Is fundoplication necessary after paraesophageal hernia repair? A meta-analysis and systematic review

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Introduction

Paraesophageal hernias are often asymptomatic, but when symptomatic they should be fixed laparoscopically. This repair involves mobilization of the gastroesophageal junction and the intra-thoracic esophagus . A cruroplasty of the diaphragmatic pillars is performed and a fundoplication is usually performed at the time. This can be a 360 degree wrap or a partial wrap. However, there are times, especially in emergency cases, where it is not always possible to perform a fundoplication. We hypothesized there would be no difference in outcomes whether or not a fundoplication is performed as part of a paraesophageal hernia repair.

Methods

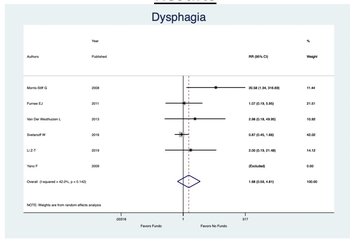
A literature review of available clinical databases was performed using PubMed, Clinical Key and Google Scholar. Our search terms were: “paraesophageal hernia”, “paraesophageal hernia repair”, “fundoplication”, “emergency surgery”, “no fundoplication”. We also limited our search to publications that had a majority of cases performed laparoscopically, which was from 1997 onwards. We excluded studies that were in languages other than English, abstracts and small case series (less than 10 patients). Pediatric patients were also excluded. Pooled estimates were obtained using the DerSimonian-Laird's random effects model. All analyses were carried out using STATA V.15.

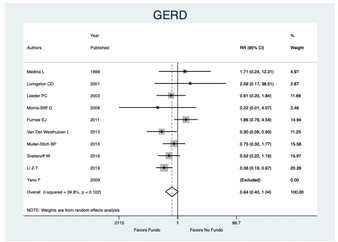
Results

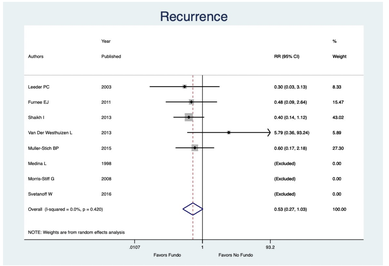
Our search criteria yielded a total of 22 studies published between 1997 and 2020. There were a total of 8600 subjects enrolled into this study. The overall pooled prevalence of fundoplication were estimated as 69% (95% CI: 59% - 78%). In patients who underwent fundoplication, the risk of gastroesophageal reflux disease (GERD) was reduced as compared to patients who did not undergo fundoplication (RR: 0.64, 95% CI: 0.40 - 1.04, p = 0.069, I^2=47.2%). A similar trend was also observed in recurrence (RR: 0.53, 95% CI: 0.27- 1.03, p = 0.061, I^2=0.0%) and reoperations (RR: 0.25, 95% CI: 0.02 – 2.69, p = 0.25, I^2=56.7%). However, patients who underwent fundoplication had an increased risk of dysphagia (RR: 1.68, 95% CI: 0.59 – 4.81, p = 0.83, I^2=42%).

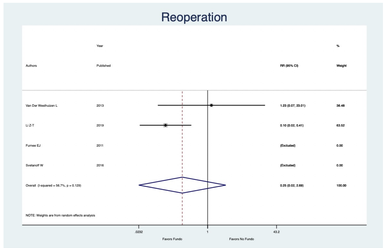
Results

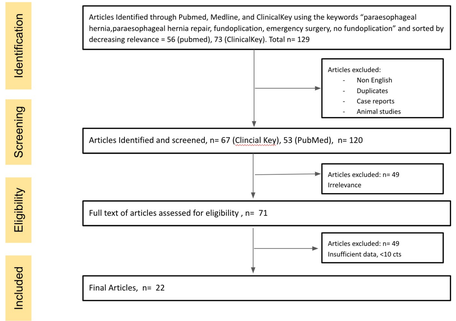
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In summary, this meta-analysis indicates it is acceptable to perform a fundoplication during PEH repair with the confidence that it will lead to less GERD, recurrence and reoperations. Conversely, if the clinical situation dictates not performing a fundoplication, patient outcomes will still be good, albeit with a higher rate of GERD but less dysphagia.

Conclusions

There is a higher rate of recurrence of gastroesophageal reflux disease, recurrence of hernia and reoperation when no fundoplication is performed during a paraesophageal hernia repair. However there is less risk of dysphagia. Paraesophageal hernia repair with fundoplication should be performed, but it is acceptable to not do so in certain situations.

Takeaway points

- If a fundoplication is not performed:
  - More GERD
  - Higher rate of recurrence
  - Higher rate of reoperation
- If a fundoplication is performed:
  - Higher rate of dysphagia
- Mortality is unchanged
- It is acceptable to not perform a fundoplication in necessary

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