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CONTINUING EDUCATION– COLORECTAL CANCER

For Patients with Early Rectal Cancer, Does Local Excision Have an Impact on Recurrence, Survival, and Quality of Life Relative to Radical Resection?

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ABSTRACT

Background. The most appropriate treatment for early-stage rectal cancers is controversial. The advantages of local excision regarding morbidity and function must be weighed against poorer oncologic efficacy. This study aimed to clarify further the role for local excision in the treatment of rectal cancer.

Methods. A systematic review of Medline, SCOPUS, and Cochrane databases was conducted. Relevant studies were selected using Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. Data addressing five key questions about outcomes of local versus radical resection of rectal cancer were analyzed.

Results. The 16 studies identified by this study were mostly retrospective, and none were randomized. Local excision was associated with fewer complications and better functional outcome than radical resection. Of 12 studies evaluating local recurrence, 6 showed a higher local recurrence rate among patients who underwent local excision. Two additional studies showed no increase in local recurrence rate among patients who underwent local excision of T1 lesions but a significantly higher local recurrence rate among those who underwent local excision of T2 lesions. High histologic grade, angiolymphatic invasion, perineural invasion, and depth within submucosa were features associated with a higher risk of local recurrence. In 7 of 15 studies, long-term survival was reduced compared with that of patients who underwent radical resection.

Conclusions. Although local excision for early-stage rectal cancer is associated with increased local recurrence and decreased overall survival compared with radical resection, local excision may be appropriate for select individuals who have T1 tumors with no adverse pathologic features.

The most appropriate treatment for early-stage rectal cancer continues to evolve.[1–3] Both local excision and radical resection are options, but the precise indications and relative advantages and disadvantages for any given patient may be difficult to evaluate.[4,5] Compared with radical resection, local excision is associated with a lower incidence of major complications and less short- and long-term disability.[6]

Advances in techniques for local excision include transanal endoscopic surgical (TES) approaches including transanal endoscopic microsurgery (TEM) and more recent transanal minimally invasive surgery (TAMIS) using conventional laparoscopic instrumentation through a transanal access port. These techniques have allowed better precision with less fragmentation of the surgical specimen and have decreased the rate of local recurrence relative to standard transanal excision (TAE).[7–15]

Local excision preserves the rectal reservoir, yielding a superior functional outcome. However, local excision risks missing occult positive lymph nodes due to both incomplete lymph node resection and missed opportunity for adjuvant therapy when lymph nodes are malignant. [16,17]

Radical resection with tumor-specific mesorectal excision ensures a wide surgical margin and provides for excision and histopathologic examination of the mesorectal

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lymph nodes.[18] Therefore, patients may be staged with confidence and receive adjuvant therapy as appropriate. Furthermore, the risk of local recurrence should be exceedingly small in the setting of early-stage disease.[19] However, radical resection entails considerable potential perioperative morbidity and often includes a temporary or permanent intestinal stoma. There is an appreciable risk of anastomotic or functional complications with considerable morbidity that may render the "temporary" fecal diversion a lifelong ostomy. Also, patients undergoing radical resection may experience impaired quality of life related to urinary, sexual, and bowel dysfunction.[7]

The advent of laparoscopic/robotic approaches and advanced sphincter-saving techniques has extended the armamentarium of colorectal surgical specialists and decreased the rate of permanent colostomies in many centers. However, even "minimally invasive" proctectomies are characterized by a high incidence of suboptimal functional results.

Based on these concerns, we sought to address the following overarching question: among patients with early rectal cancer, what impact does local excision have on recurrence, survival, and quality of life relative to radical resection? We performed a systematic review of the published literature with the aim of answering the following specific questions according to the problem, intervention, and comparison (PICO) framework:

1. Compared with patients who undergo radical resection of rectal adenocarcinoma, do patients who undergo local excision experience fewer postoperative complications?
2. Compared with the resected specimens of patients who undergo radical resection of rectal adenocarcinoma, are specimens from patients who undergo local excision more likely to have clear margins on pathologic examination?
3. Compared with patients who undergo radical resection of rectal adenocarcinoma, do patients who undergo local excision have better functional outcomes at 1 year?
4. Compared with patients who undergo radical resection of rectal adenocarcinoma, do patients who undergo local excision experience higher local recurrence rates?
5. Compared with patients who undergo radical resection of rectal adenocarcinoma, do patients who undergo local excision experience reduced overall survival rates?

