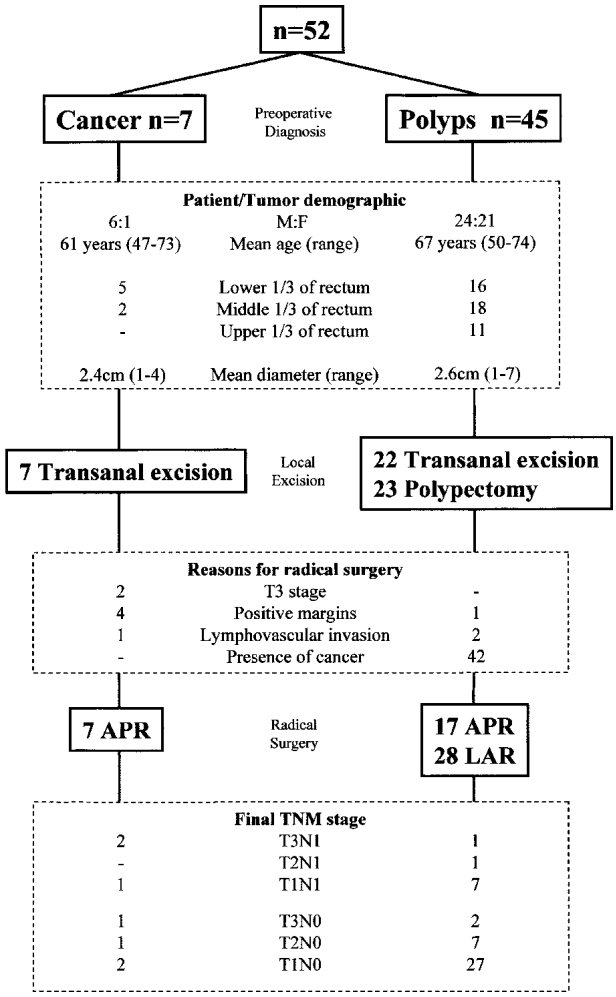

Figure 1. Patient and tumor demographics of 52 study cases requiring radical surgery within 30 days after local excision of a rectal cancer. APR = abdominoperineal resection; LAR = low anterior resection.

demonstrated metastatic lymph nodes after radical surgery (one T2N1 and four T1N1) and six tumors (24 percent) were upgraded to G3/G4 cancers. Overall, nodal involvement was diagnosed in 12 of 52 cancers (23 percent) and 15 of 52 (29 percent) showed residual cancer in the resected specimen (Fig. 1). After radical surgery, one anastomotic leak, three wound infections, two urinary tract infections, and one myocardial infarction occurred. Mean hospitalization was 12 (range, 4–48) days.

T2–3N0–1 Cancers

The 14 T2–3N0–1 stage cases were each well matched to three primary radical surgery controls (Table 1). No difference between cases and controls in patient demographics, tumor location, or adjuvant therapy was noted. No control received preoperative radiotherapy. However, primary radical surgery control cancers were significantly larger. Local and distant recurrence occurred in 2 of 4 T2–3N1 tumors and in 2 of 11 T2–3N0 cancers and were comparable to the matched controls. Survival and length of follow-up were not different between groups (Table 2). Because of the small number of cases, formal Kaplan-Meier survival curves could not be calculated.

T1N0–1 Cancers

Not surprisingly, most of the study cases of locally excised cancers followed by radical surgery within 30 days were T1 cancers (37/52, or 71 percent) with nodal involvement in 8 of 37 (21 percent) patients. T1N0 and T1N1 cases were combined, so they could be compared with two groups of primary surgery controls (N = 78, 66 T1N0 and 12 T1N1) and local excision -only controls (n = 77, all T1 N unknown). Nodal involvement in the T1 study cancers (21 percent) was comparable to the 12 of 78 (15 percent) in the primary surgery controls ($P = 0.08$). Residual cancer was found in 7 of 37 (19 percent) of the resected specimens in the study group. By definition, residual cancer and nodal involvement in the local excision only controls were unknown.

Patient and tumor demographics in the study cases were compared with those of the two control groups and are listed in Table 3. Groups were comparable, with the exception of patients in the local-excision control group being significantly older and their cancers being less frequently located in the upper third of the rectum than in the primary-surgery control group or in the study cases (70 years *vs.* 63 years and 66 years, $P = 0.004$; and 4 percent in the upper third of the rectum *vs.* 28 percent and 22 percent, $P = 0.04$, respectively). Furthermore, T1N1 cases received postoperative radiotherapy less frequently than did T1N1 primary radical-surgery controls (25 percent *vs.* 83 percent, $P \leq 0.001$).

