

ADVANCES IN ENDOSCOPY

Current Developments in Diagnostic and Therapeutic Endoscopy

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Endoscopic Management of Esophageal Strictures



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G&H Which strictures are the most technically difficult to manage?

VS Esophageal strictures are secondary to malignant or benign etiologies. Malignant strictures are most often intrinsic (ie, esophageal cancer) and more rarely attributable to an extrinsic process such as compression from lung cancer or enlarged mediastinal lymphadenopathy. Malignant strictures can be problematic because of continued tumor growth, and dilation often provides little to no long-term relief of dysphagia. Therefore, malignant strictures are often best relieved with esophageal stent placement.

Benign esophageal strictures are classified as simple or complex. Simple strictures are usually short (<2 cm) and straight and allow passage of the diagnostic endoscope. An example of a simple esophageal stricture is a Schatzki ring. As a whole, these strictures are easier to manage. In contrast, complex esophageal strictures are the most difficult benign strictures to manage. These strictures are typically longer than 2 cm and are tortuous, irregular, or severely narrow in diameter. Figure 1 shows an example of a complex esophageal stricture.

G&H When should fluoroscopy be used?

VS Fluoroscopy is useful in the management of complex strictures, especially when the endoscopist is unable to advance the endoscope across the stricture. The options currently available to evaluate a tight stricture include thin-caliber endoscopes or fluoroscopy. Fluoroscopy can help characterize the length and diameter of the stricture, as well as evaluate for the presence of fistulous connections with surrounding structures. The use of fluoroscopy also aids in the advancement of a guidewire into the stomach for access, allowing the advancement of balloon catheters or

esophageal stents more safely. Additionally, at the completion of the procedure, fluoroscopy is useful to confirm the luminal diameter after dilation, assess stent position, and/or confirm that there is no evidence of extravasation of contrast from the lumen. Although there has been a slight trend over the past decade away from using fluoroscopy, its use is highly recommended in the management of complex/high-risk strictures to minimize as well as promptly recognize periprocedural complications.

G&H Which are safer for dilating strictures: through-the-scope balloons or tapered dilators?

VS There are presently no confirmatory data showing that one type of dilating device is safer than the other. The 2 main methods currently used have different mechanisms of dilation: mechanical tapered (Bougie) dilators exert both a longitudinal force as well as a radial force on a stricture, whereas through-the-scope balloon dilators deliver only a radial force. The complication rate is fairly low (less than 5%) and comparable between the 2 devices. The risk of perforation, specifically, for through-the-scope balloons and tapered dilators is typically between 0.1% and 0.4%. The use of a blind dilator (Maloney) without a guidewire is the only exception, as it has a higher incidence of complications. Its use should be reserved for patients with simple strictures.

G&H What is the rule of threes in terms of dilating strictures, and how strictly does it need to be followed?

VS According to this rule, no more than 3 dilators of progressively larger diameter should be used during one procedure. Most endoscopists follow this rule as a general guideline, especially when teaching fellows, as it is very

