



Review Article

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Endoscopic treatment of Gastro Esophageal Reflux Disease: a tune-up

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Abstract

The incidence of Gastro-Esophageal Reflux Disease in the population of industrialized countries is high and ranges from 20% to 40% in the age groups between 45-64 years with a further increase in the incidence in the age between 64- 74. The natural history of the disease requires continuous recrudescence alternated with quiescent phases. In view of these epidemiological data it is clear the importance of the social problem and the high health costs. It follows the interest of Pharmaceutical Companies the Companies of Electromedical and producing toolkits endoscopic and surgical Companies. In this article I intend to make a brief stock of the situation about the gastro-esophageal reflux disease. I will make a tour of the clinical presentation the increase of incidence especially of so-called atypical forms and symptoms of gastro-pharyngeal reflux (high reflux) emphasizing how many patients are refractory to therapy. Patients who benefit from medical treatment they become dependent on care. Whereas many are young and that medical therapy has adverse side effects such as anemia osteoporosis and infections is the need for alternative therapies. Physiotherapy global posture for example can be a transient and partial support. The ultimate solution is or should be surgical. Surgical therapy makes use of minimally invasive or laparoscopic method which shortens the hospital stay. But an endoscopic surgery easy repeatable free from postoperative complications can be performed in day surgery would be ideal for this type of chronic disease. In reviewing the different techniques that have been proposed over the last twenty years I relate the considerations derived from the international literature. Conclude by presenting a last device manufactured in Germany derived from its precursor the NDO Plicator which making use of the addition of heads polytetrafluoroethylene (PTFE) which retain the suture threads from the traction exerted by the tissues seem to improve the seal in time. I make a brief summary of the main endoscopic therapies for the disease by refluxo. I believe that there is room for this type of therapeutic approach which is a step before surgery.

Epidemiology and Clinical Presentation

The incidence of reflux disease or Gastro-Esophageal reflux disease or Gastro-Laryngeal reflux disease reaches up to over 50% of the general population. The natural history of the disease includes periods of wellness alternating with periods of exacerbation. The flat mucosa of the esophagus is not designed to withstand the irritating contents which come from the stomach. The regurgitation from the stomach therefore create disorder with or without tissue damage associated.

Gastric reflux irritates the esophagus and larynx. The symptoms are caused by the refluxed acid or alkali or mixed which comes from the stomach and the duodenum. Often there is no match between the symptoms and organ damage documented: this is called N.E.R.D. (Not Esophagitis Reflux Disease). The quality of life is highly invalidated and gastroscopy shows an almost normal finding. Incontinence of the cardia

which is documented causes serious trouble. The organ damage can be erosions and ulcers and there is the possibility of an inflamed tissue transformation in metaplastic sense (Barrett's esophagus) and dysplastic. This is a precancerous lesion. More frequently the continuous recurrence of reflux does not cause organ damage but causes a major inconvenience.

The clinical presentation is manifested by typical symptoms of heartburn and regurgitation or with cardiac neurological symptoms ENT and pneumological such as palpitations chest pain headache cough laryngitis the burning mouth otitis the bronchopathies a sense of suffocation even in the absence of the classic heartburn.

Treatment

The advent of Proton Pump Inhibitors has modified the therapeutic trends whereas these drugs in many cases are

decisive. But the protracted and indiscriminate use of these medicines can bring negative consequences for health. The latest research grant the proton pump inhibitors major side effects of which it was given less importance in the past. They would promote intestinal and broncho-pulmonary infection because they reduce the acid barrier. They can cause hypochromic anemia reduced absorption of folate and iron. Reduce the serum calcium and the magnesiumemia and this promotes the catabolic processes of the bone and consequently the pathological fractures.

Non-drug therapies

In clinical practice occurs less effectiveness of these products not because they give habituation over time but because the clinical presentation of the disease is often complex and is manifested as a motor disorder with visceral hyperalgesia and sphincter apparatus malfunction. The “alternative” treatments which sometimes advise my patients have increasingly spread for the possibility of reducing significantly taking the drugs. The global postural type physiotherapy for example which acts on the diaphragm and on the apparatus of cardia sphincter obtains in cases studied and selected a good effect. Pharmacological treatments have adapted preferring at times psychoactive drugs which act on the enteric nervous system and motility. But often the same patients complain of dependence from taking daily medication and seek a permanent solution and not pharmacological.

Consequence of this is the return to a “traditional” remedy shelved since the advent of PPI. Today the surgery can be performed laparoscopically and this has changed the instructions to run it. Some technological innovations like the magnetic collar Lynx increase the ability to choose the type of intervention. The collar is placed around the esophagus with a laparoscopic surgery without altering the structure of the apparatus esophageal-gastric sphincter. Studies are underway to test the effectiveness of this procedure. New impetus have the surgery Endoscopic techniques which reinforce the esophageal-gastric sphincter apparatus with endoluminal fundoplication that is performed with a gastroscopy without resorting to surgery. Both the choice the Endoscopic and the Surgical one require a prior anatomical and pathophysiological study of the stomach and esophagus. After clinical assessment and gastroscopy for anatomical study you should run the ph- Impedenzio metry of 24 hours and esophageal manometry. These last two tests document the degree of cardia incontinence and demonstrate the correlation between disorders and episodes of reflux.