Follow-up and outcome of T1N0–1 cases and controls are listed in Tables 4 and 5. After a median follow-up of up to ten years, local (3 to 8 percent) and distance (11 to 13 percent) recurrences remained low and were not found to be significantly different between study cases and controls. Overall survival and cancer-free survival were comparable (Figs. 2 and 3). Five-year and ten-year overall survival rates for the study cases were 79 percent (95 percent confidence interval (CI), 65 percent to 93 percent) and 65 percent

Table 1.
Patient and Tumor Demographics of T2–3N0–1 Stage Cases Matched to Three Primary Radical-Surgery Controls

	n	F:M	Mean Age (Years)	Cancer Level Low, Middle, Upper Third of Rectum (%)	Mean Tumor Size (cm)	Tumor Grade G2, G3, G4 (%)	Postoperative Chemotherapy (%)	Postoperative Radiotherapy (%)
T3N1 cases	3	0:3	55.0	67, 33, 0	4.0	67, 33, 0	67	100
vs. matched controls	9	1:8	56.8	56, 44, 0	3.6	67, 22, 11	75	100
T2N1 cases	1	1:0	66.0	100, 0, 0	2.0	100, 0, 0	100	100
vs. matched controls	3	0:3[a]	65.7	100, 0, 0	6.2[a]	67, 33, 0	67	100
T3N0 cases	3	1:2	76.7	33, 33, 33	1.7	33, 67, 0	33	33
vs. matched controls	9	3:6	79.8	56, 33, 11	4.3[a]	78, 22, 0	33	33
T2N0 cases	8	5:3	70.1	63, 12, 25	2.8	13, 50, 37	0	0
vs. matched controls	24	6:18	69.0	63, 16, 21	4.3[a]	96, 4, 0[a]	0	4

[a] $P < 0.05$.

Table 2.
Outcome of T2–3N0–1 Stage Cases Matched to Three Primary Radical-Surgery Controls

	n	Median Follow-Up (Months)	Local Recurrence n (%)	Distant Metastasis n (%)	Alive, No Disease n (%)	Death Because of Disease n (%)	Death From Other Cause n (%)
T3N1 cases	3	57	0	2 (67)	—	2 (67)	1 (33)
vs. matched controls	9	135[a]	1 (11)	2 (22)	6 (67)	3 (33)	—
T2N1 cases	1	25	0	0	1 (100)	—	—
vs. matched controls	3	74	0	0	3 (100)	—	—
T3N0 cases	3	88	1 (33)	0	1 (33)	—	2 (67)
vs. matched controls	9	52	0	1 (11)	5 (56)	1 (11)	3 (33)
T2N0 cases	8	92	0	1 (13)	4 (50)	1 (13)	3 (37)
vs. matched controls	24	98	2 (8)	3 (13)	11 (46)	5 (21)	8 (33)

[a] $P < 0.05$.

(48 percent to 82 percent), respectively, compared with 91 percent (85 percent to 97 percent) and 78 percent (68 percent to 88 percent) for primary-surgery controls and 73 percent (63 percent to 83 percent) and 45 percent (33 percent to 57 percent) for local excision-only controls. Again, no statistically significant difference was found. When comparing the two control groups, overall survival was shorter for the local excision-only group ($P \leq 0.001$), but cancer-free survival was comparable ($P = 0.4$). This difference most likely is a result of the increased age at the time of surgery in the local excision-only group (71 years *vs.* 63 years, $P \leq 0.001$).

UICC Stage I Cancers

Thirty-seven cancers were International Union Against Cancer (UICC) Stage I (8 T2 and 29 T1) in this study and were compared with 90 primary radical-surgery controls (24 matched for the T2 cancers and 78 T1 controls). Patient and tumor demographics and outcome were comparable between cases and controls (Table 6). Overall and cancer-free survival rates were not different.

