THE EFFECT OF OBESITY ON RECURRENCE AFTER LAPAROSCOPIC ANTI-REFLUX SURGERY

An evidence-based systematic review and meta-analysis
In accordance with EACCME Criteria for the Accreditation of Live Educational Events,

I have no potential conflict of interest to report.
BACKGROUND

Rising prevalence globally, up to 30% prevalence in Western societies

Laparoscopic anti-reflux surgery (LARS) is the gold standard surgical alternative Mx

Increasing prevalence of obesity

Obesity is strongly associated with GORD

AIMS

Primary Outcome

Recurrence of GORD
- Symptoms
- Quantitative measures (e.g. pH studies, oesophageal manometry)

Secondary Outcomes

- Peri-operative complications
- Immediate return to theatres
- Re-do surgery/ re-intervention
### METHODS

<table>
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<th>PICOS</th>
<th>Inclusion and Exclusion criteria</th>
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| Patient   | Inclusion: Patient categorized having obesity by the WHO criteria\(^6\) \((\text{BMI} \geq 30)\), suffering from GORD.  
Exclusion: Patients under the age of 18 |
| Intervention | Inclusion: Laparoscopic Anti-Reflux Surgery (Lap. Nissen fundoplication, Lap. Toupet, Lap. anterior or any posterior wrap)  
Exclusion: Redo surgery, Open Surgery, Bariatric procedures. |
| Comparison | Inclusion: Patient categorized as not having obesity by the WHO criteria \((\text{BMI} < 30)\), suffering from GORD.  
Exclusion: Patients under the age of 18 years. |
| Outcome   | Primary outcome: Recurrence  
Secondary outcome: Incidence of peri-operative complications in the form of re-intervention such as endoscopic dilatation or re-do-surgery, and return to theatre early |
| Study Design | Inclusion: Randomized controlled trials, controlled trials (eg., non-randomized, historical controls), Observational studies, and conference proceedings with sufficient data available were included (if it became a full article afterward, it was included then to only to prevent duplication of the data). No restriction of language or region was applied.  
Exclusion: Animal studies |

Records identified from databases and screened for retrieval
\( n = 2653 \)

Records for detailed evaluation after duplicates removed
\( n = 2,667 \)

Records identified through other source
\( (n = 14) \)

Records screened by abstracts
\( n = 2,667 \)

Records excluded
\( n = 2636 \)

Full texts assessed for eligibility
\( n = 31 \)

Records excluded
\( n = 26 \)

Studies included for final meta-analysis
\( n = 9 \)

7,020 patients

1,499 patients with obesity

5,521 patients without obesity
RESULTS – 1° OUTCOME

- Rate of recurrence of GORD post LARS: patients with obesity > patients without obesity
  - 9.50% pooled rate in patients with obesity
  - 3.04% pooled rate in patients without obesity
- Median follow-up post-op: 35 months
- **Statistically significant difference**: p value = 0.0001
- Laparoscopic Nissen fundoplication – most common type of LARS
RESULTS – 2° OUTCOMES

No statistically significant difference

Peri-operative complications

Re-intervention/ re-do surgery

Early return to theatre
CONCLUSION

Rate of recurrence of GORD post LARS:

Patients with obesity > patients without obesity

(p = 0.0001)

∴ Obesity increases the risk of recurrence of GORD post LARS

No statistically significant difference in the secondary outcomes
Obesity is a risk factor for the recurrence of GORD post LARS

Consider risks v.s. benefits

Weight reduction strategies should be advised prior to LARS
FURTHER RESEARCH

How to decrease risk of recurrence of GORD in patients with obesity?

Weight loss

Weight loss has an independent beneficial effect on symptoms of gastro-oesophageal reflux in patients who are overweight.


Abstract

Background: Weight loss is currently recommended as part of first-line management of gastro-oesophageal reflux disease (GERD) despite the scarcity of published clinical trials. The aim of this study was to prospectively assess the Independent effect of weight loss on reflux symptoms in overweight individuals with either normal endoscopic findings or grade-I oesophagitis.

Methods: Thirty-four patients were recruited on the basis of a body mass index (BMI) of greater than 25 and symptoms of GERD for at least 6 months. All patients were advised to lose weight. Symptoms of gastro-oesophageal reflux (GER) were scored, using a modified validated instrument at 6, 12, and 26 weeks. Patients were not allowed to stop taking medication for control of symptoms or symptoms were excluded from the study. Changes in weight and symptom scores were analysed by using a paired t test. Comparison between change in weight and symptom score was assessed using the Pearson correlation test.