METHODS

We performed a systematic review of articles in the Medline, SCOPUS, CINAHL, Embase, and Cochrane databases published from 1 January 2000 to 31 December 2015 to represent the modern era of transanal excision for rectal cancer that includes TEM and TAMIS. The search terms for all questions were (rectal cancer OR rectal neoplasm) AND (surgery OR operation OR excision OR resection) AND (transanal OR local OR TEMS OR TAMIS). Searches were limited to the English language and peer-reviewed studies of adult humans. All papers were identified (n = 6467) and combined into a single library, and duplicates (n = 2242) were excluded, resulting in 4225 final abstracts for review (Fig. 1).

The exclusion criteria were predetermined according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines.[20] We reviewed all abstracts and excluded those published only in the gray literature, as well as commentary, review articles, and articles that otherwise contained no primary data or no primary analysis of secondary data (e.g., clinical registries or claims). We excluded papers based on data accrued before 2000 as well as case reports with fewer than 30 subjects unless there was a compelling reason for their inclusion. In the case of multiple publications reporting on the same data set, we included only the most recently published analyses unless additional relevant data were available only in earlier publications. We excluded studies with fewer than 1 or 2 years of follow-up evaluation in the specific searches related to PICO questions 3 or 4 and 5. We then hand-searched bibliographies of included manuscripts for additional publications that might fulfill the inclusion criteria but found no additional papers. Application of the exclusion criteria to abstracts yielded a final total of 148 papers for full review (Fig. 1). After application of the inclusion and exclusion criteria to the full paper review, 132 additional articles were excluded.

We developed a data abstraction tool to capture detailed data related to study design, methodologic rigor (e.g., minimization of selection and attrition bias, appropriate statistical analysis), results, and conclusions. We then summarized the evidence in response to the predefined PICO questions. Discordant views were managed by re-review of original sources and discussion, and if necessary, adjudicated by the first author.

RESULTS

A total of 16 articles met all the criteria for full review, with data abstraction in the systematic review (Tables 1, 2).[1,3,21–34] All the included articles contained a comparison

