ADVANCES IN ENDOSCOPY

Current Developments in Diagnostic and Therapeutic Endoscopy

Section Editor: John Baillie, MB ChB, FRCP

Endoscopic Approach to Reopening a Completely Obstructed Esophagus

Richard A. Kozarek, MD
Executive Director, Digestive Disease Institute
Virginia Mason Medical Center
Clinical Professor of Medicine
University of Washington
Seattle, Washington

G&H When was this procedure first reported?

RK In 1998, van Twisk and colleagues initially reported the technique of using a percutaneous endoscopic gastrostomy (PEG) tract to move retrograde into the esophagus when antegrade placement of a guidewire proved difficult. However, they used this technique to treat a high-grade stricture, not a complete esophageal obstruction.

G&H How is this technique used to reopen a completely obstructed esophagus?

RK Between 2008 and 2010, my colleagues and I at Virginia Mason Medical Center restored the esophageal function of 5 patients who had complete esophageal obstruction secondary to head and neck surgery and radiation using rendezvous endoscopy.

We placed a pediatric endoscope through a gastrostomy site and moved retrograde into the esophagus. Using a combination of radiographic control and transillumination from above with another endoscope, we were able to make a guidewire puncture through a short stricture, place the guidewire into the hypopharynx, and seize the guidewire with a polyp snare through the conventional endoscope channel. We then passed a dilating balloon over that guidewire to reconstitute the esophageal lumen after dilation (Figure).

Since then, we have been able to successfully reopen the completely obstructed esophageal lumen of 15 patients with a variety of techniques, such as using an endoscopic ultrasound (EUS) needle from above or below; obtaining assistance from an ear, nose, and throat doctor with a rigid esophageal endoscope and a carbon dioxide laser; and using the sharp end of a Savary guidewire to make the initial puncture.

G&H Is any preparation required beforehand for the patient?

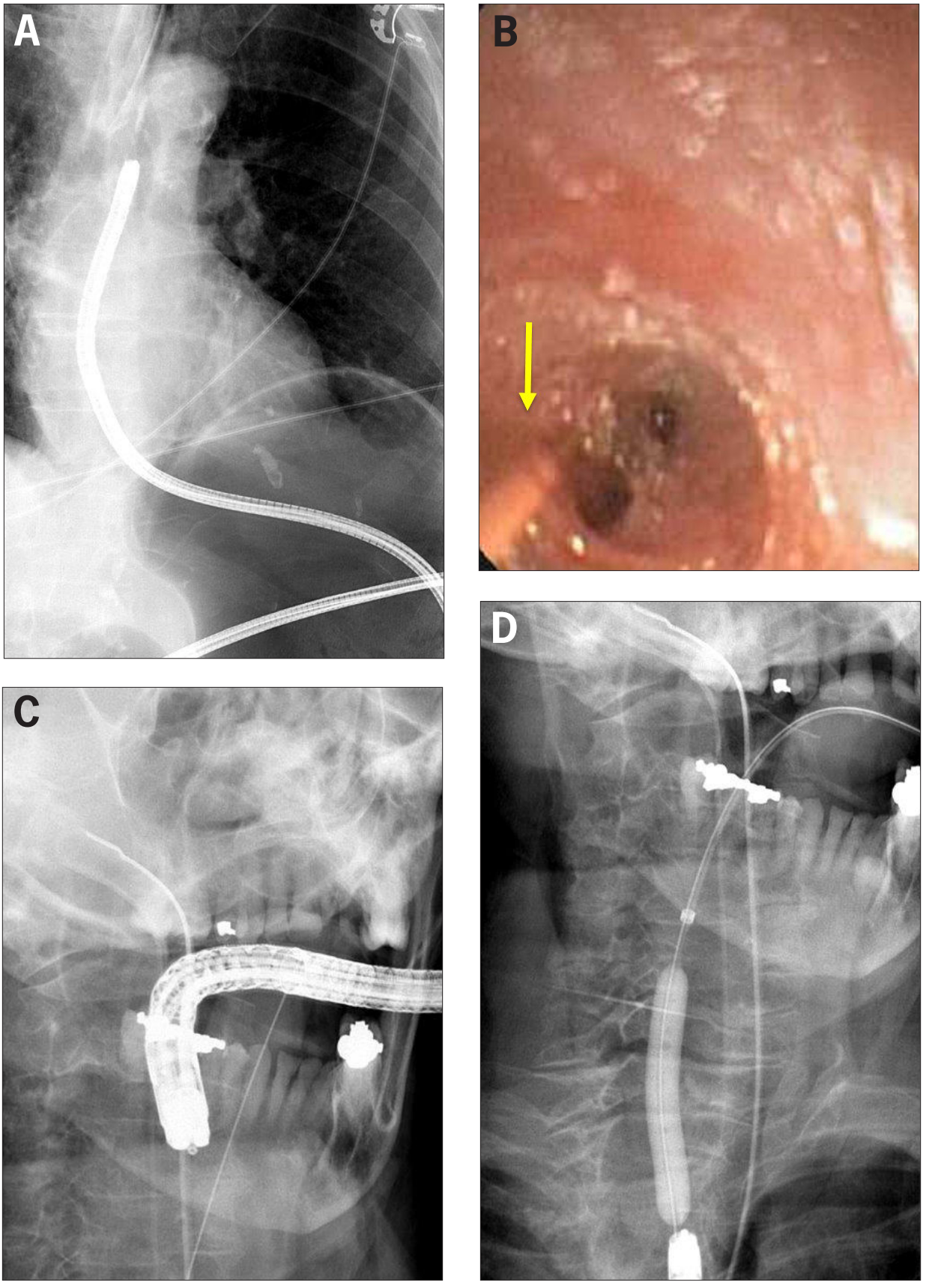
RK Yes, the patient should receive general anesthesia. The airway must be protected, and the patient should not be moving during the procedure. From my perspective, all patients undergoing this procedure should be intubated.

