

Local Excision of Rectal Cancer Oncologic Results

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While radical resection remains the standard treatment for distal rectal cancer, recent improvements in preoperative screening modalities and lower rates of morbidity and mortality have led to renewed interest in local excision. Unfortunately, there are no randomized, controlled trials comparing local excision to APR, and the majority of the data supporting the use of local excision comes from small, single-institution retrospective reviews that do not lend themselves easily to comparison. In this article we will review the current oncologic results available for local excision of rectal cancer.
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In 2003, approximately 42,000 new cases of rectal cancer were diagnosed. Rectal cancer continues to be a significant medical and social problem worldwide, despite improvements in preoperative screening modalities and patient awareness. Abdominoperineal resection (APR) continues to be the traditional treatment of choice for *distal* rectal cancer, and the 5-year survival rates after an APR by stage range from 78 to 100% for stage I, 45 to 73% for stage II, and 22 to 66% for stage III.¹⁻⁴ Even with an APR, there remains a significant local recurrence rate. Some series report recurrence ranging from 8.5% for stage I disease to 28.6% for stage III disease,⁵ despite radical resection of both the tumor and the surrounding tissue.

While radical resections, including APR and low anterior resection (LAR) with coloanal anastomosis, continue to be the mainstay of therapy for distal rectal cancer, they are associated with significant morbidity and mortality. In their review of the literature, Rothenberger and Wong showed that mortality rates for APR range from 0 to 6.3%.⁶ Studies have shown a 61% incidence of postoperative complications,³ with the majority of these complications being urinary and perineal wound infections, which can occur with rates as high as 50 and 16%, respectively.⁷

These complications have led to renewed interest in local treatments for *distal* rectal cancer. Historically, local excision, despite its lower rates of morbidity and mortality when compared with APR, was not accepted as an adequate treatment modality due to high local recurrence rates. However, recent innovations in preoperative imaging modalities such as en-

doscopic rectal ultrasound (ERUS) and endoscopic magnetic resonance imaging (eMRI) have led to improvements in preoperative staging and patient selection. Also, improved adjuvant chemoradiation therapy has led to a decrease in local recurrence rates. Both of these improvements should in turn lead to lower local recurrence rates and improved overall survival following local excision. However this has not been the case in all series.^{8,9} In this article, we will review the current oncologic results for the local excision of rectal cancer.

Outcomes

Unfortunately, there have been no randomized, controlled trials comparing local excision to radical resection. Instead, the majority of the literature regarding local excision of rectal cancer comes from small retrospective reviews from single institutions. These studies are very difficult to compare because there is no single uniform approach. The length of follow-up, tumor biology, use of preoperative ERUS or eMRI, patient population, local excision technique, and use of adjuvant or neoadjuvant chemoradiotherapy all vary from study to study. Figures 1 and 2 show the differences between the use of chemoradiotherapy and preoperative endorectal imaging (ERI) for T1 and T2 tumors in the studies reviewed.

Despite the limitations of these studies, many have demonstrated that patients with superficial tumors have a very good prognosis following local excision, with low local recurrence rates. They have also identified major risk factors for local recurrence, such as positive surgical margins, poorly differentiated histology, and transmural (T3) extension. We will review the most recent retrospective and prospective studies on local excision, as well as the use of adjuvant chemoradiotherapy (CRT) for the treatment of rectal cancer.

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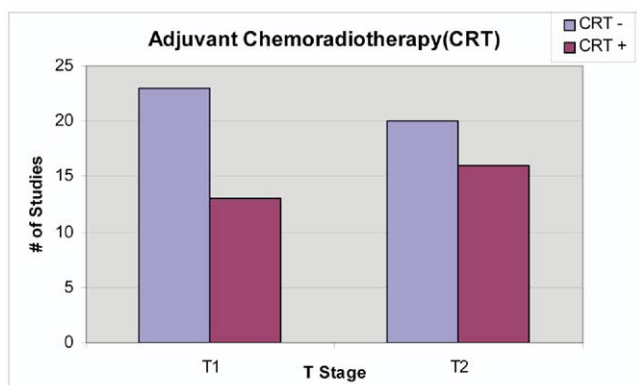


Figure 1 Number of studies with and without adjuvant therapy for T1 and T2 lesions. (Color version of figure is available online.)

Retrospective Studies

Tables 1 and 2 show some of the larger retrospective studies with various treatment arms and rates of local recurrence and overall survival.