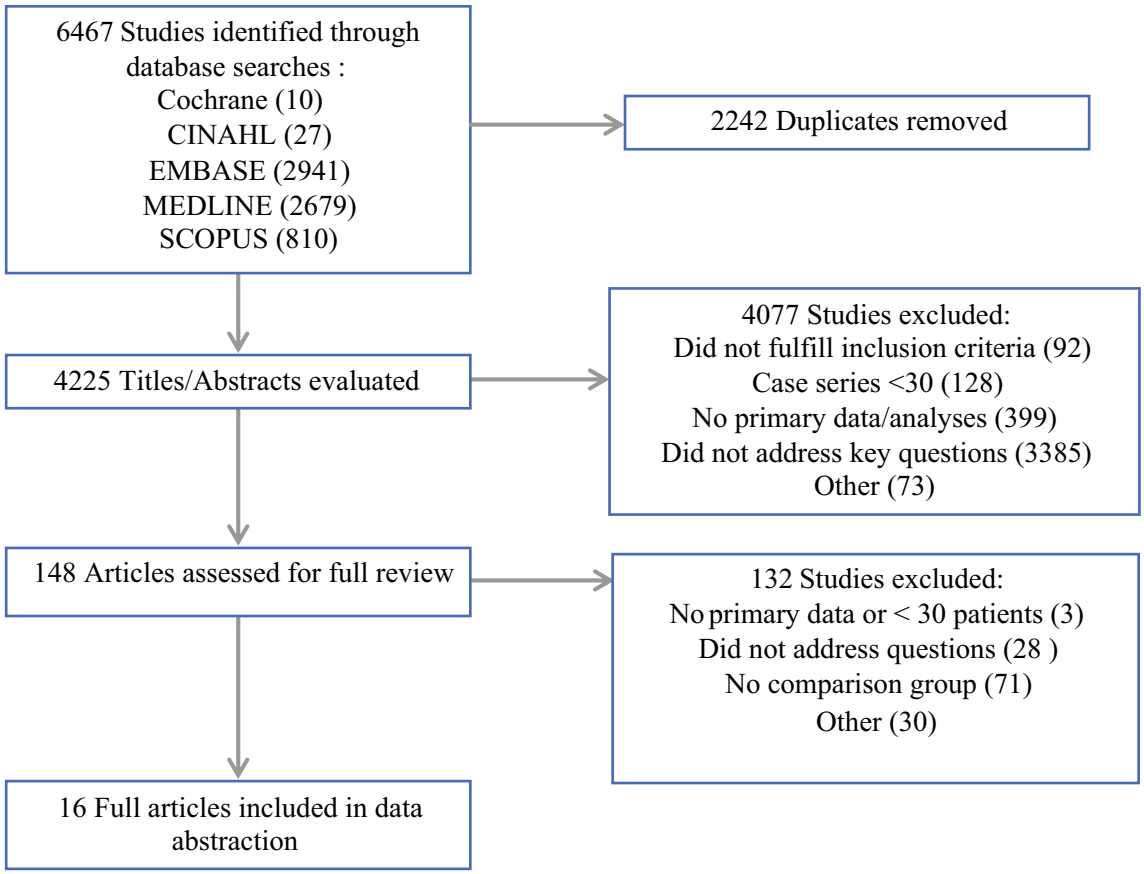

FIG. 1 The PRISMA diagram of studies selected for full review

group of patients who had undergone radical excision of rectal adenocarcinoma. Most were retrospective cohort studies from single institutions, but there were a few papers from large clinical registries. Seven studies included patients who had received radiotherapy.

The study questions focused on short-term operative outcomes, mid-term functional outcomes, and long-term oncologic outcomes. We framed the short-term outcome questions in terms of desirable outcomes, namely, fewer complications, clear or negative margins, and better functional outcomes. We framed the long-term oncologic questions in terms of undesirable outcomes, namely, local recurrence rate and reduced overall survival.

Postoperative Complications

Compared with Patients Who Undergo Radical Resection of Rectal Adenocarcinoma, Do Patients Who Undergo Local Excision Experience Fewer Postoperative Complications? Yes, a total of eight papers addressed this question. Each paper reported fewer postoperative complications after local excision than after radical excision, and most differences were statistically significant.[10,21,24,26,28,29,33,35]

The single prospective study[29] compared patients with T2 tumors, all of whom were treated with neoadjuvant chemoradiation before either local excision or radical resection. The authors found the smallest absolute difference in complication rates (local excision, 14%; radical resection, 20%; $P = 0.25$), although the study was underpowered, with only 50 subjects per group.

The largest study was a rigorously adjusted analysis of the National Cancer Database[21] that included 2124 subjects. Local excision resulted in complications for 5.6% of the patients, and radical resection resulted in complications for 14.6% of the patients ($P < 0.001$).

Margins of Resected Specimens

Compared with the Resected Specimens of Patients Who Undergo Radical Resection of Rectal Adenocarcinoma, are Specimens from Patients Who Undergo Local Excision Specimens More Likely to Have Clear Margins on Pathologic Exam? No, four papers addressed this question, and each found that local excision was less likely

TABLE 1 Local excision versus radical resection: study subjects and short-term results[a]

