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Comparison of Anterior to Posterior Laproscopic Partial Fundoplication

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Abstract

Objective: The aim of the study was to compare between anterior to posterior laparoscopic partial fundoplications. *Patients and Methods:* During a 2-year period, 50 patients with gastroesophageal reflux disease were enrolled in this study, comparing a partial posterior (Toupét, n = 26) fundoplication and an anterior partial wrap (Watson, n = 24). All patients were assessed postoperatively, and the 6-month follow-up. *Results:* Both patient groups were strictly comparable. All operations were completed laparoscopically, and no serious complications were encountered. Post fundoplication symptoms were recorded with no difference between the groups. *Conclusions:* When performing a laparoscopic partial fundoplication, the posterior modification (Toupét) offers advantages in terms of better reflux control compared with an anterior type (Watson).

Keywords: Fundoplication; Posterior modification; Dysphagia; Gastroesophageal junction.

After the invent of minimal invasive techniques for fundaoplication in 1991, There has been increasing interest in the surgical management of gastroesophageal reflux disease [1,2]. The most frequent post fundoplication symptoms are dysphagia, difficulty or inability to belch and vomit, postprandial fullness, bloating and pain, increased rectal flatus [5,6]. A recent randomized clinical trial suggested that laparoscopic total fundoplications were associated with more obstructive complaints in the early postoperative period than after open procedures [7]. However, other similar trials have not been able to confirm these potential hazards with the laparoscopic technique [8,12]. A large randomized trial with open antireflux surgery has reported that posterior partial fundoplications are associated with less troublesome complaints of gas–bloat/rectal flatus [13]. In addition, a recent trial comparing a total with a partial anterior fundoplication performed laparoscopically suggested similar advantages with this partial fundoplication [14]. It has been argued that some partial fundoplication procedures augment various constituents of the valvuloplasty components of the competence in the gastroesophageal junction and as a consequence were associated with a very low incidence of mechanical complications [15]. To further optimize the design and function of antireflux surgery, the question then arises: Which type of partial fundoplication that maintains clinical efficacy in terms of reflux control with a concomitant minimization of post fundoplication complaints?

Methods

Fifty patients with chronic gastroesophageal reflux disease were registerd for antireflux surgery. The patients who were selected had no previous major abdominal open surgery. All patients had pre operative endoscopic evaluation and many had even been on antisecretory medications for few days to weeks.

Starndard operative techniques were followed in all Laparoscopic fundoplications. started with dissection of haitus followed by esophageal mobilization, posterior crural repair was done with

non absorbable sutures. The gastric fundus was dissected, and then short gastric vessels was divided using harmonic. in patients subjected for Toupét fundoplication [16], the fundus was wrapped behind the esophagus to encircle 180-200° of the esophageal circumference. The same sutures were fixed to the left crura and left lateral wall of oesopahgus. Same thing done on right side, sutures fixed to the right crura and right lateral wall of oesopahgus. The fixation as done with non abosrbalble sutures.

According to watson, in anterior fundoplication [17,8], the distal esophagus is mobilized for reduction of the hiatus hernia and allow a mobilization of 4-6 cm of the intraabdominal esophagus. After retracting the anterior segment anteriorly the crual sling was repaired with interupted, non absorbable sutures. Then the intraabdominal segment of the esophagus was fixed to the crura by suturing the postero lateral aspect of the esophagus, avoiding injury to the vagus. The angle of His was reconstituted by placing interrupted unabsorbable sutures between the seromuscular layer of the superomedial aspect of the fundus of the stomach and the inferior surface of the diaphragm. A 120° anterior lateral fundoplication was thus performed between the medial aspect of the gastric fundus and the anterior aspect of the muscle layer of the esophagus, taking care to avoid branches of the anterior vagus nerve.

Post Operative Assessment

All patient were interviewed preoperatively and then at regular intervals during the first 6 months after the operations. Symptoms related to Gastroesophageal reflux and also to those specifically related to the post fundoplication procedure were noted. each symptom was scored from 1 to 3 (1, no symptoms; 2, mild-to-moderate symptoms; 3, severe symptoms). Dysphagia was scored using visual analogue scale (0-10; 0 = no dysphagia to 10 = total dysphagia) that was independently applied for solids and liquids and also a previously validated dysphagia score [19]. Endoscopic investigation of the esophagus and the upper gastrointestinal tract was performed postoperatively .

Results

Although both the surgeries are effective in reducing reflux-associated symptoms, but in our study, we observed a significant difference ($P < 0.001$) among the groups. There were only fewer patients complaining of heartburn and acid regurgitation after a posterior partial fundoplication.

In terms of only post fundoplication complaints, it was observed in our study that there was no much differences between the 2 procedures. we found an improvement in dysphagia scores from 6 weeks to 6 months postoperatively. Even with ability to belch, there was no significant deifference bwtween the two groups. ability to vomit was imporoved after the anterior partial fundoplication. There was no much difference with dyspeptic symptoms, whether pre- or postoperative period .

Discussion

Although Laparoscopic antireflux surgery has some complications, the surgery has benefits over long term medical treatment and also on cost [20-23]. The improvement in skills and technology with excellent results minimising the compliations in the laparoscopic antireflux sugery, is now becoming the choice of surgery. Still One of the most troublesome complication being persistent dysphagia, whereas persistent difficulties affect only 5-10% of the patients [23]. Persitant dyspahgia or gas related symptoms may be one of the deciding factor in choosing surgery as an approriated treatment option or not. All these problems have led to the investigation of a range of modifications of Nissen's original procedure, which seek to improve outcome in patients after antireflux surgery.

Division of the short gastric vessels have failed to improve the overall outcome for patients undergoing a total fundoplication [14,24,25]. For a long time, use of a large bougie in the esophagus was advocated to avoid a too-tight total wrap. There are various data available now to support the use of a similar indwelling device to reduce obstructive symptoms [26]. The results of a trial comparing a laparoscopic anterior partial fundoplication with a Nissen total fundoplication showed a reduced incidence of dysphagia and gas-related problems in the in the first group [14] with equivalent control of reflux in both at 6 months follow-up. A subsequent longer follow-up of patients having a similar anterior partial fundoplication suggested reassuring outcomes [27]. The debate, however, the debate continues whether some of the side effects of a total fundoplication can be avoided by doing a partial fundoplication without jeopardizing the efficacy by which reflux is controlled [30-32].

The present study, tried to address whether there are any important differences between the anterior

and the posterior partial fundoplication in terms of reflux control and side effects. The trial incorporated 50 GERD patients, with follow-up upto 6 months only. We found significant differences in favor of the posterior fundoplication regarding the level of reflux control. There was inability to demonstrate any differences in obstructive complaints between the 2 partial fundoplications, but interestingly enough, significantly more patients reported an ability to vomit after the anterior fundoplication. This observation probably reflects the efficacy of the respective repair. Flatulence is associated with, if not merely caused, by the ability to vent air from the stomach in the postoperative situation [32-35].

Conclusion

Laproscopic posterior partial fundoplication (Toupét) was had adequate reflux control assessed but an laparoscopic anterior partial fundoplication gave unacceptable results both in terms of reflux control and esophageal acid reflux variables.

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