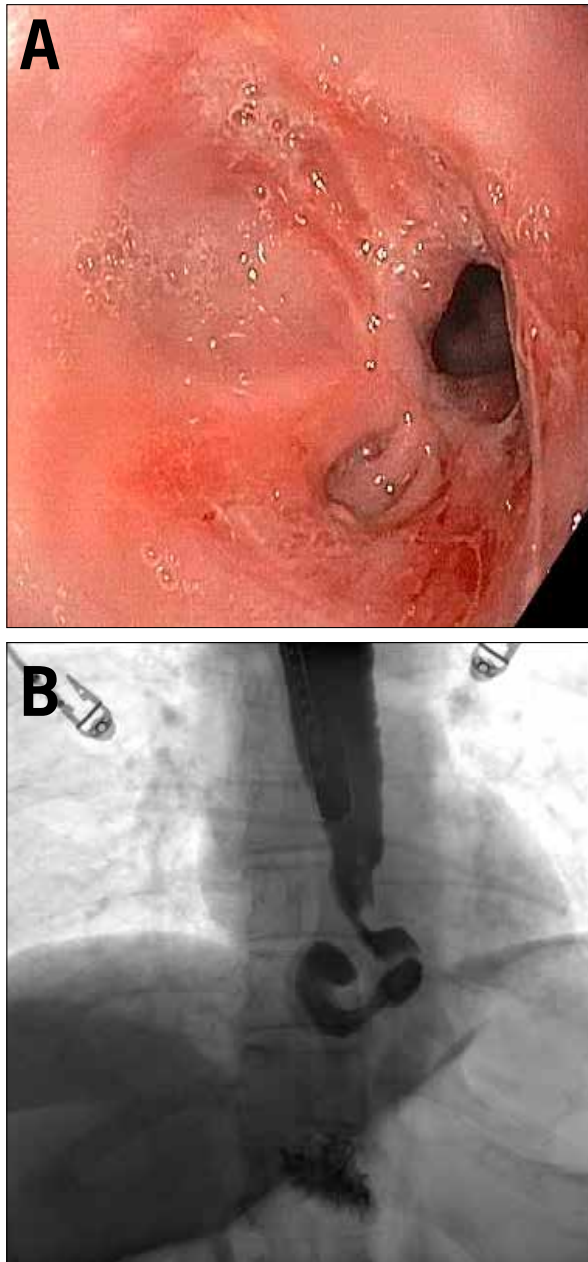


Figure 1. Endoscopic (A) and fluoroscopic (B) views of a refractory complex esophageal stricture.

handy for minimizing complications. However, there are certain instances when the endoscopist can be more aggressive, such as in the dilation of anastomotic strictures, where there is a lot of fibrosis.

G&H Are there any other precautions that can be taken to prevent or minimize complications?

VS First and foremost, it is important to think about the location and complexity of the stricture. For proximal

strictures, it is advisable that patients have airway protection; therefore, intubation with anesthesia support should be considered. Additionally, the more complex the stricture, the longer and more challenging the procedure. This should, therefore, also prompt consideration of general anesthesia for patient comfort and to minimize movement. It is also very important to define the length and distal aspect of the stricture prior to dilation or stent placement. If this is not done, the endoscopist may accidentally push a wire or balloon through the luminal wall with resultant perforation. When performing any endoscopic therapeutic intervention, it is very important to be familiar with the equipment and to be able to troubleshoot if something malfunctions. If the malfunction is a dilating balloon, for example, the endoscopist should be familiar with not only the balloon but also the dilating apparatus. Endoscopists who perform many dilations should also familiarize themselves with stent placement so that if a perforation is found, a fully covered stent can be placed. Familiarity with both through-the-scope as well as over-the-scope clips is also useful in the management of bleeding and small perforations. Finally, it is also important that gastroenterologists have a good working relationship with thoracic surgeons in the event of a major complication.

G&H What is the role of stents in the management of strictures?

VS Esophageal stenting is high in the treatment algorithm for dysphagia caused by malignant strictures. Among all of the options for these strictures (stenting, chemoradiation therapy, and brachytherapy), stenting is usually the procedure of choice, particularly for initial relief of dysphagia. In terms of types of stents, there are plastic self-expandable stents (which are silicone with polyester braid) as well as self-expandable metal (mostly nitinol) stents (uncovered, partially covered, as well as fully covered). Over time, secondary to the challenge of assembling plastic stents, as well as the increased migration rate of these stents, there has been a trend toward using self-expandable metal stents. These nitinol stents have a thin-caliber delivery system and are generally easy to deploy. Presently, the most utilized stents are partially covered and fully covered stents. Although fully covered self-expandable metal stents decrease the risk of stent dysfunction by minimizing tumor ingrowth, the stents do not embed and, therefore, have a higher risk of migration. A recent prospective study by Siddiqui and colleagues examined the use of fully covered self-expandable metal stents in patients with esophageal cancer undergoing neoadjuvant therapy. The migration rate was 31%; however, only 1 of 17 patients experienced recurrent dysphagia.

