Extending the horizons of restorative rectal surgery: intersphincteric resection for low rectal cancer

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CRD summary
The authors concluded that intersphincteric resection offered a viable alternative to abdominoperineal excision in selected patients and that patients should be counselled to expect poorer functional outcomes, although these may be improved with the formation of a j-pouch. Given methodological limitations in the review process, these conclusions are unlikely to be reliable.

Authors' objectives
To review the oncological outcomes and potential complications of intersphincteric resection (ISR) for low rectal cancer.

Searching
MEDLINE, EMBASE and The Cochrane Library were searched from 1966 to October 2006. Search terms were reported. The related publications tool was used in PubMed to expand the search. The bibliographies of identified papers were handsearched to identify further studies.

Study selection
Inclusion criteria were not explicitly stated independently of the review question. Included studies were of intersphincteric resection performed via a perineal, transabdominal or a combined abdominal and perineal approach before or after rectal mobilisation. The extent of excision varied between studies. A variety of techniques, such as the creation of a colonic j-pouch, were used in some studies to improve functional outcomes. Some patients also received chemotherapy, radiotherapy or chemo-radiotherapy. Included studies were of patients with tumour height from anal verge ranging from 1cm to 5.5cm. Mean age ranged from 52 years to 65.2 years. Most patients were male. Outcomes reported were oncological outcomes (distal resection margin, local and systemic recurrence and mortality rates), anorectal physiology (resting pressure, squeeze pressure, anal canal length, rectal capacity and rectal compliance), functional outcomes (number of bowel movements per 24 hours, urgency, leakage and standardised scales of continence), quality of life (a range of standardised measures was used) and complications. It is unclear whether outcomes of interest were determine a priori. The authors reported that included studies were case series.

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

Assessment of study quality
Study validity was assessed using the Methodological Items for Non-Randomized Studies (MINORS) system, an eight-item scale to assess design, conduct and reporting of the study to a maximum score of 16. The authors did not state how the validity assessment was performed.

Data extraction
The authors stated neither how the data were extracted for the review nor how many reviewers performed the data extraction. For some key outcomes, the number of events was extracted from each study and used to calculate an unweighted overall percentage rate across studies.

Methods of synthesis
The results were largely combined in a narrative synthesis with further data evident from tables. Results were discussed separately for each of the main outcome headings.

Results of the review
Twenty-one case series studies were included for the review (n=612). Four studies scored between 10 and 12 on the
validity assessment, 10 studies scored between 7 and 9 points and seven studies scored less than 6 points. No studies scored more than 12 points.

**Short-Term Adverse Events**: Overall operative mortality rate was 1.6% (range 0% to 5%; 15 studies). Anastomotic leak rate was 10.5% (range 0% to 48.4%; 14 studies). Anastomotic stricture rate was 5.8% (3% to 15.8%; five studies).

**Oncological Outcomes**: The mean distal resection margin ranged from 0.7cm to 2.4cm (10 studies). The overall rate of local recurrence was 9.5% (range 0% to 31%; 12 studies). The overall systemic recurrence rate was 9.3% (range 4% to 14.3%; five studies). The mean five-year survival across studies for patients who underwent intersphincteric resection was 81.5% (range 71% to 88%; seven studies).

**Functional Outcomes**: The mean number of bowel movements in 24 hours in patients following intersphincteric resection ranged from 1.7 to 5 (five studies). The proportion of patients who experienced urgency ranged from 19% to 58.8% (six studies). Daytime leakage was reported by 15% of patients in one study and 41.2% of patients in another study. Nocturnal leakage was reported by 20% of patients in one study and 76.5% of patients in another study. Patients who underwent a colonic j-pouch reconstruction had significantly better outcomes in terms of frequency, urgency, Wexner score and Fecal Incontinence Severity Index compared to patient who had straight reconstructions (one study for each outcome; no p-values provided).

**Quality of Life**: Results for quality of life outcomes were mixed. One study showed little difference between patients who underwent intersphincteric resection and patients with conventional coloanal anastomosis or between partial and subtotal excision. One study reported significantly better outcomes on all four domains of the Fecal Incontinence Quality of Life Scale for patients with j-pouch compared with patients with straight reconstructions (no p-values provided). One study reported significantly worse quality of life outcomes for patients with coloanal anastomosis compared with patients who underwent abdominoperineal excision, but this group also included patients who had not undergone intersphincteric resection (no p-values provided).

Results for anorectal physiology were available in the paper.

**Authors’ conclusions**
Intersphincteric resection offered a viable alternative to abdominoperineal excision in selected patients. Patients should be counselled to expect poorer functional outcomes; these may be improved with the formation of a j-pouch.

**CRD commentary**
The review question was clearly stated, but inclusion criteria were not specified independently of the review question. Several relevant databases were searched. It was unclear whether language restrictions were applied and whether attempts were made to identify unpublished literature so, the possibility of language and publication biases could not be ruled out. There was insufficient information about the study selection, data extraction and validity assessment processes to rule out the possibility of reviewer error and bias. A validity assessment was carried out, but the results did not appear to have informed the authors’ conclusions. Given the considerable clinical heterogeneity between studies, the authors’ decision to combine the studies in a narrative synthesis was appropriate. However, the calculation of overall percentage rates for some key outcomes was inappropriate given the clinical heterogeneity between these studies. Further, for some outcomes only a small number of studies reported findings, which further weakened the evidence. Given methodological limitations in the review process, the conclusions are unlikely to be reliable.

**Implications of the review for practice and research**
**Practice**: The authors stated that patients should be carefully selected with appropriate preoperative assessment of anorectal function. Rates of recurrence may be improved with the administration of neoadjuvant radiotherapy, although this may impact on postoperative function.

**Research**: The authors did not state any recommendations for further research.

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