DISCUSSION

Local excision for rectal cancer is appealing because of its low morbidity and excellent functional results. To select patients for local excision, criteria such as proximal margin of the lesion <10 cm from the anal verge, diameter <3 to 4 cm, circumferential involvement <33 percent of the rectum, and others have been established in both retrospective and prospective studies.[14,15] Pathologic features, such as poor dif-

Table 3.
Patient and Tumor Demographics of T1N0–1 Stage Cases *vs.* T1N0–1 Primary Surgery Controls (n = 78) and *vs.* T1Nx Local Excision-Only Controls

	n	F:M	Mean Age (Years)	Cancer Level Low, Middle, Upper Third of Rectum (%)	Mean Tumor Size (cm)	Tumor Grade G2, G3, G4	Postoperative Chemotherapy (%)	Postoperative Radiotherapy (%)
T1N1 cases	8	4:4	65.7	50, 25, 25	2.3	25, 50, 25	50	25
vs. T1N1 radical surgery	12	7:5	63.6	58, 33, 8	3.2	42, 58, 0	75	83[a]
T1N0 cases	29	11:18	65.6	28, 52, 20	2.3	64, 36, 0	0	0
vs. T1N0 radical surgery	66	26:40	62.3	18, 50, 32	2.7	59, 41, 0	0	0
T1N0–1 cases	37	15:22	65.6	32, 46, 22	2.3	55, 39, 6	14	5
vs. T1N0–1 radical surgery	78	33:45	62.5	24, 48, 28	2.8	56, 44, 0	12	13
vs. T1Nx local excision	77	28:49	70.4[a]	48, 48, 4[a]	2.2	N/A	0	0

N/A = not available.
[a]$P < 0.05$.

Table 4.
Outcome of T1N1 and T1N0 Stage Cases *vs.* Primary Surgery Controls

	n	Median Follow-Up (Months)	Local Recurrence n (%)	Distant Metastasis n (%)
T1N1				
Cases	8	66	1 (13)	2 (25)
Radical surgery controls	12	138	1 (8)	1 (8)
T1N0				
Cases	29	111	0	2 (7)
Radical surgery controls	66	119	3 (5)	8 (12)

Table 5.
Outcome of T1N0–1 Stage Cases *vs.* T1N0–1 Primary Surgery Controls and *vs.* T1Nx Local Excision-Only Controls

	n	Median Follow-Up (Months)	Local Recurrence n (%)	Distant Metastasis n (%)
T1N0–1 cases	37	101	1 (3)	4 (11)
T1N0–1 radical surgery control	78	122	4 (5)	9 (12)
T1Nx local excision-only control	77	85[a]	6 (8)	10 (13)

[a]$P < 0.05$.

ferentiation, lymphovascular or perineural infiltration, and mucin production have been associated with an increased local recurrence rate after transanal excision and may indicate the need for further treatment.[16] However, the final pathologic TNM stage remains the most powerful predictor of postoperative outcome, but preoperative identification of patients with disease limited to the rectal wall (T1/2N0M0) is difficult. Digital rectal examination, ERUS, and magnetic resonance imaging (MRI) can give information on depth of invasion and presence of metastatic lymph nodes, but they do not replace the histologic examination.[14,17] In fact, whole-tumor histologic evaluation after *en bloc* resection is the best way to reveal a malignant component in a polyp, to evaluate the risk of distant spread, and to indicate the need for secondary treatment—adjuvant radiochemotherapy and/or radical surgery. Several studies have shown that adjuvant radiation alone or in combination with chemotherapy can improve outcome after local excision of high-risk T1 or T2 rectal cancers.[15,18,19] However, only radical surgery (APR or LAR) will definitely assesses regional lymph nodes.

In this study, over a period of 20 years, immediate

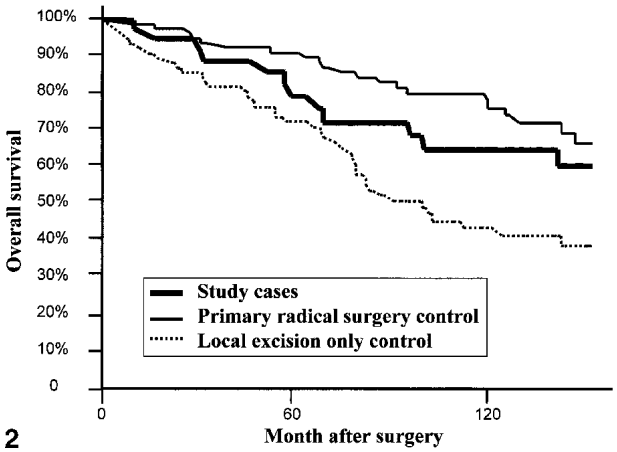

Figure 2. Overall survival of T1N0–1 cases (n = 37) was comparable to overall survival of T1Nx local excision-only controls (n = 77, $P = 0.06$) and to T1N0–1 primary radical-surgery controls (n = 78, $P = 0.2$).

