In defense of endoscopic management of achalasia

Abstract

Achalasia is an esophageal pathology which significantly compromises patient quality of life. Its pathophysiology is not well understood and its etiology has not yet been established. Available treatments are generally palliative. A significant percentage of patients, once they have exhausted all endoscopic and surgical options, should be referred for esophagectomy. Therapeutic endoscopy offers pneumatic balloon dilation guided by endoscopy with excellent results. Laparoscopic Heller myotomy associated with partial fundoplication is the surgical treatment of choice: its results are comparable to those obtained with endoscopic pneumatic balloon dilatation. However, surgical myotomy is a technique that is not without risks, some patients do not accept it and others are not good candidates for the procedure. For some time now the idea that laparoscopic Heller myotomy is superior to endoscopic pneumatic balloon dilatation has been popularized, but this is based on questionable studies. The development of therapeutic endoscopy and the growing awareness of the deeper layers of the gastrointestinal tract have made the concept of transmural endoscopic surgery possible to the point that performing a submucosal endoscopic myotomy is now an alternative for management of Achalasia. Therapeutic endoscopy using available methods and techniques is still under study but will remain a first line treatment option for managing these patients.

Key words

Achalasia, dilatation, surgery, myotomy.
Surgical Treatment

One treatment goal for achalasia is to resolve the dysphagia without provoking GERDs. An LHM accompanied with partial fundoplication apparently accomplishes these goals even though reported rates improvement vary from 77% up to 100% and even though GERD develops in up to 44% of the patients treated with this combination. The rate of esophageal perforations from LHMs is 7%, a higher rate than that reported for balloon dilation (3). The permanence of results obtained from different techniques is still being debated after 20 years of experience. Patients present clinical deterioration, GERDs and increased possibility of esophagitis. Some even develop Barrett’s esophagus (5-7).

It is important to note that this data has been reported by surgeons with the best training and experience who work in key medical referral centers.

Campos et al. (3) compared old endoscopic dilatation techniques with old surgical myotomy techniques in a study based on only one controlled clinical study and 9 retrospective studies. They concluded that surgery offers better results in terms of improvement of symptoms more than does any endoscopic dilatation technique. In our opinion this conclusion is unacceptable because modern balloon dilation with Rigiflex balloon (TM) is better than older dilatation techniques. Rather than making a comparison between surgery and older techniques, the comparison must be made between surgery and the best endoscopic technique available used homogenously. In addition, Campos et al. analyzed uncontrolled retrospective and prospective studies to conclude that LHM is superior to dilatation with Rigiflex balloons in regard to improvement of symptoms. This finding is questionable because controlled clinical studies that compared modern Rigiflex balloon dilation (used homogenously) head to head with LHM were not included. This, in our opinion, makes their conclusions, at the very least, controversial. Nevertheless, since that study was released, even though it did not present strong evidence, it has helped popularize the idea that the surgical technique is better than the endoscopic technique. This has relegated balloon dilation to the background and to consideration as an unorthodox option for first-line treatment.

Csendes et al. produced another study which is often cited by opponents of endoscopic treatment, and therefore by advocates surgical management (8). In our opinion, despite the fact that this was a controlled study, its results are not applicable to the present time because it compares ancient surgical techniques (open abdominal surgery) with equally ancient endoscopic techniques (endoscopic Mosher bag dilation). That study has also been criticized by other authors (9).

There are 2 controlled clinical studies that were not included in the study by Campos et al.. They compared the dilation with Rigiflex balloons directly with LHM and found no significant differences in success rates (1, 10, 11).

A recent controlled clinical study divided patients with achalasia into two groups. One group was treated with Rigiflex balloon dilation while the other group was treated with LHM. At the end of two years, this study concluded that the symptom resolution rates were similar for the two both techniques. In addition, this study also compared decreases in pressure on the lower esophageal sphincter, esophageal emptying time and patient quality of life and found no significant differences between the two treatments (9). This study’s excellent design and sample size allow us to be sure that the results obtained with Rigiflex balloon dilation are comparable to those obtained with LHM, at least for 2 year follow-up times.

Endoscopic Treatment

The Gastroenterology and Digestive Endoscopy Service of the Hospital de San José in Bogota has used balloon dilation to treat achalasia since 1963. Rigiflex balloon dilation with TM is a most effective non-surgical treatment for achalasia (3, 13). The objective of this therapy is to produce a controlled rupture of the LES which releases the distal esophageal obstruction and improves symptoms. Before Rigiflex balloon dilation was developed, a variety of different dilators with different diameters and technical specifications were used. Making the results obtained more difficult to assess, there were no unifying homogenous studies of these techniques. To date, Rigiflex balloon dilation is the most effective pneumatic dilatation method (1, 3).

