Outcome of surgical fundoplication for extraesophageal (atypical) manifestations of gastroesophageal reflux disease in adults: a systematic review

Iqbal M, Batch A J, Spychal R T, Cooper B T

CRD summary
The authors concluded that most patients with extra-oesophageal manifestations of gastro-oesophageal reflux appeared to improve after surgery, but a small percentage were unchanged or worse; firm conclusions could not be drawn and further research was required. The conclusions reflected limited evidence from diverse observational studies, but lack of reporting of review methods made it difficult to comment on their reliability.

Authors' objectives
To evaluate the effects of surgery on adults with extra-oesophageal manifestations of gastrointestinal reflux.

Searching
MEDLINE via PubMed and Cochrane Database of Systematic Reviews were searched from 1991 to December 2006 for studies published in English. Search terms were reported. Studies were traced using the related articles function and references were screened.

Study selection
Studies that evaluated surgery for adults with extra-oesophageal manifestations of gastro-oesophageal reflux (extra-oesophageal reflux) were eligible for inclusion. Outcomes of interest were resolution or improvement in symptoms, quality of life and adverse events.

The included studies evaluated four different types of open fundoplication and three types of laparoscopic fundoplication procedures (details reported in the review). Patients had a variety of extra-oesophageal symptoms, including asthma, chronic cough, laryngeal symptoms, combined symptoms and chest pain. Most patients were selected on the basis of oesophagogastroduodenoscopy in addition to a variety of other tests. Studies reported a variety of different outcome measures, including asthma symptoms, lung function, symptoms, pH, medication use and quality of life. Where reported, the mean duration of follow-up ranged from 3.2 to 108 months.

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.

Data extraction
For each study, percentages of patients with cure and improved symptoms were presented. 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 extra-oesophageal symptoms and combined in a narrative synthesis. Differences were apparent from data extraction tables and were discussed in the text.

Results of the review
Twenty-five studies were included: one randomised controlled trial (RCT, n=62); and 24 case series (10 prospective and 14 retrospective; n=9 to 354).

Asthma (one RCT, n=62 and six case series, n=287): The RCT reported higher rates of sustained improvement in the surgical group compared to H2-receptor antagonist groups and an unspecified control group (74% versus 9.1% and 4.2%). The cure rate was 6% in the fundoplication group. Long-term follow-up data were available for only 16 patients.
Cohort studies: Improvement rates ranged from 49% to 84% in four studies; one study (n=13) reported a 15% improvement rate. Cure rates ranged from 0% to 64% (four studies).

Chronic cough (13 case series, n=1,057): Rates of improvement ranged from 54% to 100% (nine studies). Cure rates ranged from 13% to 96% (11 studies).

Laryngeal symptoms (eight case series, n=272): Rates of improvement ranged from 74% to 83% (three studies). Cure rates ranged from 65% to 94% (five studies).

Combined symptoms (four case series, n=323): Rates of improvement ranged from 80% to 95% (three studies). Cure rates ranged from 44% to 76% (four studies).

Chest pain (five case series, n=516): Rates of improvement ranged from 54% to 90% (three studies). Cure rates ranged from 13% to 81% (four studies).

Authors’ conclusions
Most patients with extra-oesophageal manifestations of gastro-oesophageal reflux appeared to improve after surgery and a small percentage were unchanged or worse. Differences between studies meant that firm conclusions could not be drawn. Further research was required.

CRD commentary
The review question was clearly stated. Inclusion criteria for intervention were specified, criteria for participants were broadly defined and outcomes of interest were listed; criteria for study design were not described. Limiting the search to two databases plus references may have resulted in the omission of other relevant studies and raised the potential for publication and language biases. 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 assessed and so results from these studies and any synthesis may not be reliable. In addition, it was unclear how improvements of cure were measured in individual studies. In view of the diversity among studies, a narrative synthesis was appropriate. The authors discussed some limitations of the evidence. It would have been helpful if the percentages of patients with improvement, no change or deterioration were specified in the conclusion. The authors’ conclusions appeared to reflect limited evidence from diverse observational studies, but lack of reporting of review methods and a limited search made it difficult to comment on their reliability. The recommendations for further research appeared justified.

Implications of the review for practice and research
Practice: The authors stated that patients should be informed before surgery that a small percentage of patients with extra-oesophageal manifestations of gastro-oesophageal reflux were unchanged or worse after surgery.

Research: The authors stated that large, multicentre prospective trials were required to compare medical and surgical treatment for patients with extra-oesophageal manifestations of gastro-oesophageal reflux. Studies should standardise the following: diagnostic criteria for gastro-oesophageal reflux; pre- and post-operative assessment; and the type of surgery and follow up.

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Bibliographic details

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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.