

Oesophageal achalasia in elderly people: results of the laparoscopic Heller-Dor myotomy

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Abstract. Aims: To assess the outcome of laparoscopic Heller-Dor myotomy for oesophageal achalasia in two groups of patients identified by age (under and over 70 years) using functional and clinical instruments. Background: Current therapies for achalasia can't restore normal motility but can palliate dysphagia. Many other symptoms may persist difficult to quantify and to compare. In order to understand if age is a factor that influences the therapeutic outcome we tested the reliability of a specific QoL instrument for comparing outcomes of surgery for achalasia. Methods: Functional examinations and the Gastrointestinal Quality of Life Index (GIQLI) were used before and after laparoscopic Heller-Dor myotomy. Results: Starting in January 1996, 28 consecutive patients of 32 diagnosed (instrumental evidences) achalasia were operated on laparoscopically for various clinical stages of achalasia. In 78% of patients dysphagia disappeared, the incidence of gastro-oesophageal reflux was of 11%. The patients completed a GIQLI questionnaire preoperatively and after a minimum postoperative follow-up of 1 year. Median preoperative GIQLI score was 78 (range 38-109) out of a theoretical maximum score of 144. At a median follow-up of 35 months (range 18-72), the score had significantly improved to 115 (range 71-140). All the items assessing gastrointestinal symptoms and physical, social, and emotional function were significantly improved. There is no difference between the two groups identified. Conclusions: The laparoscopic Heller-Dor myotomy is an effective palliation for achalasia, the medium-term outcome is not affected by the age of the patients. The GIQLI is a reliable instrument to compare the impact of achalasia symptoms on health-related QoL.

Key words: Oesophageal achalasia, elderly people, laparoscopic Heller-Dor myotomy

Introduction

Oesophageal achalasia is a motor disorder caused by an irreversible degeneration of oesophageal myenteric plexus, with an estimated annual incidence of 1/100,000 in western countries. It is characterized by aperistalsis or uncoordinated contractions of the body and impaired relaxation of a frequently manometrically hypertensive lower sphincter (LES). The therapeutic procedures tend to the palliation of dysphagia and other symptoms caused by the stasis as no available treatment can restore the motility or the coordination

of the oesophagus. According to the only prospective, randomized trial by Csendes et al. (1989) (1) comparing the long term results of the pneumatic dilation and oesophagomyotomy, the procedure of choice for idiopathic achalasia should be surgical myotomy of the lower esophageal sphincter (LES), as initially reported by Heller in 1913, with some modifications. Until the beginning of 1990 the sole approaches were laparotomy or thoracotomy, with overall good long-term results in about 80% of patients, but with a perceived relatively high morbidity associated with open surgical treatment that persuaded most patients and physicians

to favour endoscopic dilation as the primary conservative option for achalasia. More recently several nonrandomized studies showed conclusively that the miniinvasive approaches, mainly laparoscopic, are associated with shorter operative time and hospitalization, lower morbidity, and lower incidence of postoperative reflux (2, 3). Compiled series of laparoscopic myotomies referred a symptoms improvement in 85% to 100% of patients, showing very low rates of morbidity and mortality: the incidence of symptomatic reflux disease (GERD) was 0% to 18%, as referred either in series with a relatively short follow-up (average <2 years) (4, 5) or longer than 6 years (6). Moreover it has been referred that prior use of botulinum toxin and oesophageal dilation, often in sequence, can induce fibrosis of the submucosa leading to a more difficult and longer miniinvasive procedure with higher risk of intraoperative perforation but without a negative impact on long-term good outcome (7). These satisfying outcomes, however, induced an increased choice of surgery as primary treatment of achalasia than previously (5).

This study analyzes the results of our experience in the surgical management of achalasia, particularly concerning the influence of the elder age on the outcome.

