Recurrent achalasia treated with Heller myotomy: a review of the literature
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CRD summary
The authors evaluated the efficacy and safety of second-line Heller myotomy for recurrent achalasia (severe neuromuscular disorder of the oesophagus). They concluded that response rates were the best in those patients who received both first-line and second-line Heller myotomy procedures. Given a number of review limitations, and the reliance on apparently observational data, the reliability of the results is uncertain.

Authors' objectives
To evaluate the efficacy and safety of second-line Heller myotomy for recurrent achalasia, after the failure of different types of first-line treatment.

Searching
PubMed and three publisher databases were searched for relevant articles from 1966 to March 2008; search terms were reported. Reference lists of relevant publications were also checked.

Study selection
Studies that evaluated the efficacy and safety of Heller myotomy as second-line treatment in participants with recurrent achalasia were eligible for inclusion. Achalasia had to be confirmed through clinical, manometric, radiographic or endoscopic evaluation.

In the included studies, the median age of the participants ranged from 30 to 52 years. First-line therapy included pneumatic dilation, pneumatic dilation plus botulinum toxin (BOTOX), and Heller myotomy. Types of second-line Heller myotomy included laparoscopic Heller myotomy or Heller myotomy with and without Dor fundoplication or Toupet fundoplication.

The authors did not state how the papers were selected for the review.

Assessment of study quality
The authors did not state that they assessed validity.

Data extraction
The authors extracted the number of participants with a ‘good-to-excellent’ response after Heller myotomy (regardless of study criteria) and the number of participants with treatment failures (those who required further treatment or had to have oesophagectomy) in order to assess efficacy.

The authors did not state how many reviewers performed the data extraction.

Methods of synthesis
The authors pooled weighted mean remission rates (by sample size). Studies were compared by the type of first-line treatment received.

Results of the review
Sixteen studies (n=370 patients) were included in the review (study types were not reported but appeared to be case series). Sample sizes ranged from 3 to 67 patients.

Efficacy: Remission rates were better in participants who received Heller myotomy as first-line and second-line treatment (weighted mean SD 86.9% (21.8%); seven studies; n=70) compared with participants who received pneumatic dilation as first-line treatment and Heller myotomy as second-line treatment (weighted mean SD 81.6% (23.8%); eight studies; n=234) (statistical results were not reported). The remission rate was 83% in the one study
(n=60) that assessed participants who had received first-line treatment with pneumatic dilation plus BOTOX and second-line treatment with Heller myotomy.

**Complications:** Participants who were treated with Heller myotomy experienced intraoperative complications including gastrointestinal perforation (1.5 to 20%) and pneumothorax (1.9 to 6.7%); post-operative complications included pulmonary complications (1.3 to 4%), persistent severe chest pain (no rates reported) and gastro-oesophageal reflux (2.6 to 20%).

**Authors' conclusions**
Response rates were the best in those participants who received first-line and second-line Heller myotomy for recurrent achalasia.

**CRD commentary**
The review addressed a clear question; it was supported by appropriate inclusion and exclusion criteria for participants and interventions, but not defined for study types. Attempts to identify relevant published studies were undertaken by searching electronic databases and hand searching relevant articles. However, it was not clear if unpublished data or articles published in different languages were sought, which may have potentially introduced publication and language biases. Details of the review process were not reported, so its susceptibility to reviewer error and/or bias could not be assessed.

The authors did not assess the quality of the studies, so the results of these studies, and any synthesis of them, may not be reliable. Some details of the included studies were reported, but information on duration of follow-up was lacking.

Given these review limitations and the reliance on apparently observational data, the reliability of results is uncertain.

**Implications of the review for practice and research**
**Practice:** The authors stated that Heller myotomy should be promoted in hospitals.

**Research:** The authors stated that future studies should focus on how to increase the success rate of Heller myotomy, while also decreasing complications of this treatment.

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