Author, year, and type of data with study period	Surgical technique		Radiotherapy	Complications	Margins
	LE	RR			
Lee et al.[28] Sungkyunkwan University database, 1994–2000	74	100	None	4.1% LE vs 48%	
Nascimbeni et al.[31] Mayo Clinic database, 1979–1995	70 TNS	74	None		
Endreseth et al.[25,36] Norweigan Rectal Cancer Project, 1993–1999	35 TAE	256	0 LE		
			4 RR (postoperative radiotherapy due to intraoperative perforation of the bowel wall)		
Ptok et al.[33] Colon/Rectal Cancer (primary tumor) Study Group, 2000–2001, a multi-institutional prospective observational study	85 TAE 35 TEM	359	**None**	**9.2% LE vs 22.8% ($P < 0.001$)**	
Folkesson et al.[26] Swedish Rectal Cancer Registry, 1995–2001	643[b]	7016	Preoperative radiotherapy in 2.3% of LE, 45.8% LAR and 63.7% APR 28.9% Hartmanns	11.5% LE vs 35.4%	
You et al.[21] National Cancer Database, 1994–1996	765 TNS	1359	**None**	**5.6% LE vs 14.6% ($P < 0.001$)**	
Hazard et al.[27] Surveillance, Epidemiology, and End Results (SEER) program, 1998–2003	573 283 +RT[b]	3040 424 +RT	The technique of radiotherapy was not specified		
De Graaf et al.[23] Dutch TME Trial Subgroup, a prospective, nonrandomized trial, 1996	80 TEM	75	None	**5.1% LE vs 64% ($P < 0.001$)**	
Peng et al.[32,37] Shanghai Cancer Center, 1992–2005, a Fudan University database	58 TAE	66	None		
Lezoche et al.[29] Prospective randomized trial for patients with T2 rectal cancer treated with neoadjuvant chemoradiotherapy, 1997–2004	50 TEM	50	All patients underwent neoadjuvant chemoradiation	2% LE vs 6% ($P = 0.250$)	All R0
Allaix et al.[22,35] University of Torino database, 1999–2009	32 TEM	33	All were T2 tumors	**14.6% LE vs 37.1% ($P = 0.046$)**	Favors TME[c]
			32 had TEM only, and 9 had TEM plus neoadjuvant radiation.		
Bhangu et al.[1] SEER program, 1998–2009	3715 TNS	9547	Included radiation vs no radiation in the analysis		
Stitzenberg et al.[2] National Cancer Database, 1998–2010	34,697 TNS	76,756	None		**LE 76% vs 95% ($P < 0.001$)**
Saraste et al.[34] Swedish Rectal Cancer Registry, 1995–2006	448 TNS	3182	Preoperative radiation in		
			2% of LE		
			48% of LAR		
			68% of APR		
			35% Hartmanns		
Elmessiry et al.[24] Cleveland Clinic Florida, 2004–2012	47 TAE 27 TEM	79	**None**	**0% LE vs 21.6% ($P = 0.009$)**	**Positive margin: LE 13.5% vs 0% ($P = 0.001$)**
Lezoche et al.[30] Sapienza University of Rome database, 2008–2010	32 TEM	18	None		

LE local excision; *RR* various types of radical surgery, including open and laparoscopic low anterior resection and abdominoperineal resection; *TNS* technique not specified; *TAE* transanal excision; *TEM* transanal endoscopic microsurgery; *R0* indication of clear margins; *TME* total mesorectal excision

[a]Boldface indicates statistically significant values. Not all reports made all data available

[b]TAE, TEM, polypectomy, and fulguration were combined in the LE cohort

[c]10 Patients had adjuvant therapy for more advanced tumors recognized after resection; five patients underwent salvage resection

TABLE 2 Local excision versus radical resection: long-term results[a]