Endoscopic therapy

In recent years many endoscopic methods have been developed for a conservative treatment aimed at patients not responder to medical therapy and in patients for whom it was preferable to a non-pharmacological treatment. These procedures are simple economical and repeatable. They include

technical of intraluminal suture the radio-ablation (STRETTA procedure) and injection of inert substances not absorbable. STRETTA procedure is to put some needle electrodes in the distal esophagus applying of these radio frequency energy burning mucosa it creates a reactive fibrosis and makes it insensitive to algogenic stimuli. This method is used mainly for treating ‘Barrett’s esophagus’ because it burns the tissue and eliminates the diseased mucosa.

The endoscopic injection of “bulking agents” was used in the past and is still performed in some American countries. It has discrete effects in controlling symptoms in the short and medium term improving the manometric findings. Many substances have been used: bovine collagen polietilenmetacrilato (Plexiglas) the ethylene-vinyl alcohol polymer (Enterix) but some have been withdrawn from the market due to adverse events. The injection of foreign material can cause inflammation and ischemia of the esophageal mucosa. They have also been described remotely reactions such as embolization in the case of Enterix which was removed from the market for the intervention of the Food and Drug Administration.

Endoscopic techniques

Endoscopic procedures currently used are those defined “endoluminal Gastro Plication (ELGP)” which include the Esophyx the MUSE method the EndoCinch and GERD-X [1]. They enable the carrying out of the fundoplication during Gastroscopy identical to the surgical. These endoscopic techniques are possible in selected cases when the gastric hiatal hernia is not greater than 20 mm and it has been established the correlation between symptoms and reflux.

Esophyx

The Esophyx device creates a fundoplication suturing the mucous tissue in several places. The operation is performed under vision of a flexible endoscope and there is the need to work with double instrument.

Muse

Another endoscopic technique Transoral Incisionless Fundoplication (TIF) is that defined MUSE Medigus Ultrasonic Surgical Endostapler which is done with an instrument equipped with a mini-ultrasound as well as a stapler. It performs a partial anterior fundoplication. It is equipped with a camera of the ultrasound probe and a rangefinder. The instrument includes a handle with the controls a flexible and a rigid section axis containing a cartridge with five surgical clips.

EndoCinch

The peculiarity of this method is to capture in a niche located near the tip of the endoscope the mucosa of the upper stomach which you want to attach to the mucosa of the sphincter cardia to form the fundoplication. This mucosa is sutured to form folds and reduce cardia space.

The EndoCinch system must be operated with two instruments and over-tube. The room where it is sucked the mucosa of the esophagogastric junction enables suturing the tissue in a situation of stability but despite this the long-term sealing of the method is not effective.

Results

The initial results of these three methods have been encouraging but long-term studies have verified the recurrence of symptoms for the failure of the sutures. With endoscopic surgery it is unable to mobilize the gastric fundus as in traditional surgery to apply more resistant to traction sutures. In the long run the traction force exerted on the sutures causes the esophagogastric junction again become incontinent. Even surgical procedures are beset by varying percentages of relapses sometimes after a short period. But of course the endoscopic techniques present with greater frequency this problem in the face of greater ease of execution of lower costs and ease to again perform the intervention.

GERD-X

The newer endoscopic technique GERD-X which takes its name from stappler endoscopic used seems to promise solution to poor sealing in the time. This "device" has the advantage of having at the end of the suture applied two small plates polyurethane which make the suture more solid and stable over time. The success of the intervention is comparable according to recent studies carried out in Germany and Austria to traditional surgery Nissen fundoplication or Toupet. The follow-up in progress are showing that the problem of the shorter duration compared to surgery is passed from the addition of these platelets [2].

For a chronic condition as is that of the gastro-oesophageal reflux the ideal is a simple cheap surgery efficient and repeatable. Endoscopic fundoplication (one that is made by gastroscopy) has obvious advantages compared to surgery is about the length of stay the execution costs and the ability to repeat the procedure. Basically you can reduce the hiatus hernia and incontinence of the cardia with a gastroscopy.

Why prefer the endoscopic surgery?

The surgery presents a higher percentage of risk compared to the gastroscopy the most frequent of which is the esophageal stenosis post-operative. Not to mention the possibility of

bleeding and perforations. You need a hospital stay of 4-5 days and it is not always possible to repeat the operation in case of failure or relapse. Endoscopy with GERD-X method involves an intervention in Day Hospital stapler with a single-use which is introduced during the gastroscopy whose advantage over generational precursors is to have a greater hold over time thanks to two small plates polyurethane formed from the material used for the hernia networks which make the suture applied more solid and stable.

This device is the evolution of the NDO Plicator produced by a company of electromedical Massachusetts acquired in 2008 by Johnson & Johnson which ceased production of Plicator. The Plicator the NDO Company also had the heads in polytetrafluoroethylene (PTFE) which allow a greater tightness of the suture. The case studies of work of the NDO Plicator has shown good efficacy of these endoluminal suturing in some previous studies in 2008. The Plicator NDO was a mechanical device and reusable while the GERDX has the advantage of a hydraulic mechanism which does not include blocks and is disposable free from bacterial contamination problems. The risks of this endoscopic procedure are practically zero and in any case absolutely lower compared to those surgical [3].

I refer to the corresponding sections of my professional sites www.iannetti.it,

www.gastroenterologoiannetti.com and those who want to know more both about the clinical presentation of reflux disease both regarding diagnostic methods medical therapy with proton pump inhibitors and endoscopic and laparoscopic surgical therapies.

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