



Reply to: is peroral endoscopic myotomy (POEM) ready to replace laparoscopic Heller's myotomy (LHM) for achalasia? – comments on recent systematic review

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I would like to thank Prof. Kohn for his insightful comments (1) on our recent systematic review (2). I would like to address some of the issues raised by him regarding our paper.

I agree that our PRISMA diagram has not provided reasons for the records excluded. However, some of the reasons for exclusion of a number of studies has been addressed by the authors under the result section (excluded studies). Nevertheless, there were other reasons for these exclusions which included trials which were single arm [either peroral endoscopic myotomy (POEM) or Heller's myotomy] i.e., non-comparative studies, narrative reviews, systematic reviews or meta-analysis or commentaries, guidelines addressing achalasia in general and other papers dealing with issues other than surgical or endoscopic treatment, etc.

We did not address the techniques of POEM or laparoscopic Heller's myotomy (LHM) simply because they were addressed by the original papers included in this systematic review. We feel POEM and LHM have been standardized over the last few years and the inclusion of these techniques would not have contributed anything exceptional to this paper and in fact would have lengthened the paper unnecessarily.

Yes, we agree that reporting the type of fundoplication would have been a useful addition to this paper. Without exception, all the authors preferred partial fundoplication;

anterior Dor or posterior Toupet in their patients, the reasons for which were not entirely clear in some of these studies. Chan *et al.* (3) wanted to cover the myotomy site and therefore preferred anterior Dor. This may also cover any mucosal micro or even macro-perforations. Hungness *et al.* (4) preferred a posterior Toupet fundoplication, unless an excessive anterior angulation of the esophagogastric junction (EGJ) resulted or if there was concern for esophageal perforation, in which case they preferred an anterior Dor fundoplication. Unfortunately, other authors didn't provide any rationale for why they chose Dor or Toupet.

Regarding major complication rates, unfortunately none of the trials have explicitly used Clavien-Dindo classification of surgical complications. However, in Table 2, we have tried to enumerate what we felt were major and minor complications for these two procedures in various comparative studies. I nonetheless agree with Prof. Kohn's view that without standardized reporting of complications (using Clavien-Dindo classification), it will be difficult to compare the safety and efficacy of these two procedures. One hopes that all future comparative studies especially RCTs will heed this advice.

Regarding treatment failure, we have stated that (I) this systematic review and meta-analysis only provides short-term (i.e., ≤12 months) analysis of the results due to lack of long term data in any of these studies; (II) the

criteria for treatment failure varied from study to study and has not been agreed upon by various authors; this has been mentioned under the heading failure rate. Furthermore, some of the studies (4,5) were omitted from the analysis of efficacy due to lack of analyzable data.

I agree that the long-term gastroesophageal reflux disease (GERD) data and fundoplication side effects provide us the longevity and effectiveness *vs.* side-effects profile for these two procedures. However, none of the comparative trials have this data available for analysis. Remember, all these comparative trials present short-term data as mentioned previously. Regarding objective analysis of postoperative GERD symptoms using pH study; it was provided by only one study (6) and therefore one cannot provide a meta-analysis based on a single study.

The limitation of our meta-analysis has been clearly identified. However, we cannot provide analysis of certain variables such as short and long-term dysphagia rates, objective GERD rates, etc. as this data is simply lacking in all the comparative studies. Until and unless better quality, well designed multicentre randomized controlled trials with a sufficient number of patients are published and their longitudinal data over 3, 5 and 10 years are available, we will be simply speculating on the merits of these two procedures.

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