Patients and methods

A consecutive series of 32 patients with the diagnosis of achalasia and a median preoperative duration of symptoms was 40 months (range 6-180). is analyzed, who underwent treatment from January 1996 to January 2004 at our institution. There were 19 women and 13 men with a mean age of 43 years (28-82), 11 of them were older than seventy years. All of them complained dysphagia, 24 pts regurgitation (75%), 10 pts. heartburn (31%), 9 pts, chest pain (28%), 5 pts. upper abdominal pain (15%), 10 pts different degrees of respiratory symptoms (31%).

All patients underwent preoperative upper GI endoscopy, contrast radiographs, oesophageal manometry and pH-metry.

Patients are distributed in a group under 70 years-old - (Group A: 21 pts) - and in an elder group over 70 years - (Group B: 11 pts).

8 patients (6A-2B) (25%) had normal or mildly dilated (<3 cm) esophagus (grade 1), 13 patients (8A-5B) (40%) had moderate (3-6 cm) esophageal dilatation (grade 2), 10 patients (7A-3B) (31%) had grade 3 dilatation (>6 cm), and 1 patients (group B) (4%) had a grade 4 sigmoid-shaped esophagus. A hiatal hernia was present in two patients (one patient with grade 2, one with grade 3 of esophageal dilatation), including one patient with associated histologically proven mild Barrett's metaplasia. Aperistalsis of the esophageal body (0% propagated contractions) was present in 23 patients (72%), including 1 with vigorous achalasia (hypertonic nonpropagated contractions). 6 patients (19%) had less than 25% of propagated contractions. The median LES resting pressure was 34 cm H₂O (range 28-73). Six patients had complete absence of LES relaxation, 21 patients had LES relaxation of less than 50% of their baseline value, and 4 patients had complete LES relaxation (esophageal body aperistalsis and LES resting pressure >40 cm H₂O). In one patient the probe did not pass the LES. Medical treatment was attempted in 19 patients (60%) before operation, including PPI, prokinetic or anxiolytic drugs, without any clinic improvement. 7 patients (3A-4B) (22%) underwent oesophageal pneumatic dilation with a 30 mm Rigiflex balloon (10 psi/30"/three times). Four patients (2 of the elder group B, including the grade 4 of dilatation) were still satisfied at the control (18-36 month) and didn't accept further treatments. 28 patients (19A-9B) underwent laparoscopic Heller-Dor myotomy using a standard technique with the identification and dissection of the anterior vagus nerve away from the underlying esophagus, preserving the posterior attachments, and the myotomy of 7-9 cm (2-2.5 cm on the gastric side) with plain scissors and gentle distraction of the fibers, under endoscopic control. The anterior gastric valve is fixed with 2-3 stitches to both the edges of the myotomy. After surgery they were followed in the outpatient clinic and we refer the results of a follow-up of at least 18 months including a complete clinical evaluation at 6 and 12 months and then every year, a manometry and pH-metry and a radiographic study after 12 months. Patients were evaluated according to a clinical score and comparison of the quality of life (GIQLI) preoperatively and then every year.

Quality of Life Assessment (QoL)

Health-related QoL was assessed with the GIQLI (8), preoperatively and systematically after a minimum follow-up of 1 year postoperatively. The GIQLI explores the patient's self-evaluation of the 2-week period before the questionnaire is filled out. It includes 36 items covering four domains: gastrointestinal symptoms (19 questions), physical function (7 questions), social function (4 questions), emotional function (5 questions), and one item about subjective treatment assessment. Every item is scored from 0 (least desirable option) to 4 (most desirable option), the sum of the GIQLI score ranges from 0 to 144 and in a healthy control population scored 125.8 points (95% confidence interval: 121.5-127.5) (8). The items of the questionnaire more connected with the symptoms of achalasia were: item 27 exploring regurgitation ("How often during the past 2 weeks have you had trouble with fluid or food coming up into your mouth?"); item 29 exploring dysphagia ("How often during the past 2 weeks have you had trouble swallowing your food?"), item 35 exploring heartburn ("How often during the past 2 weeks have you had trouble with heartburn?"). Other items explore issues related to achalasia such as abdominal pain (item 1), the speed of eating (item 28) or frequent burping and belching (item 5).

