Surgical Treatment of Achalasia: A Retrospective Comparative Study

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Abstract: A retrospective study carried out on 74 patients among 101 consecutive cases of achalasia of the esophagus operated from 1967 to 1989 is reported. On 21 patients observed between 1967 and 1975, a standard transabdominal Heller cardiomyotomy was performed (group A). From 1976 to 1989, the treatment of choice was a Heller myotomy associated with a modified Dor’s fundoplication. In 80 consecutive cases (group B) the extension of myotomy was regulated by intraoperative monitoring of lower esophageal sphincter pressure. A 5-year follow-up with questionnaires, physical examination, and barium swallows was carried out on 16 patients in group A and on 58 patients in group B. In 75.6% of the cases (56 patients) follow-up examinations included esophageal manometry and 24-hour esophageal pH monitoring. Recurrence of dysphagia was recognized in 3 cases in group A (18.7%) and in 2 cases in group B (3.4%) (P = 0.053); postoperative gastroesophageal reflux, measured as a percentage of total reflux time, showed a significantly lower mean value in group B than in group A (1.8% vs. 4.1%, P < 0.01). This study suggests that an anti-reflux procedure lowers postoperative gastroesophageal reflux after Heller myotomy. Due to the low incidence of postoperative reflux and the negligible recurrence of dysphagia, Heller myotomy associated with a modified Dor’s fundoplication may represent the surgical treatment of choice for achalasia of the esophagus.

Key Words: esophageal achalasia, Heller cardiomyotomy, Dor’s fundoplication

Introduction

Achalasia of the esophagus is a well-defined esophageal motor disorder characterized by an absence of peristalsis in the esophageal body and failure of lower esophageal sphincter (LES) relaxation.

The management of achalasia is still a matter of much debate, mainly because no form of therapy is able to achieve a complete success in all treated cases. While surgery is associated with the best results, still there is no agreement about the surgical technique of choice. The aim of our retrospective study was to establish whether an anti-reflux procedure associated with a Heller myotomy could prevent secondary gastroesophageal reflux.

We retrospectively studied 74 out of 101 patients surgically treated for achalasia of the esophagus at our institution. Patients were divided into two groups: All cases in group A underwent a standard Heller myotomy with no anti-reflux procedure while the patients in group B underwent a long myotomy with an anti-reflux procedure under intraoperative manometric control.

Methods

Between December 1967 and December 1989, a total of 101 cases (58 males, 43 females; mean age 50.6 years, range 21–79 years) of achalasia of the esophagus were surgically treated at our institution. Seventy-four of these, with a minimum 5-year follow-up, were included in this study. Twenty-two patients were excluded because their operation was performed in the last 4 years and consequently the follow-up was too short; another reason for exclusion was follow-up dropout (5 cases belonging to the first period of our experience). In all patients, the diagnosis was based upon medical history, barium swallow, and upper gastrointestinal endoscopy. Manometry and 24-h pH monitoring were performed in all patients enrolled from 1976. Between 1967 and 1975, 21 patients underwent surgery. In all cases, a short Heller’s cardiomyotomy alone was performed through an abdominal approach. Sixteen of these patients, with a minimum 5-year follow-
up, were included in this study (group A). A preliminary analysis of our results showed a significant rate of failures, in terms of persistence of dysphagia or development of a symptomatic gastroesophageal reflux. For this reason, from 1976 onward the surgical procedure was changed: On 80 consecutive patients, a long esophageal myotomy was performed under manometric monitoring and associated with an anterior emifundoplication according to Dor's technique. Fifty-eight of these patients, with a complete 5-year follow-up, were included in the study (group B).

Surgical Technique

All the operations were performed through an abdominal approach. After abdominal exploration the phrenoesophageal membrane was divided to expose the lower esophagus. The anterior esophagotomy was carried-out to the left of the anterior vagus nerve.

In group A, a short cardiomyotomy alone was performed dividing 3–4 cm of the esophageal muscle layers and around 1 cm of the gastric sling fibers. In five patients, a reconstruction of the gastroesophageal angle according to Lortat-Jacob's technique was associated.

In the second period (group B), intraoperative manometry, as described further on, was employed. The length of the myotomy was 5–6 cm on the esophagus and was extended onto the stomach for a distance of 2–3 cm. In twelve cases, myotomy was further extended onto the stomach because of a persistence of pressure peaks at the intraoperative manometry. In all group B patients, a modified anterior emifundoplication was associated; the greater curvature of the stomach was sutured by a running suture to the muscular borders of section with Vicryl 3/0. Our technique includes anchoring the gastric wall and the margins of the myotomy to the hiatal muscular ring; it represents a modification of the procedure described by Dor (Fig. 1).

Most of the operations (80%) were performed by the same surgeon.

Radiological Evaluation

In all patients, a radiological evaluation was performed before surgery and 2–3 months after surgery. A late study was repeated 1–3 years after surgery to compare the middle third diameter (in cm) of the esophagus during maximal filling to preoperative figures.

Manometric Studies

In all patients, studies were performed both before surgery and intraoperatively; in 56 cases (75.6%) manometric studies were also performed 2–4 years after surgery. The procedures were done by means of a low-compliance open-tip tube system with triple lumen catheter (Arndorfer Medical Specialties EMS 3, Greendale, Wis.) with an internal diameter of 1.1 mm and side holes 5 cm apart. The system was constantly perfused with manometry distilled water at a slow infusion rate (0.5 ml/min) from a pneumohydraulic pump (HP, Hewlett-Packaro, Palo Alto, Calif.) and connected to pressure transducers (HP) and to a polygraph recorder (HP). All pressure values were