ADVANCES IN GERD

Current Developments in the Management of Acid-Related GI Disorders

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Endoscopic Therapies for Esophageal Strictures

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G&H Could you describe the presentation and underlying disease states primarily associated with esophageal strictures?

TN In terms of patient presentation, all strictures are essentially the same and are characterized by solid-food dysphagia. Differentiation of strictures comes from patient history and the diseases causing them. The vast majority of strictures are gastroesophageal reflux–induced, in patients with reflux esophagitis. The second most common etiology is probably pill-induced esophagitis, followed by stricture resulting from cancer radiation therapy, and neoplastic cancer itself.

In addition, there is the emerging disease concept of eosinophilic esophagitis, which is frequently associated with allergies. Endoscopic appearance can be normal, show nonoccluding rings, or diffusely narrow esophagus. Biopsy at the distal and proximal esophagus are diagnostic for this condition. This is not the same as stricture per se but similar dilation therapies have been used to treat it, with good response. However, there have been anecdotal reports that suggest higher perforation rates with dilation procedures in this disease state. It's a small problem but one of which clinicians should be aware.

G&H Are there any medical therapies that target stricture specifically?

TN The only therapies that will treat stricture formation are those that break up or stretch fibrosis in order to achieve increased esophageal compliance. In general, there is no medical therapy other than that which treats associated inflammation, particularly from reflux. Daily use of proton pump inhibitor (PPI) therapy can reduce the need for repeat dilations and increase the interval between dilations. PPIs are generally more effective than H_2 receptor antagonists in these cases.

In patients not responding to dilation or with tight strictures requiring frequent dilations, triamcinolone acetate injection along the length of the stricture can be helpful. Total dose should be limited to 10–20 mg (2–4 mg per injection), depending on the stricture length. Mediastinal infections and *Candida* overgrowth are rare reported complications of this therapy and risk versus benefit should be individualized. Otherwise, dilatation therapies and potential surgical resection are the only options.

G&H Could you describe the main types of dilation devices currently available?

TN I think if we look at the major available varieties of dilators, the first are going to be the polyvinyl bougies, and the second are the guidewire-directed Savary dilators. Polyvinyl dilators have for the most part gone out of favor, mainly because endoscopy is almost always done before we do the stretch, and the Savary dilators offer a relatively easy method to place a guide wire down and dilate over it. The polyvinyl dilators are currently used only when we are performing multiple, very simple stricture dilations where the strictures are very short and very easy to get through and we want to avoid putting the patient under sedation.

Balloon dilators have evolved in multiple ways, most importantly in that they now allow for three different sizes of dilatation in a single balloon. It is therefore possible to dilate three times with one balloon insertion. This is their greatest advantage, along with the fact that there is less sheer force on the esophagus and therefore less potential for damage and perforation.

There have been two studies comparing the effectiveness of Savary dilators versus balloon dilators, the results of which have favored the balloons. Unfortunately, when the designs of those trials are examined, there is an inherent bias toward the balloon. In the balloon arms of these trials, if the endoscopists did not achieve success with the first attempt, they continued to dilate until it worked, whereas the Savary dilator was only allowed one passage. I think, at this stage, most endoscopists still consider Savarys and balloons as the two major methods and that Savarys are the easiest to use and thus chosen most of the time.

G&H What is the standard practice for these procedures?

TN Savary dilation is performed in either the ambulatory surgical center or hospital setting and usually requires sedation. Maloney (bougie) polyvinyl dilation can be done in the office. The standard way to dilate is with an endoscope. The scope is placed in the standard manner and the guidewire is then passed through the channel and the flexible tip is placed in the antrum and then subsequently the scope is withdrawn at the same speed at which the wire is placed in, usually 5 cm at a time. The anticipated final position would place the guidewire 20–30 cm past the lower esophageal sphincter, or at least 20–30 cm past the area requiring dilation. If the lower esophageal sphincter were being dilated at 40 cm, the tip of the wire should be positioned approximately 20–30 cm further, or 60–70 cm from the mouth.