Author, year, database, and date	Follow-up	Local recurrence	Overall survival
Lee et al.[28] Sungkyunkwan University database, 1994–2000	Mean, 31 months	**T1: 45 vs 0 (NS); T2: 19.5% vs 9.4% (*P* = 0.004)**	T1: 100% LE vs 92.9% (*P* = 0.07); T2: 94.7% LE vs 96.1% (*P* = 0.48) DFS NS
Nascimbeni et al.[31] Mayo Clinic database, 1979–1995	Median, 8.1 years	6.6% LE (95% CI, 0.1–12.7) vs 12.2% (95% CI, 1.9–21.3) (*P* = 0.26)	**72.4 (62.5–83.8) vs 90.4 (83.9–97.4) (*P* = 0.0008)** **DFS better in oncologic resection (*P* = 0.003)**
Endreseth et al.[25,36] Norweigan Rectal Cancer Project, 1993–1999	Range, 24–97 months	**LE 12 (0–24) vs 6 (2–10) (*P* = 0.01)**	LE: HR, 1.5 (95% CI, 0.7–3.2) (*P* = 0.25)[b] DFS 64% (95% CI, 46–82) vs 77% (95% CI, 71–83) (*P* = 0.01)
Ptok et al.[33] Colon/Rectal Cancer (Primary Tumor) Study Group, 2000–2001, a multi-institutional prospective observational study	Median, 44 months (1–65 months)	**6% LE vs 2% (*P* = 0.049)**	83.6% LE vs 91.5% (*P* = 0.16)
Folkesson et al.[26] Swedish Rectal Cancer Registry, 1995–2001	Median, 2.5 years	**LE 80.1(75.1–85.1) vs 91(89.8–92.2) (*P* > 0.001)**	5 yr cancer specific survival LE 79.7 (75.2–84.2) vs 73.2 (72–75.4)
You et al.[21] National Cancer Database, 1994–1996	Median, 6.3 years	**T1: 12.5% LE vs 6.9% (*P* = 0.003); T2: 22.1% LE vs 15.1% (*P* = 0.01)**	T1: 77.4% LE vs 81.7% (*P* = 0.09); **T2: 67.6% LE vs 76.5% (*P* = 0.01)**
Hazard et al.[23] Surveillance, Epidemiology, and End Results program, 1998–2003			**LE: HR, 1.54 (95% CI, 1.30–1.84) (*P* < .0001)**[b] Cancer-specific survival LE: HR, 2.75 (95% CI, 1.48–5.10), (*P* = 0.001) **Treatment type, T1** Resection without radiation 1.00 Resection with radiation 1.48 (0.88–2.48) (*P* = 0.14) Local excision without radiation 1.60 (1.25–2.03) (*P* = 0.0002) Local excision with radiation 1.08 (0.69–1.70) (*P* = 0.74) **Treatment type, T2** Resection without radiation 1.00 Resection with radiation 0.94 (0.73–1.22) = 0.09 Local excision without radiation 1.40 (1.07–1.84) (*P* < 0.0001 Local excision with radiation 1.26 (0.95–1.68) = 0.09
De Graaf et al.[30] Dutch TME Trial Subgroup, a prospective, nonrandomized trial, 1996	Median, 42 months (1–127 months)	**24% LE vs 0% (*P* < 0.0001)**	75% LE vs 77% (*P* = 0.09) Cancer-specific survival (LE 90% vs 87%; *P* = 0.5)
Peng et al.[32,37]; Shanghai Cancer Center, 1992–2005, a Fudan University database	Median, 72 months (25–178 months)	**11% LE vs 1.9%** (*P* = 0.031)	85.4% LE vs 92.7% (*P* = 0.684) DFS LE 85.5% vs 91.0% (*P* = 0.3)
Lezoche et al.[29] Prospective randomized trial for patients with T2 rectal cancer treated with neoadjuvant chemoradiotherapy, 1997–2004	Median, 9.8 years (8.5– 11.1 years)		72% LE vs 80% (*P* = 0.609) DFS LE 89% (70–96) vs 94% (82–98) (*P* = 0.687)
Allaix et al.[22,35] University of Torino database, 1999–2009	Median, 70 months (36–140 months)	26% LE vs 9% (*P* = 0.07)[d]	76% LE vs 96% (*P* = 0.134)

TABLE 2 continued

Author, year, database, and date	Follow-up	Local recurrence	Overall survival
Bhangu et al.[1] SEER program, 1998–2009	5 years		**LE: T1 OS HR: 1.29 (1.14–1.46) ($P < 0.001$)** CSS HR (1.16 0.91–1.49) ($P = 0.236$) **T2 OS 1.38 (1.18–1.61) ($P < 0.001$)** **CSS 1.71 (1.30–2.25) ($P < 0.001$)** LE + neoadjuvant radiation: $n = 1335$ CSST1 HR 1.21(0.27–5.51), ($P = 0.8$) T2 HR 1.23(0.44–3.45) ($P = 0.7$)
Stitzenberg et al.[3] National Cancer Database, 1998–2010			**LE alone** **T1 HR, 1.19 (95% CI, 1.1–1.28);** **T2:HR, 1.39 (95% CI, 1.26–1.53)** LE + RT T1 1.17 (0.71–1.92) T2 HR 0.96, (0.66–1.38)
Saraste et al.[34] Swedish Rectal Cancer Registry, 1995–2006	5 years	11.2% LE vs 2.2% (P, NR)	**LE HR, 1.58 (95% CI, 1.03–1.45)**[c] **Any radiation, HR 0.76 (95% CI, 0.65–0.90)**
Elmessiry et al.[24] Cleveland Clinic Florida, 2004–2012	Median, 35 months (17–96 months)	T1: 18.4% vs 5.1% ($P = .332$); **T2: 42.3% LE vs 7.5% ($P = 0.025$)**	76.9% LE vs 90% ($P = 0.351$) Estimated 3-year DFS LE 84.2% vs 94.9% ($P = 0.232$)