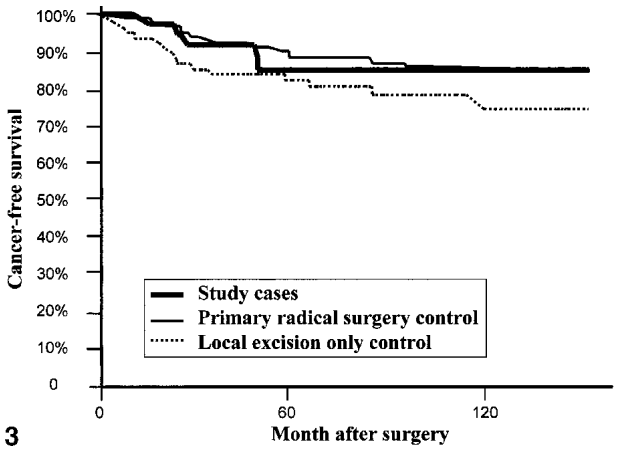

Figure 3. Cancer-free survival of T1N0–1 cases (n = 37) was comparable to cancer-free survival of T1Nx local excision-only controls (n = 77, $P = 0.3$) and to T1N1–0 primary radical-surgery controls (n = 78, $P = 0.9$).

radical surgery within 30 days after local excision was performed in 52 patients. This might be considered a very low number of patients, but at the Mayo Clinic local excision for cure of rectal cancers was only performed in highly selected patients, and in general, we prefer a more aggressive approach with primary radical surgery. This is also illustrated by the fact that during the study period only 77 patients with T1 cancers underwent only local excision and in another 34 T1 cancer patients additional radical surgery was performed within 30 days. There were no strict, uniform criteria for deciding whether to proceed with radical surgery, adjuvant therapy, or close observation. The decision was made individually in discussion with the surgeon and the patient. It cannot be denied that this selection bias might have influenced outcome in this study. Sometimes, the preferred curative-intent therapy was compromised, either because the physician believed the patient's risk factors and comorbidities precluded radical resection (physician compromise) or because the patient refused the proposed treatment regimen (patient compromise).

When the decision was made to proceed with radical surgery (in 27 high-risk and 25 low-risk cancers), nodal involvement was not uncommon (26 percent in high-risk and 20 percent in low-risk cancers, overall 23 percent). Even in T1 cancers, metastatic lymph nodes were not infrequent (21 percent). This remains one of the main concerns with local excision of rectal cancers, because the possibility of leaving metastatic lymph nodes in the mesorectum exists. The problem of predicting lymph node spread has also been shown for early T1 and T2 rectal cancers, a group in which the overall rate of lymph node spread remains in the 10 percent to 20 percent range.[20] The accuracy of ERUS in detecting lymph node metastasis ranges from 65 percent to 81 percent,[21] and that of MRI from 72 percent to 92 percent,[22] therefore, preoperative staging by either method does not completely eliminate the possibility of leaving metastatic lymph nodes behind. In a recent report from our institution, the overall rate of lymph node metastasis was 13 percent in 353 primary resected T1 colorectal cancers.[13] Of particular concern is that T1 cancers in the lower third of the rectum, the ideal cancers for local excision, were at particularly high risk for lymph node involvement (10 of 29 cases (34 percent), sixfold relative risk, $P < 0.001$). Of similar concern is the fact that in this study, nodal involvement was also found in one of five low-risk cancers. Most surgeons would argue that those cancers are ideal for local excision and no further treatment is indicated. The number of patients in this study is too small to be conclusive on this worrisome aspect. However, radical surgery correctly addresses these lymph nodes, whereas local excision, including snare polypectomy, transanal excision, transanal endoscopic microsurgery, and posterior approaches, might not.

Retrospective and prospective studies have shown that rectal cancers can have similar outcome after local excision and after primary radical surgery.[3] In this study, local excision of rectal tumors followed by radical surgery within 30 days did not compromise outcome compared with matched cases of primary radical surgery. Only for the three advanced T3N1 patients did the outcome seem worse than after primary radical surgery (2/3 died because of cancer *vs.*