As for stenting in the setting of benign strictures, data are more limited. There are no comparative trials

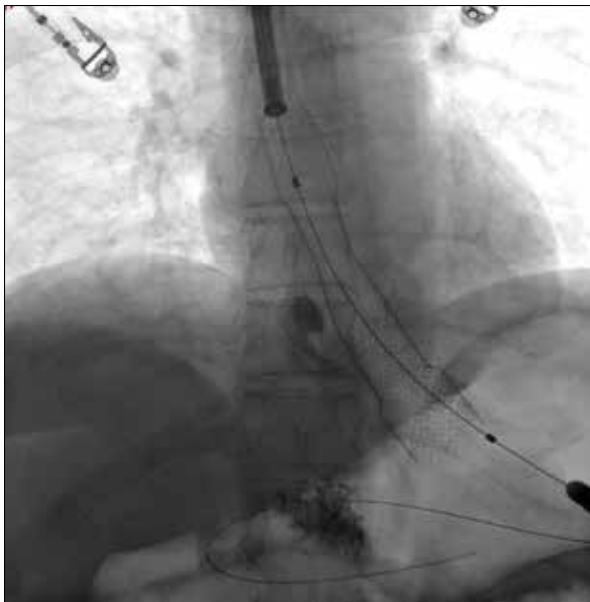


Figure 2. A fluoroscopic image revealing deployment of a stent across a refractory esophageal stricture.

comparing esophageal stenting with dilation. Additionally, migration is high, and long-term dysphagia relief is suboptimal (less than 60% in many series). Stenting in this case should be reserved for patients with refractory or recurrent esophageal strictures (Figure 2).

G&H Is there a role for corticosteroid injection of these patients?

VS For refractory strictures, triamcinolone can be injected in all 4 quadrants of the stricture before the stricture is dilated. Use of a corticosteroid is thought to decrease inflammation and allow healing to occur in a less fibrotic fashion, potentially decreasing the need for redilation. In a randomized study of peptic strictures, Ramage and colleagues compared dilation vs intraluminal 4-quadrant injection of 0.5 cc per quadrant triamcinolone plus dilation and found that the combined treatment, together with gastric acid suppression, reduced the need for repeat dilations and the average time to repeat dilation. Several other studies have also shown benefits of corticosteroid injection of esophageal strictures.

G&H When is surgery indicated?

VS In the case of a malignant stricture, surgery is usually reserved for strictures that are resectable, as palliative resection is rarely performed with the advent of esophageal stents. For benign strictures, surgery is reserved for patients with associated chronic fistulae and strictures that are refractory to esophageal dilation and stenting.

G&H Is self-dilation a viable treatment option?

VS Self-dilation with a Maloney dilator is an option for treating simple strictures. There are data showing an increased risk of complications when using these dilators in complex strictures; therefore, patient selection is key.

G&H What is your approach to managing achalasia, a unique form of esophageal stricture?

VS Achalasia can be a challenging condition to manage. The first step is to confirm, via manometry, that the patient does indeed have achalasia. A barium swallow may reveal the typical “bird-beak” tapering of the distal esophagus. Performing an endoscopy to rule out pseudoachalasia is very important. Once the diagnosis is established, therapeutic options include pneumatic dilation, Heller myotomy, or onabotulinumtoxinA (Botox, Allergan) injection. When performing pneumatic dilation, larger-caliber balloons (30 to 40 mm) are typically utilized to disrupt the lower esophageal sphincter. It is important to keep in mind that the perforation rate is higher than for conventional dilation. Because postprocedural chest pain often develops in patients, and the incidence of perforation is formidable, it is important to perform a completion esophagogram.

G&H What are the next steps in research?

VS There is a good deal of research on biodegradable esophageal stents, which have recently been developed abroad but have not yet been approved by the US Food and Drug Administration. Other research focuses include the development of techniques to minimize migration of fully covered stents as well as the development of more effective antireflux stents.

Dr Shami has no relevant conflicts of interest to disclose.

Suggested Reading

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