LE local excision; *DFS* disease-free survival; *NS* not significant; *CI* confidence ratio; *HR* hazard ratio; *TME* total mesorectal excision; *OS* overall survival; *NR* not reported

[a]Boldface indicates statistically significant values

[b]Multivariate analysis

[c]Multivariate analysis of risk factors for death

[d]Local excision with radiation showed a local recurrence rate similar to that of radical resection

to result in clear or negative margins.[3,24,29,35] In two studies, the patients who underwent local excision were less likely to have clear margins than those who underwent radical resection, and these differences were statistically significant. No differences between T1 and T2 lesions were reported.[3,24] One study of patients with only T2 lesions found positive lateral margins in 4 of 32 patients treated with TEM, but no positive margins in 9 patients treated with neoadjuvant radiation therapy followed by TEM. There also were no positive margins in 35 patients who underwent radical resection.[35] In the only prospective study (n = 100), both groups underwent neoadjuvant chemoradiation, and all achieved 100% tumor-free margins.[29]

Functional Outcome

Compared with Patients Who Undergo Radical Resection of Rectal Adenocarcinoma, Do Patients Who Undergo Local Excision Experience Better Functional Outcomes at 1 Year? The data were unclear. Only one study explicitly compared functional outcomes between patients who had undergone local excision and those who had received radical resection.[30] The investigators prospectively found that compared with patients who had undergone laparoscopic radical resection with total mesorectal excision, those who had undergone transanal endoscopic microsurgery reported significantly better results for all aspects of quality of life and function at 6 months postoperatively. However, by 1 year, there were no significant differences. The reported rates of temporary or permanent stoma formation reported in four studies were respectively 17% and 35% for permanent stomas and 35% and 81% for any stoma.[10,24,35,36] No study reported a stoma after local excision.

Local Recurrence Rates and Overall Survival

Compared with Patients Who Undergo Radical Resection of Rectal Adenocarcinoma, Do Patients Who Undergo Local Excision Experience Higher Local Recurrence Rates? Yes, among 12 studies that addressed this question, 6 showed a significantly higher local recurrence rate among the patients who underwent local excision.[21,23,26,36,37] Two studies showed no increase in local recurrence rate among those who underwent local excision of T1 lesions, but a significantly higher local recurrence rate among those who underwent local excision of T2 lesions.[24,28] Also, four retrospective cohort studies identified high histologic grade, angiolymphatic invasion, perineural invasion, and tumor invasion into the lower third of the submucosa as additional features associated with higher risk of local recurrence.[21,24,31,37] Two studies reported no statistically significant difference in local recurrence rates when comparing local excision and radical resection, but both studies were underpowered.[29,31] No studies showed a higher local recurrence rate for patients who underwent radical resection.

Compared with Patients Who Undergo Radical Resection of Rectal Adenocarcinoma, Do Patients Who Undergo Local Excision Experience Reduced Overall Survival Rates? Yes, in the majority of the 14 studies that addressed this question, the patients who underwent local excision had a shorter overall survival than those who underwent radical resection. However, only five studies found a statistically significant difference between the groups.[1,3,27,31,34] One large study from the National Cancer Database (n = 2124), with findings adjusted for age and comorbid disease, found that overall survival was shorter for T2 lesions, but not for T1 lesions.[21] The remaining eight studies reported either a small but not statistically significant survival advantage among patients who underwent radical resection or no difference between the groups.[10,24,28,29,33,35–37] Some investigators noted substantially higher comorbidity and advanced age among patients who underwent local excision, which limited interpretation of the results.[21,34]

DISCUSSION

This systematic review addressed five key oncologic questions and found that local excision for rectal cancer was advantageous over radical resection regarding lower operative morbidity and better long-term function. However, local excision was associated with higher local recurrence rates and worse overall survival.