Statistical analysis

The results were expressed as means \pm SD of the mean or median (range), as appropriate. The paired Student *t* test was used to compare each item before surgery and at follow-up. A two-tailed *t* test was used for comparison of total scores and scores in each subgroup of items, before operation and at follow-up. Values of $P < 0.05$ were considered significant.

Results

There was one conversion to laparotomy due to adhesions from previous abdominal surgery. In 2 patients with hiatal hernia a hiatoplasty was done, in 1

patient a cholecystectomy was associated. Median operative time was 110 minutes (range 80-230) and median postoperative hospital stay was 5 days (range 3-17).

Intraoperative complications occurred in 4 patients (2A-2B) (12%). Two oesophageal mucosal perforations were sutured laparoscopically with an uneventful postoperative course. One splenic capsule tear was treated conservatively. One postoperative intraabdominal bleeding required a blood transfusion without reoperation. Other postoperative complications were: pneumonia, superficial wound hematoma and urine infection. Operative mortality was nil.

The postoperative follow-up ranges from 18 to 72 (median 35) months with one patient lost because of a car accident. Dysphagia was efficiently palliated in 22 patients (15pts group A – 7pts group B) (78%): 12 patients had no residual episodes of dysphagia, 7 patients had only rare episodes of dysphagia, and 3 patients had occasional dysphagia during the 2 weeks preceding evaluation. 6 patients (21.7%) were improved but still had some degree of dysphagia during most or all of their meals. Significant regurgitation was reported in 4 patients (14%) (frequently in 2 patients and most of the time in 2 patients). Significant heartburn (most of the time) was reported by 3 patients (11%) and they took antacids as 9 patients did preoperatively. Mild upper abdominal pain was reported by 5 patients (18%). Chest pain more than once per week was reported in 2 patients (6%), who referred daily chest pain preoperatively. Occasional chest pain was noted in 4 patients (14%). Only one patient noted some respiratory distress as preoperatively. In figure 1 comparison between overall preoperative and postoperative responses to the GIQLI questionnaire, distributed in four domains, are referred. Their median GIQLI at follow-up was 115 points (range 71-140) and was significantly higher than the preoperative score of 78 (range 38-109) ($P < 0.0001$) Significantly higher subtotals were found at follow-up for each domain: symptoms ($P < 0.0001$), physical function ($P < 0.0001$), social function ($P < 0.001$), emotional function ($P < 0.001$) as well as for subjective treatment assessment (item 24; $P < 0.005$) (Tab. 1). The analysis of each patient shows a higher score improvement at follow-up in the patients with the preoperative worst

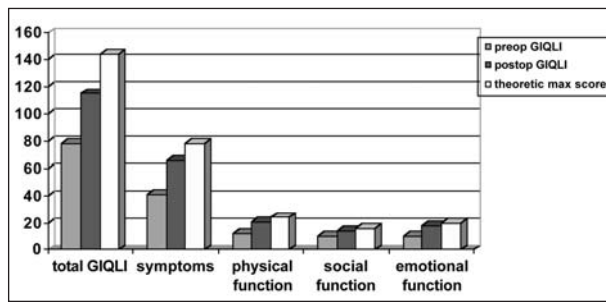


Figure 2. Pre and post-operative Gastrointestinal Quality of Life Index (GIQLI)

scores and features quite overlapping in the two groups with no significant differences as far as the age of the patients is concerned. Oesophageal forceful pneumatic dilatation didn't affect surgical outcome nor the GIQLI score, even in the two patients with intraoperative mucosal tears.