Results: Thirty-four patients were studied (18 men and 16 women) with a mean age of 46 years (range, 24-75 years). The mean weight at recruitment was 82.4 kg (standard deviation (SD), 48.5 kg; BMI, 25.5 kg/m² (range, 2.3-41 kg/m²)). Twenty-seven patients (80% of the total) lost weight with a mean of 4.3 kg (SD, 5.0 kg) and improved by a mean reduction of 70% from the initial symptom score (P = 0.01). In nine patients the symptoms disappeared completely. Three patients gained weight but not a deterioration of their symptoms, whereas four patients gained weight but still improved their symptom scores. There was a significant direct correlation between weight loss and symptom score (R = 0.95, P < 0.001).

Conclusions: This study has shown a significant association between weight loss and improvement in symptoms of GERD. Patients who are overweight should be encouraged to lose weight as part of the first-line management.

Symptomatic improvement in gastrooesophageal reflux disease (GERD) following laparoscopic Roux-en-Y gastric bypass


Abstract

Background: The purpose of this study was to determine the effects of laparoscopic Roux-en-Y gastric bypass (LRYGB) on the symptoms of gastroesophageal reflux disease (GERD).

Methods: Morbidly obese patients (n = 43) who underwent LRYGB were monitored for 1 year. They were assessed for changes in GERD symptoms, quality of life, and patient satisfaction after surgery.

Results: A total of 236 patients (55%) had evidence of chronic GERD, and 162 patients (64%) voluntarily participated in the study. The mean body mass index (BMI) was 48.8 kg/m². The mean excess weight loss was 68.8% at 12 months. There was a significant decrease in GERD-related symptoms, including heartburn (from 87% to 22%, p < 0.001), water brash (from 18% to 7%, p < 0.005), and aspiration (from 14% to 2%, p < 0.001) following LRYGB. Postoperatively, the use of medication decreased significantly both for proton pump inhibitors (from 44% to 9%, p < 0.001) and for the H2 blockers (from 67% to 10%, p < 0.01). SF-36 physical function scores and the mental component summary scores improved after the operation (17 vs 71, p < 0.005 and 63 vs 66, p < 0.001), respectively. Overall patient satisfaction was 78%.

Conclusion: LRYGB results in very good control of GERD in morbidly obese patients with follow-up of up to 3 years. Morbidly obese patients who require surgery for GERD may be better served by LRYGB than fundapexy because of the additional benefit of significant weight loss.

Amelioration of gastrooesophageal reflux symptoms following Roux-en-Y gastric bypass for clinically significant obesity

Lana G Nissen, Rodrigo Gonzalez, Krista Haines, Scott F Gallagher, Michel M Murr.

Abstract

Symptoms of gastrooesophageal reflux disease (GERD) are frequent in patients with clinically significant obesity and are reported to improve after Roux-en-Y gastric bypass (RYGB). This study was aimed to determine the time and duration of improvement of GERD symptoms in patients undergoing RYGB. Prospective data were collected from 101 patients who underwent RYGB from January 1996 to August 2004 were analyzed. Patients answered a standardized questionnaire pre and postoperatively inquiring about frequency of GERD symptoms (none, one episode/day, more than one episode/day) and medication use. Of 69 patients undergoing RYGB, 232 patients (56%) reported GERD symptoms preoperatively (mean age 43 +/- 12 years; body mass index 51 +/- 10 kg/m²). Of these, 93% of patients reported improved at 3 months post-op and 94% of patients were on medication. Of 54 patients evaluated at 1 year, 90% of patients reported improved at 1 year post-op and 94% of patients were on medication at 1 year. Percentage of excess weight loss was 18 +/- 1% and 1% +/- 2% at 3 and 12 months, respectively. Symptoms of GERD significantly improved and use of antacid medications is reduced after 1 year. Independent of weight loss, RYGB may be the treatment of choice for GERD in obese patients.

• Improvement in Sx of GORD after different types of bariatric surgery
  • Roux-en-Y gastric bypass, sleeve gastrectomy, gastric band, duodenal switch

• Improvement in Sx of GORD after weight loss v.s. bariatric surgery

• GORD in patients with higher BMIs
  • Sub-group patients with BMI ≥ 30 (e.g. 30 ≤ BMI < 35, 35 ≤ BMI < 40, etc.)

• Improvement in QoL of patients with obesity post-LARS
REFERENCES


2. Lundell L. Borderline indications and selection of gastroesophageal reflux disease patients: ‘is surgery better than medical therapy’? Dig Dis 2014;32(1e2):152e5.


THANK YOU FOR LISTENING
APPENDIX
<table>
<thead>
<tr>
<th>First author</th>
<th>Publication study year</th>
<th>Design of the study</th>
<th>Total number of cases n =</th>
<th>Follow-up in months</th>
<th>BMI categories</th>
<th>Regrouping of BMI for meta-analyses</th>
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Newcastle-Ottawa Scale\(^{10}\)

\(^{10}\) J.P. Higgins, S. Green, Cochrane handbook for Systematic Reviews of Interventions, John Wiley & Sons, 2011.