G&H What are the advantages of this technique?

RK For patients with an esophagus that is completely obstructed, obliterated from radiation, or that contains lumen that cannot be found from above with a guidewire, the only other option is placement of a long-term gastrostomy. There is no surgical option. The endoscopist can try to blindly pass a wire or an EUS needle into a stricture from above and hope that the accessory enters the distal esophagus, but that is quite dangerous.

G&H Are there any limitations to this procedure?

RK Yes. It takes 2 endoscopists to perform a rendezvous procedure, which means that 2 different endoscopes are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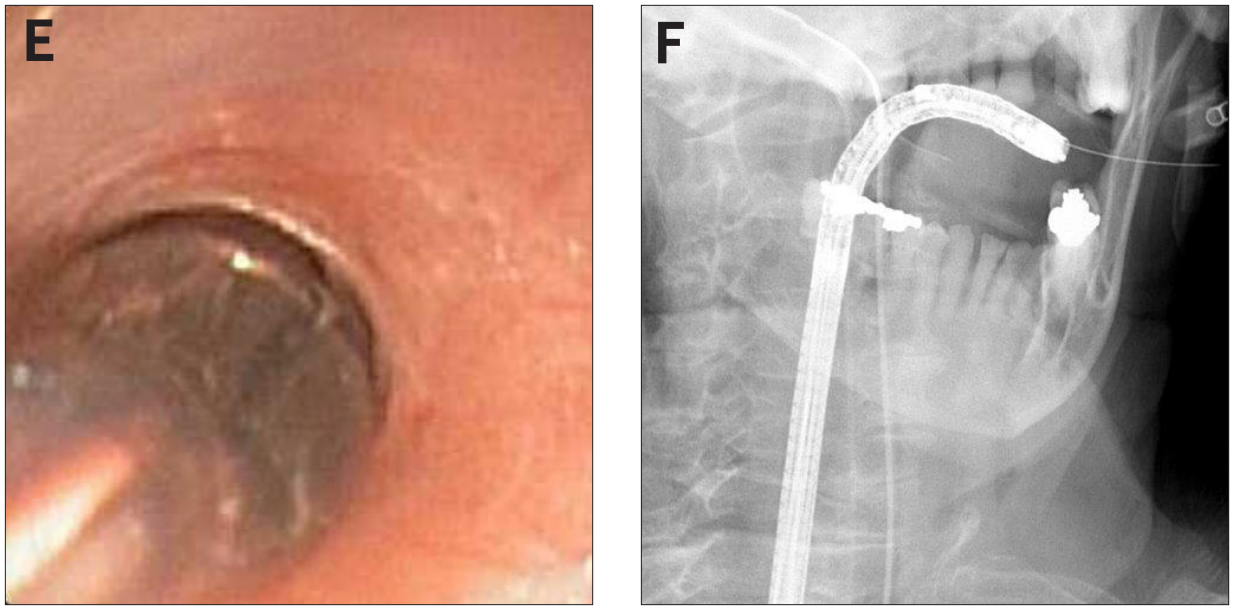