This review had several limitations, and the results should be interpreted in context. Local excision of rectal tumors may be performed by one of several techniques, and the specific technique may affect oncologic outcomes, particularly regarding tumor margins and local recurrence. Our review did not differentiate among these various techniques. The transanal endoluminal approach is performed using standard surgical lighting, instruments, and retractors. Historically, the Kraske transcoccygeal and York-Mason trans-sphincteric approaches have been applied by some surgeons to provide better exposure and overcome the limited upward access to the rectum with the conventional TAE technique.

To overcome the limitations of TAE, TEM and the more recent TAMIS approaches use fiber optic scopes and specialized instrumentation. Studies comparing TEM and TAMIS with TAE showed advantages of the newer techniques such as lower rates of margin positivity, diminished

risk of tumor fragmentation, and a decrease in local recurrence rates. The incidence of positive or indeterminate margins with TAE has been two to eight times greater than with TEM. One study compared 42 stage 1 rectal cancers treated by TEM with 129 cancers treated by TAE and found positive resection margins in 2% and 16% of cases, respectively ($P = 0.017$).[38]

The current systematic review did not specifically address the impact of neoadjuvant or adjuvant combined-method therapy. An alternative approach to surgery alone, with the aim of decreasing the risk or impact of occult malignant lymph nodes with local excision, involves incorporating adjuvant or neoadjuvant chemoradiotherapy when tumors are identified as high-risk early cancers.[39–43] However, the oncologic efficacy of this approach remains uncertain, and adjuvant and/or neoadjuvant therapy may substantially increase the complication rate associated with local excision and also may impair functional outcome.[21,40,44] The included studies had much heterogeneity regarding the use of radiation pre- or postoperatively, with or without the addition of chemotherapy. Only one study compared the outcomes of local excision with those of radical surgery after neoadjuvant chemoradiation in all patients.[26]

We also did not specifically address the role of local excision for patients who have a complete clinical response to neoadjuvant chemoradiotherapy. Kundel et al.[45] retrospectively reviewed patients who underwent neoadjuvant chemotherapy and had a complete pathologic response within the bowel wall (ypT0). Their study compared 14 patients who underwent local excision alone with 37 patients who underwent radical surgery. The local excision and radical resection groups did not show a significant difference in local recurrence (0% vs 8%) or overall survival (100% vs 97%) during a median follow-up period of 48 months (range, 5–123 months).

A retrospective case-matched analysis also reported similar outcomes after local excision ($n = 42$) and total mesorectal excision (TME) ($n = 42$) for patients with ypT0–T1 tumors after neoadjuvant chemoradiotherapy. The local excision and TME groups did not differ significantly in terms of local recurrence rates (4.8% vs 2.4%; $P = 1.0$) or overall survival rates (96.6% vs 88.0%; $P = 0.238$).[46]

Belluco et al.[47] reviewed the outcomes for patients with locally advanced rectal cancer who had a complete pathologic tumor response to neoadjuvant chemoradiotherapy followed by either local excision alone ($n = 47$) or TME ($n = 179$). The local recurrence-free survival rate (76.8% vs 84%; $P = 0.312$) and disease-specific survival (87.2 vs 81.8; $P = 0.201$) did not differ significantly between the two groups.

A more recent study by Belluco et al.[48] showed similar oncologic outcomes after local excision versus radical resection for patients who had clinically positive nodes (cN+) identified on rectal ultrasound, pelvic magnetic resonance imaging, or both and achieved ypT0 after chemoradiation. The 5-year disease-specific and disease-free survival rates were respectively 100% and 85.7% for the TME patients ($n = 108$) compared with 100% and 91.6% for the local excision patients ($n = 15$). The difference was not significant.

CONCLUSION

Local excision for rectal cancer is associated with decreased morbidity and preserved function compared with radical resection. However, the oncologic outcomes are more favorable for radical resection of rectal cancer than for local excision. Local excision may be a viable option for early rectal cancers without poor prognostic factors. The decision for local excision should follow a multidisciplinary evaluation and a detailed discussion with the patient about treatment options.

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