Paty and coworkers published their results from the Memorial Sloan–Kettering Cancer Center in New York in 2002.⁹ They assessed 125 patients, over a median follow-up of 80.4 months, who were treated with local excision as definitive surgery between the years of 1969 and 1996. Seventy-four of these patients had T1 lesions, while the other 51 had T2 lesions. All patients underwent a CT scan preoperatively, and ERUS was routinely used after 1998. The 5- and 10-year local recurrence rates for patients with T1 lesions treated without adjuvant CRT were 14 and 17%, respectively. They also found 5- and 10-year survival to be 92 and 74% for T1 lesions. For T2 lesions the local recurrence rates at 5 and 10 years increased to 28% for both, with survival rates of 87 and 75%.⁹ They further found that recurrence rates were similar with and without adjuvant CRT, but recurrence was slightly delayed with the addition of CRT.

Chakravarti and coworkers published their review of 58 patients with rectal cancer from the University of California, San Francisco, in 1999.¹⁰ This study included patients with T0-T3 carcinoma, with a median follow-up of 51 months. Fifty-five percent of these patients underwent preoperative staging via CT scan, while 12% had MRI and 22% had ERUS for preoperative staging. Nineteen patients received additional therapy with a variety of different CRT regimens. Overall, the local recurrence rate was 14% (eight patients) and was 33, 5, 45, and 25% for T0, T1, T2, and T3 tumors, respectively. All of the patients with local recurrence were salvaged via APR, yielding overall survival rates of 98, 93, and 84% at 1, 3, and 5 years, respectively.¹⁰ Of note, none of the patients treated with CRT suffered a local recurrence.

Nascimbeni and Nivatvongs published the recent experience from the Mayo Clinic in *Diseases of the Colon and Rectum* in October 2004.¹¹ They followed 144 patients with T1 sessile adenocarcinomas of the middle and distal rectum over a median follow-up period of 8.1 years. Seventy patients were

treated with local excision, while 74 underwent radical resection via APR or low anterior resection. In the local excision group, 29 lesions were in the middle third of the rectum and 41 were in the lower third. In the radical resection group, 53 lesions were in the middle third and 21 were in the lower third.¹¹

Overall, there were 37 deaths in the local excision group, 10 of which were caused by cancer, and 28 deaths in the radical resection group, of which 7 were caused by cancer. The 5- and 10-year survival rates for the radical resection group were 90.4 and 72%, respectively. These rates were statistically significantly improved compared with the rates of 72.4 and 44.3% seen in the local excision group. There was also a statistically significant improvement in disease-free survival for the patients in the radical resection group; however, no significant difference in local recurrence or metastatic recurrence was observed between the groups.¹¹ They also found that age greater than 68 and tumor invasion into the lower third of the submucosa were associated with decreased disease-free survival. When they looked only at patients with cancer in the distal third of the rectum, no significant difference was seen between the two groups for overall survival, disease-free survival, local recurrence, or distant metastasis. This lack of significance may have been due to small sample size and consequent lack of power.¹¹ There is an inherent bias with this study in that all patients with node-positive disease in the radical resection group were excluded, but, without any endorectal imaging, a few patients in the local excision group would have been treated and followed with node-positive disease, thereby skewing the outcome in favor of radical resection.

While the results of the Nascimbeni and Nivatvongs series may argue against local excision as an acceptable treatment modality, there are a number of other studies with recurrence rates of 5 to 10% and 100% survival.^{12,13} In the series reviewed here, the local recurrence rates range from 5 to 33%, with survival rates of 44 to 100%. While these studies are not conclusive, they demonstrate that patients with superficial tumors and negative margins at the time of resection have low recurrence rates and a very good prognosis. They also suggest that local excision may provide equivalent oncologic control

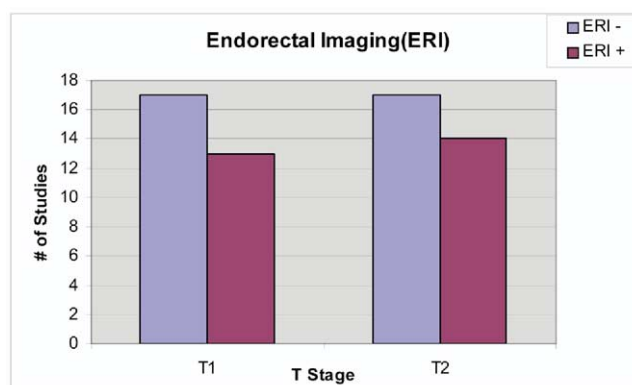


Figure 2 Number of studies with and without preoperative endorectal imaging. (Color version of figure is available online.)

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