Metaanalysis of recurrence after laparoscopic repair of paraesophageal hernia

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CRD summary
This review aimed to determine the true incidence of recurrence after laparoscopic-paraesophageal hernia (lap-PEH) repair and concluded that the true incidence was 25.5%. Concerns about the poor quality evidence and methodological flaws mean that the authors' conclusions are not likely to be reliable.

Authors' objectives
To determine the true incidence of recurrence after laparoscopic paraesophageal hernia repair.

Searching
PubMed, EMBASE, and The Cochrane Library were searched from 1991 to February 2006; search terms were reported. Handsearching and personal communication were used to identify further relevant studies. Only studies written in English were eligible.

Study selection
Primary studies of laparoscopic paraesophageal hernia repair that included more than 25 participants who were followed up for more than six months and which assessed recurrence were eligible for inclusion. Studies that described repair of failed Nissen fundoplication (wrap migration) alone were excluded.

All patients in the included studies received laparoscopic paraesophageal hernia repair. Procedures involved the presence or absence of gastroplasty; most patients did not receive gastroplasty. Around one third of patients had a follow-up esophagogram.

Two reviewers individually selected papers for inclusion. Disagreements were resolved by a third reviewer.

Assessment of study quality
Studies were assessed for clear statement of aims, selection bias, performance bias and detection bias (loss to follow up and objective assessment).

Two reviewers individually assessed validity; disagreements were resolved by a third reviewer.

Data extraction
Recurrence rates were calculated for each study. Odds of recurrence and confidence intervals also appeared to be calculated, although it was unclear how these calculations were made since studies appeared to have no comparator groups. Data were categorised into use of gastroplasty or no gastroplasty, and pre- or post-2000 studies.

The authors stated neither how the data were extracted for the review nor how many reviewers performed the extraction.

Methods of synthesis
Mean and median recurrence rates were calculated. Heterogeneity was assessed by using the X^2 test and by visual assessment of a results plot; it was unclear how these calculations were made, as there appeared to be no comparator groups. Sensitivity analyses were conducted. An odds ratio and a risk ratio were calculated to compare pre- and post-2000 studies.

Results of the review
Thirteen retrospective case series were included in the review (n=965). Studies generally lacked a clear aim, were underpowered, had deficiencies in assessing outcomes and had high losses to follow up.
Ninety-nine of 965 patients (10.2%) suffered recurrence. The figure was higher (14%) among patients who were followed up (n=658). The recurrence rate was 25.5% for patients who had a follow-up esophagogram (n=301). There was no statistically significant difference between recurrence rates in pre-2000 studies (8.5%) and post-2000 studies (11%). There was a statistically significant difference in the recurrence rates when the presence (0/149) of absence (99/816) of gastroplasty was assessed; gastroplasty showed benefit (p<0.0001). Further results were reported.

**Authors' conclusions**
The true incidence of laparoscopic paraesophageal hernia recurrence was 25.5%.

**CRD commentary**
The review addressed a clear question and was supported by appropriate inclusion criteria. Although electronic databases and other sources were searched for studies, the restriction to studies written in English coupled with no clear evidence of a systematic search for unpublished studies, meant that relevant studies may have been missed. Suitable methods were employed to minimise the risks of reviewer error and bias for the processes of study selection and study quality assessment, although the authors did not report on whether such methods were used to extract data. Study quality was assessed, but only minimal individual study details were provided, which made it difficult to assess the generalisability of the results. It was unclear which statistical methods the authors used to obtain certain results, since none of the 13 studies had comparator groups. In light of the review's methodological caveats, and the generally poor quality of the included studies, the authors' conclusions are not likely to be reliable.

**Implications of the review for practice and research**

**Practice**: The authors stated that mandatory follow-up esophagogram would provide a tool for detection of recurrence.

**Research**: The authors stated that more data were needed on the issue of whether an oesophageal lengthening procedure may confer benefit to the repair.

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