Table 6.
UICC Stage I Cancers: Patient and Tumor Demographics and Outcome

	Study Cases	Primary Radical-Surgery Controls	*P* Value
Patients (n)	37	90	
Female:male	16:21	32:58	0.4
Mean age (years)	66.6	64.1	0.2
Tumor level (low, middle, upper rectum)	35%, 43%, 22%	30%, 41%, 29%	0.7
Mean tumor size (cm)	2.4	3.1	0.053
Tumor grade (G2, G3, G4)	64%, 36%, 0%	69%, 31%, 0%	0.07
Postoperative chemotherapy	5%	0%	0.2
Postoperative radiotherapy	2%	1%	0.2
Median follow-up (months)	101	107	0.4
Local recurrence	0	3 (8%)	0.2
Distant metastasis	3 (8%)	11 (13%)	0.3
5-year overall survival (95% CI)	79% (66%–93%)	88% (81%–95%)	
10-year overall survival (95% CI)	62% (46%–80%)	72% (62%–81%)	0.4
5-year cancer-free survival (95% CI)	94% (86%–99%)	88% (81%–94%)	
10-year cancer-free survival (95% CI)	90% (79%–99%)	84% (77%–92%)	0.4

CI = confidence interval; UICC = International Union Against Cancer.

3/9, respectively), but the numbers are too small for a definitive conclusion in this subgroup of T3N1 cases. Those three patients were operated on before the standard preoperative staging with ERUS. Therefore, if these patients were seen today they might have been identified preoperatively as having advanced cancers and been treated with neoadjuvant therapy plus primary radical surgery. Finally, one patient refused adjuvant chemotherapy. However, immediate radical surgery after attempted local excision followed by adjuvant radiotherapy seems to have successfully addressed the local lymph nodes in these three patients, because recurrences were distant (lung and bone metastasis, at 6 and 16 months, respectively) and none were local.

Local recurrences in T1 cancers occurred in 3 percent after immediate reoperation compared with 5 percent after primary radical surgery and 8 percent after local excision only. Although these recurrence rates after locally excised cancers are lower than those reported by other centers,[4,5] recurrence rates even after radical surgery for superficial T1 rectal cancers are not insignificant. Importantly, immediate radical surgery after attempted local excision did not compromise outcome, but it also did not significantly improve outcome compared with local excision only. Baron *et al.*[23] compared the results of 21 patients who underwent salvage surgery (APR or LAR) for locally recurrent rectal cancer after transanal excision, snare excision, or fulguration with those of 21 patients who underwent immediate radical surgery after local treatment for tumors with adverse features. Five-year disease-free survival was 55 percent for patients who underwent salvage surgery and 94 percent for patients who underwent immediate surgery. In another older study,[24] 6 of 15 patients with poorly differentiated tumors treated by transanal excision underwent immediate radical surgery whereas 9 patients were only followed up clinically. Cancer death occurred in three of six patients who underwent immediate surgery, and four of nine clinically followed patients developed recurrence, with three of the patients dying because of the recurrence. These results support the observation that adverse pathologic features decrease survival and local control in patients with Stage I disease regardless of therapy.[3]

Local recurrence after local excision of Stage I rectal cancer is often amenable to salvage surgery (79 percent curative resection in 29 patients),[25] but the stage of the recurrent tumor is often more advanced than the primary tumor (93 percent) and disease-free survival is low (59 percent). These results are similar to those of our own series of 304 recurrent rectal cancers with 29 patients having recurrence after local excision.[26] Curative resection (no residual disease) was possible in 17 patients (59 percent) and palliative resection in 12 patients (41 percent; 4 patients with microscopic and 8 with macroscopic residual disease). Overall actual five-year survival was 43 percent.

The poor results of salvage surgery emphasize the importance of appropriate selection of the initial treatment of Stage I rectal cancers. Future improvements in preoperative staging may be helpful in selecting tumors for local excision only. Three-dimensional imaging is a new innovation in the field of ERUS, which may further improve its accuracy.[27] Although MRI prediction of T stage is only moderately accurate, it is currently the most suitable preoperative imaging mo-

dality to predict involvement of the mesorectal fascia.[28] Other strategies such as downstaging, *e.g.,* downsizing with preoperative chemoradiation[29,30] or adjuvant chemoradiation after local excision,[18,31] might influence outcome and are currently being investigated. Because of the unexpectedly high rate of nodal metastasis in T1 lesions in this study, adjuvant chemoradiation therapy should be considered, but there are no data in this group of patients to recommend this. This option would simply be considered on the basis of clinical deduction.

CONCLUSIONS

Nodal involvement in attempted locally excised rectal cancers is not uncommon, even in so-called low-risk or T1 cancers. Local excision of rectal tumors followed by immediate radical surgery within 30 days in cancer patients does not compromise outcome compared with primary radical surgery. Even after radical surgery for superficial T1 rectal cancers, recurrence rates are not insignificant. Future improvements in preoperative staging may be helpful in selecting tumors for local excision only.

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