Discussion

Idiopathic achalasia is a disease that can be palliated but not cured that's why symptoms are generally managed with medical therapy for a long time before taking the decision of inhibiting or cutting the LES fibers. The indication to treat the patients who are very poor operative risks with conservative endoscopic procedures, either with botulinum toxin or endoscopic pneumatic dilatation, advised us to analyze retrospectively our series of oesophageal achalasia undergone surgical laparoscopic treatment with the aim of answering to the question: should be the age a factor influencing the therapeutical strategy? It is widely accepted that the majority of patients should be treated by the modality that appears to warrant the combina-

tion of low initial morbidity, high success rate, and good long-term outcome. Pneumatic dilatation and surgical myotomy improve dysphagia in the short term in a high percentage of patients, (9) but beyond 5 to 10 years, only 26% to 49% of patients after pneumatic dilatation (1, 10, 11) and 33% to 79% after surgical myotomy (1, 6, 10, 12) are free from dysphagia. Yet, 33% to 38% of patients with recurrent dysphagia manage symptoms without any medical help (10). According to the only available prospective randomized study of surgical myotomy with pneumatic dilation, (1) myotomy is more efficient on dysphagia at 5-years follow-up. The controversy over the best treatment is still present, as both the endoscopic and surgical techniques have evolved. Starting from the early 1990s, Heller myotomy has been performed using a transthoracic or transabdominal miniinvasive approach (13). Laparoscopy became the technique of choice as it has the same short-term efficiency on dysphagia as open cardiomyotomy while reducing the whole morbidity of laparotomy, (2, 5) and up to the present, also the long-term outcome seems to be very good (6, 14). In most retrospective surgical and endoscopic series, outcome assessment has been based on a variety of symptom scores evaluating the main symptoms of achalasia (e.g., dysphagia, regurgitation, or heartburn), so that the different criteria used don't allow any reliable comparison. The physical, psychological, and social consequences of these symptoms, and hence the QoL impairment they produce, should be evaluated so in the preoperative assessment of the patients and postoperative analysis of the outcome of the therapy we applied the gastroenterological self-questionnaires of QoL, GIQLI, in association with the instrumental tests of oesophageal functions. The present study population is homogeneous, as patients had the same ope-

Table 2. Total Gastrointestinal Quality of Life Index (GIQLI) and domain scores

	preop GIQLI (median, range)	Follow-up GIQLI (median, range)	P value
Total GIQLI score	78 (38-109)	115(71-140)	<0.0001
Symptoms	41 (19-62)	60 (39-74)	<0.0001
Physical function	12 (4-24)	22 (8-27)	<0.0001
Social function	10 (4-17)	13 (8-15)	<0.001
Emotional Function	10 (3-18)	15 (6-20)	<0.001
Subjective Therapy Assessment	2 (0-3)	3 (1-4)	<0.005

rative technique and the same team of surgeons performed all operations. Follow-up cannot be considered a long-term one but its median of 35 months is acceptable. According to the literature (15, 16), a minimum interval of 12 months was used between surgery and QoL evaluation to exclude potential interference of immediate postsurgical sequelae on QoL.

Our results confirm that laparoscopic Heller-Dor myotomy reaches a functional recover of the oesophageal function in about 80% of the patients independently from the age, the previous treatment and is correlated, yet not significantly, to the levels of preoperative scores. The medium-term follow-up (35 months) doesn't allow drawing definitive conclusions but the results indicate that health-related QoL is significantly improved regarding all the domains tested: symptoms, physical function, social and emotional function. Indeed the median postoperative GIQLI score of 115 is close to the 95% confidence intervals of the GIQLI for a healthy control population without any difference between the two groups of age identified. The incidence of GERD of 11% is acceptable and the symptoms correlated (heartburn and chest pain) are significantly improved after surgery confirming that the procedure doesn't need an association with 360° or 270° fundoplication provided that the dissection was limited to the anterior oesophagus. Only 2 patients at the four and five-year controls showed a decreasing GIQLI score confirming that the postoperative outcome settles down within the first 12-18 months as referred in the literature (6).

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