After the wire is placed, then the dilator itself is passed. The endoscopist stands directly over the patient's mouth and extends the dilator almost straight down, through the esophagus and into the stomach. Ideally, we attempt to get at least 20 cm past the end of the stricture, so that it can be dilated with the largest dilator. The wire is then fed back in as the dilator is pulled out and it is anticipated that the distance measured from the mouth should be 5 cm or less from the position that was noted before we started dilation in the first place. Then we repeat the dilation, depending on the size.

The size of the stricture is gauged by the ease with which the scope is passed. Assuming use of a standard 29 fr. gastroscope passed through the stricture, we would anticipate use of anywhere from a 36 to a 39 fr. dilator with relative ease. The dilators would then be passed until met with moderate resistance. At that point, further passes would be limited to two sizes greater. If moderate resistance were noted at 39, we would then go to 42 and then 45 before ending the procedure. Depending on the severity of the stricture, experienced operators may feel comfortable going with a larger dilation, if they felt the resistance to remain only moderate. However, using the rule of threes is prudent in most cases and further dilation to a larger size can be done in a future session.

Another point to note is that when the patient presents with food impaction, the dilation procedure can still be performed very safely immediately after the impaction is removed. The only caveat is that if there is ulceration or severe irritation present, the procedure should be postponed until after treatment for the acid-associated complications.

G&H What adverse events are associated with endoscopic esophageal stricture therapy?

TN The main concern in these procedures is of perforation, which is nonetheless extremely rare. This is most likely because the esophagus is fibrotic and therefore difficult to perforate. Another complication that occurs more frequently but that resolves without much difficulty is the development of a hematoma in the wall of the esophagus, near the area of dilation. This can be associated with significant pain but is not generally of major concern.

Dilation has been associated with higher incidence of heart infection but this link has never been proven. Several cases have been noted of patients developing infection in the abdomen postdilatation, particularly when ascites or fluid are present. However, this again is relatively rare. Per American Society for Gastrointestinal Endoscopy and American College of Cardiology guidelines, preprocedure antibiotics are given before esophageal dilation.

G&H Does the location of the stricture within the esophagus affect the options for treatment with dilation?

TN If a patient presents with stricture high up in the esophagus, it involves actual skeletal muscle, so the potential for fracture is greater. Another concern is the potential inability to pass instruments through a severe stricture. In these cases, the choices are more difficult because strictures in the proximal esophagus tend to be tighter and more angulated than in other parts of the esophagus. Proximal esophageal strictures require barium evaluation to assess length and angulation prior to esophageal dilation. This is particularly true if the endoscope cannot be passed through the stricture.

G&H What determines the success or failure of the procedure?

TN After the procedure is done, I do not perform repeat endoscopy to reassess, though some practitioners do as standard practice. I believe that generally, in the United States, the rule of threes is applied and subsequent symptom assessment will determine the effectiveness of the procedure and need for repeat dilation. Patients should be informed that repeat procedures may be required in up to 50% of cases.

G&H What new technologies are in development for the treatment of esophageal stricture?

TN The self-expanding stents are currently used more and more frequently, in conditions where radiation

therapy is used or when potential removal is anticipated. There is not yet sufficient experience with them to evaluate their safety or the ease of subsequent removal. The information that we do have looks promising because the stents are lubricated on the outside and therefore can be removed. With benign strictures, the ability to remove the stent is of great importance. For particular forms of dysphagia that mimic strictures, such as Schatzki ring, there are newer electrosurgical techniques available, where four or five small cuts are made around the circumference of the rings that allow greater flexibility and compliance. Another current advance can be seen with the use of the very small transnasal scope or the 18 fr. standard scope, both of which can pass through nearly every strictures directly. In patients with tight strictures, these very small scopes can be used even before the dilation is performed.

A new dilation technique involves a clear dilator with a central channel, which allows the endoscope to be passed down the dilator and thus visualize the dilation process under direct vision. These optical dilators allow for three dilation sizes per each passage and vary up to 54 fr. Cost of these optical dilators and the balloon dilators may limit their use because they are single-use products. Savary dilation is significantly cheaper because these devices are reusable and long-term use is limited only by the manufacturers' warranties, which measure in years.

Suggested Reading

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