Transanal endoscopic microsurgery in early rectal cancer: time for a trial?

CRD summary
The authors concluded that differences between studies prevented drawing conclusions about the role of transanal endoscopic microsurgery in early rectal cancer and that an RCT was needed. The conclusions appeared to reflect the limited and diverse data presented, but the restricted search and lack of reporting of review methods made it difficult to confirm their reliability.

Authors' objectives
To evaluate the role of transanal endoscopic microsurgery in patients with early rectal cancer.

Searching
MEDLINE was searched to June 2006 using reported search terms. No language or time restrictions were applied. In addition, reference lists were screened.

Study selection
Comparative studies and case series that evaluated transanal endoscopic microsurgery in 10 or more patients with rectal carcinomas were eligible for inclusion. Studies had to have a mean/median follow-up of at least six months and had to evaluate one of the following primary review outcomes: local recurrence rate; systemic recurrence; overall/disease-free survival; or survival. Secondary review outcomes were operative measures and peri- and/or postoperative morbidity; studies assessing functional outcomes had to report clinical and/or anorectal manometry or electrophysiology and studies reporting incontinence had to report continence scores and/or anorectal measurements. Studies were excluded if they evaluated transanal endoscopic microsurgery in combination with other local excision procedures or a modified transanal endoscopic microsurgery.

The included studies compared transanal endoscopic microsurgery (including microsurgery with electrocautery or electronic scalpel) with radical resection, anterior resection, laparoscopic anterior resection/Miles procedure and full thickness local excision using Park’s retractor (TP). Comparative studies included patients with T1 (G1/2), T2 and T2 N0 G1-2 rectal carcinomas. Case series included patients with adenomas and T0 to T3 tumours. Some studies used adjuvant therapy.

The authors stated neither how papers were selected for the review nor how many reviewers performed the selection.

Assessment of study quality
The authors did not state that they assessed validity. However, they discussed some of the methodological flaws present in the retrospective case comparisons.

Data extraction
For each study, numbers and percentages of patients with outcomes of interest or means/medians were presented in tables or the text; levels of statistical significance were reported for some outcomes. The authors stated neither how data were extracted for the review nor how many reviewers performed the data extraction.

Methods of synthesis
The studies were grouped by study design and combined in a narrative synthesis.

Results of the review
Two randomised controlled trials (RCTs, n=90), three retrospective comparative studies (459 patients) and 28 case series (4,557 patients) were included.

One RCT (52 patients) reported that one transanal endoscopic microsurgery patient developed local recurrence and survived and one anterior resection patient developed metastases and died. Transanal endoscopic microsurgery was associated with lower early and late morbidity, reduced operating time, reduced blood loss, shorter hospitalisation and
reduced pain compared to anterior resection. This RCT was not adequately powered to detect a difference in a specific outcome.

One RCT (40 patients) reported that one local recurrence and one distance metastases developed in each treatment group (transanal endoscopic microsurgery and laparoscopic anterior resection); both patients with recurrence in the laparoscopic anterior resection group and one patient with recurrence in the transanal endoscopic microsurgery group died. transanal endoscopic microsurgery was associated with reductions in operating time, analgesic use, blood loss and hospital stay. Complication rates were similar for both treatment groups.

Retrospective comparative studies reported favourable results for transanal endoscopic microsurgery compared to radical resection, but there was potential for selection bias and results were subject to the effects of changing operation techniques and instruments over the study periods.

Further results were reported.

**Cost information**
Transanal endoscopic microsurgery has been associated with cost savings of £3,568 to £5,756 per case (at the authors’ institution) and A$ 5,500 per case (one study) compared with anterior resection. Another study reported lower base costs for patients treated with transanal endoscopic microsurgery (US$ 2,081 versus US$ 3,309 for anterior resection for adenoma and US$ 2,542 versus US$ 5,679 for anterior resection/APR for carcinoma).

**Authors’ conclusions**
Differences between studies prevented drawing conclusions about the role of transanal endoscopic microsurgery in early rectal cancer. A trial was justified.

**CRD commentary**
The review question was clearly stated and supported by appropriate inclusion criteria. No language restrictions were applied to the search, but limiting the search to studies listed in one database plus references may have resulted in the omission of other relevant studies and raised the potential for publication bias. Methods used to select studies and extract data were not described, so it was unknown whether efforts were made to reduce reviewer errors and bias.

Study validity was not systematically assessed, but some of the potential biases in retrospective studies were acknowledged. Apart from study quality, adequate information was presented about individual studies. Studies were appropriately grouped by study design and combined in a narrative synthesis.

The authors’ conclusions appeared to reflect the limited and diverse data presented, but the restricted search and lack of reporting of review methods made it difficult to confirm their reliability.

**Implications of the review for practice and research**
**Practice:** The authors did not state any practice implications of the review.

**Research:** The authors stated that there was a need for a RCT to compare transanal endoscopic microsurgery with and without neoadjuvant therapy with radical resection in selected patients and tumour types. In addition to assessing tumour recurrence, studies should assess immediate and long-term morbidity, gastrointestinal function and quality of life.

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This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.