Systematic review of outcomes after intersphincteric resection for low rectal cancer

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CRD summary
The authors concluded that oncological outcomes after intersphincteric resection for low rectal cancer were acceptable with diverse often imperfect functional results. The authors acknowledged limitations in the evidence from a lack of randomised controlled trials, possible selection bias in case series studies and some incomplete reporting of functional outcomes. Their cautious conclusion seems reasonable.

Authors' objectives
To evaluate intersphincteric resection surgery for low rectal cancer.

Searching
PubMed and The Cochrane Library were searched for studies published in English from January 1950 to March 2011. Search terms were reported.

Study selection
Studies of patients with pathologically verified low rectal tumours and who underwent intersphincteric resection were eligible for inclusion. Eligible studies had to report oncological outcomes, morbidity and mortality as their primary outcomes. Studies had to have a minimum average follow-up of 40 months and a minimum of 30 patients. Patients who underwent low anterior resection or abdominoperineal resection were excluded unless they were a matched control group for the intersphincteric resection group. Studies that included patients with recurrent lesions or lesions that had received previous surgical treatment were excluded.

Most of the included studies were conducted in Europe and Asia. The mean age of the patients was 59.5 years and 67% were men. The mean distance of the tumour from the anal verge was 31.1mm (range 13mm to 50mm), where reported. The American Joint Committee on Cancer tumour node metastasis staging system or Dukes’ method of classifying rectal cancers were used to identify the tumour stages in most studies. Most patients in the included studies had tumour node metastasis stage I to III disease; a very small number had stage IV disease (overall 2%). A standard intersphincteric resection procedure (open transabdominal approach) was used 96% of all included studies. In some studies patients had received neoadjuvant treatment or adjuvant chemotherapy treatment.

It appeared that more than one reviewer was involved in study selection.

Assessment of study quality
The Newcastle-Ottawa Quality Assessment Scale was used to assess quality. Points were awarded for patient selection (maximum 4 points), comparability of cohorts (maximum 2 points) and outcome assessment (maximum 3 points) to give an overall total with a maximum possible score of 9 points. Only studies with a maximum score of 6 or above were included in the review.

Two reviewers independently evaluated study quality.

Data extraction
Data were extracted on patient characteristics and disease progression, postoperative morbidity and mortality, oncological outcomes and functional outcomes.

The authors did not state how many reviewers extracted the data.

Methods of synthesis
Basic descriptive statistics including weighted means and, where reported, their 95% confidence intervals (CI) were used to summarise outcome data for oncology outcomes, morbidity, mortality and functional data across all studies.

Results of the review
Fourteen studies (12 retrospective comparative or case studies and two prospective cohort studies) were included in the review (1,289 patients, range 31 to 228). Median follow-up was 56 months (range 40 to 94 months). The mean score of Newcastle-Ottawa Quality Assessment Scale was 7.4.

**Morbidity and mortality:** Weighted mean operative mortality (defined as death within 30 days) was 0.8% (range 0% to 6%, 14 studies) for patients who underwent intersphincteric resection. Weighted mean overall morbidity was 25.8% (range 8% to 65%, 14 studies), which was due mainly to postoperative morbidity related to the surgical procedure such as anastomotic complications, pelvic sepsis, bleeding, bowel obstruction and ileus.

**Oncological outcome:** Weighted mean curative resection was 97% (range 89% to 100%, 13 studies) and the weighted mean local recurrence rate was 6.7% (range 0% to 23%, 14 studies). Weighted mean five-year overall survival rate was 86.3% (range 62% to 97%, 13 studies) and weighted mean disease-free survival rate was 78.6% (range 69% to 87%, nine studies).

**Functional outcomes:** Various tools were used to assess patients' functional outcome after intersphincteric resection. The most common measure of continence was number of bowel motions in a 24-hour period. Weighted mean number of bowel movements in a 24-hour period was 2.7 (range 2.2 to 3.7, seven studies) and weighted mean for perfect continence was 51.2% (range 41% to 86%, eight studies). A weighted mean of 29.1% (range 11% to 63%, eight studies) of the patients experienced faecal soiling. Further functional outcomes were reported.

**Authors' conclusions**
Oncological outcomes after intersphincteric resection for low rectal cancer were acceptable with diverse often imperfect functional results. These data will aid the clinician when counselling patients considering an intersphincteric resection for management of low rectal cancer.

**CRD commentary**
The review addressed a clear question and was supported by appropriate inclusion criteria. Unpublished studies and studies in languages other than English were not sought so relevant studies may have been missed. Attempts were made to minimise reviewer errors and bias in study selection and quality assessment but it was unclear whether similar methods were used for data extraction. Appropriate criteria were used to assess study quality. Only descriptive data were available and there were insufficient data to obtain pooled confidence intervals. Pooling was not considered appropriate due to the clinical heterogeneity of the studies.

The authors acknowledged limitations in the evidence from a lack of randomised controlled trials, possible selection bias in case series studies and some incomplete reporting of functional outcomes. Their cautious conclusion seems reasonable.

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

**Funding**
Not stated.

**Bibliographic details**

**PubMedID**
22246846

**DOI**
10.1002/bjs.8677

**Original Paper URL**
Indexing Status
Subject indexing assigned by NLM

MeSH
Aged; Anal Canal /surgery; Female; Humans; Male; Neoplasm Recurrence, Local /mortality; Organ Sparing Treatments /methods; Postoperative Complications /etiology; Rectal Neoplasms /mortality /surgery; Treatment Outcome

AccessionNumber
12012026494

Date bibliographic record published
08/08/2012

Date abstract record published
16/11/2012

Record Status
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.