The study by Campos et al. reviewed 15 uncontrolled studies evaluating 1065 patients who were treated with this modern generation of Rigiflex dilatation balloons. The majority of these reports contain no information on improvement of symptoms or information about 36 month follow-ups. This information was contained in only 4 studies. The Rigiflex balloon dilation techniques used varied widely because different dilator sizes, ranging from 1.5 cm to 4 cm, dilatation times varied from 6 seconds to 240 seconds and the pressure ranged from 7 psi to 18 psi (average pressure was 10.9 psi) (3). Improvement of symptoms depends on dilator size, dilation duration and the number of times the procedure is repeated. In our opi-
nion comparing studies that do not apply the same balloon dilation techniques and then drawing conclusions from that comparison, is, at the least, questionable. From these reports, Campos et al. concluded that these procedures improved symptoms in 85% of patients during the first month following treatment. They furthermore concluded, on the basis of irregular and incomplete follow ups in just 4 out of 15 studies, that the success rate fell to 74% for the first 6 months after treatment, to 68% in the first 12 months after treatment, and to 56% over the first 36 months following treatment. We consider it to be paradoxical that, despite the figures listed, Campos et al. report that 25% of patients required repeated dilation and just 5% of patients required surgical treatment. In our opinion this occurs because their study is based on obtaining averages of studies that are not comparable.

There is no consensus in the literature regarding dilator size and dilation time, or even regarding the number of balloon dilation sessions necessary to determine a therapeutic failure. This has generated the perception among some physicians that more than one balloon dilation session is unacceptable (2). To the contrary, in our opinion the possibility of repeating this procedure is one of its advantages (1). In our Service, if the subjective sensation of dysphagia persists after three successive sessions of balloon dilation, we consider that the treatment has failed, and we refer the patient to the General Surgery Service. There is still controversy about balloon dilation in certain groups because, without strong evidence, it is considered that it should not be the first line treatment for young male adults or patients with an esophagus dilated more than 3cm (4, 14). The report of Boekxstaens et al. (9) discarded age as a predictive factor for therapeutic failure of balloon dilation and raised doubts about whether the diameter of the esophagus prior to balloon dilation really matters.

It is still uncertain how often, and how severe, GERDs develops following dilation because it has not been documented in most cases. Nevertheless, some studies have reported it in 33% of cases (3). Esophageal perforation has been described in up to 1.6% of cases treated with balloon dilation, a lower percentage than the perforation rate reported for LHM (3). As to cost-effectiveness, Rigiflex balloon dilation allows the patient to return to work immediately whereas with LHM it takes up to 2 weeks (1, 2). A long-term evaluation of all available methods would show that Rigiflex balloon dilation is the cheapest method (1, 14).

As can be seen, Rigiflex balloon dilation has multiple advantages that can be used in any age group. It can even be used during pregnancy and in cases of LHM failure (1). In addition, it is important to clarify that this treatment does not interfere with further treatment with LHM (1, 15, 16).

Endoscopic injection of botulinum toxin is a third treatment option for achalasia symptoms which decreases lower esophageal sphincter pressure. The best candidates for this technique are inoperable elderly patients. Its main disadvantage is declining success rates after approximately 3 months which lead to multiples sessions and higher costs (3). For these reasons endoscopic injections of botulinum toxin are not used in our service.

On the other hand, with the development of therapeutic endoscopy, the idea raised by Ortega et al. in 1980 of performing submucosal endoscopic myotomies (SEM) has recently returned (17, 18). Since 2007, successful animal studies have been conducted (19, 20).

A 2010 study of 17 patients by Inoue et al. looked at variations of the SEM techniques which have been used in pigs (21). Later, the study was expanded to include 43 patients with excellent results. Myotomies of up to 10 cm were performed with resolution of symptoms and almost a zero rate complications (22). These results have started to be reproduced in other groups that appear to be very promising (23, 24).

The potential benefits of this technique would be the direct display of the muscle fibers of the LES, less postoperative pain, decreased complications from incisions, decreased hospital stays, early returns to work and better cosmetic results.

In Colombia, where minimally invasive transluminal surgery is being used, it is vital for gastroenterologists to learn about this type of technique so that they can offer patients lower rates of morbidity. In order to gain experience in this technique, our service has developed an SEM project using pigs that is currently being implemented.

Finally, and in conclusion, achalasia is a rare primary disorder of esophageal motility for which Rigiflex balloon is an excellent alternative treatment which should be considered to be the first therapeutic option due to its effectiveness, low morbidity and mortality rates, minimally invasive nature, accessibility, low cost and repeatability.

REFERENCES