Figure. A patient with complete esophageal obstruction following chemo-irradiation for tonsillar carcinoma. A pediatric endoscope is placed into the esophagus retrograde through a gastrostomy tract after a barium swallow and oral endoscopy showed complete esophageal obstruction **(A)**. A 0.035-in guidewire (arrow) is placed through the endoscope to puncture a web-like stricture, leaving the top of the guidewire in the oropharynx **(B)**. Following guidewire retrieval with a conventional endoscope (**C**), a 6- to 8-mm controlled radial expansion balloon is inflated to fracture the stricture (**D**, **E**), allowing retrograde endoscope passage through the stricture and into the mouth (**F**). The patient required weekly and subsequently monthly dilations to 14 mm for 6 months, allowing gastrostomy tube removal and ingestion of a regular diet.

required. The endoscope that fits naturally through the PEG site is a pediatric endoscope, which has a very small channel and, thus, does not allow for the insertion of an EUS needle. In order to use a conventional 9-mm adult endoscope, the PEG tract must be dilated significantly so that an adult endoscope can fit through it. Dilation can be quite difficult to achieve with dilating balloons, and the PEG tract may be disrupted.

Another limitation is that it is very difficult to find a lumen with long strictures and to make sure the tract that the endoscope is in does not lead into the mediastinum or damage vascular structures, such as the jugular vein and the carotid artery, which are relatively close to where the procedure takes place.

G&H What is the risk of perforation in this setting?

RK A recent publication by Francis and colleagues examined 24 patients who had complete luminal obstruction. Within the first 5 procedures, there was a 21% perforation rate. However, in the combined 276 procedures performed in these patients, the perforation rate was only 1.8%. Chapuy and colleagues, in turn, reported a 29% perforation rate with this procedure. Most of these perforations are small and can be handled by the placement of a nasogastric tube.

G&H How is the size of the balloon dilator decided?

RK It is dangerous to expand a nonexistent lumen from 0 mm directly to 15 mm unless the tract is a web-like stricture (ie, very short and similar to a membrane). My colleagues and I usually stop the initial dilation at 6 to 8 mm. Some patients, depending on where they are in their clinical course, will require multiple additional dilations, in which the dilator size can be increased sequentially.

G&H Is there a risk of bleeding after dilation?

RK Because radiation causes endovasculitis, and this procedure deals with ischemic strictures, there are very few blood vessels in the esophagus. Unless the endoscopist is passing an EUS needle blindly and proximally through a stenosis, or retrograde from the distal esophagus, bleeding is not an issue. Simultaneous use of fluoroscopy and endoscopy from above, as well as endoscopy from below, reduces the risk of bleeding.

G&H Is there a role for placing an expandable metal mesh stent after dilation to maintain patency?

RK Currently, there is no role for placing conventional esophageal stents as soon as the lumen is dilated to 6 to 8 mm because the diameter of these stents is too large. The use of conventional stents should be discouraged even after a patient has been dilated to 14 or 15 mm; an avascular esophagus has a much higher rate of stricturing above and below the stent and developing a local perforation.

My colleagues and I initially used covered biliary stents, but even those have proven to be problematic—there have been cases of cervical discitis with epidural abscess, mediastinitis, and erosion through the esophageal wall.

If stents are to be placed, they should be 8- to 10-mm stents, inserted for a week as a placeholder, and completely covered so that they can be removed.

G&H What is the long-term success rate of this procedure?

RK In the series by Francis and colleagues, reestablishment of oral diet and removal of the gastrostomy tube were achieved in 42% of the patients, and the average time of the intervention was 9 months. However, in the series by Chapuy and colleagues, the researchers claimed a 78% ability to remove the gastrostomy tube at 1 year, which increased to 88% at 2 years, and fewer dilations were required. However, patients in the latter series underwent a rendezvous procedure at a mean of 3 months, so there is a likelihood that the earlier the procedure is performed, the greater the chance of long-term success.

Dr Kozarek has no relevant conflicts of interest to disclose.

Suggested Reading

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