

ADVANCES IN ENDOSCOPY

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EUS-Guided Gastroenterostomy Vs Duodenal Stenting for the Palliation of Malignant Gastric Outlet Obstruction



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G&H What methods are available to palliate patients with malignant gastric outlet obstruction?

MK Surgical gastrojejunostomy, duodenal stenting, and endoscopic ultrasound (EUS)-guided gastroenterostomy are the 3 methods currently available to palliate or treat patients with malignant gastric outlet obstruction.

G&H How are these procedures performed?

MK Surgical gastrojejunostomy is generally performed laparoscopically or via open surgery and is therefore considered invasive, especially in patients who are terminally ill with malignant obstruction. Duodenal stenting, in which an uncovered duodenal stent is placed over a guidewire across the stricture site, is performed with the use of a therapeutic upper endoscope under endoscopic and fluoroscopic guidance. EUS-guided gastroenterostomy initially uses a gastroscope, and the small bowel distal to the stricture is filled with saline and contrast. Following insertion of a therapeutic linear echoendoscope, a lumen-apposing metal stent is placed between the stomach and the loop of duodenum or jejunum distal to the obstruction under sonographic, radiographic, and endoscopic guidance.

G&H What training is needed for these procedures?

MK Surgical gastrojejunostomy is a routine procedure for general or pancreaticobiliary surgeons. Duodenal

stenting can be performed by general gastroenterologists who are trained in enteral stenting, the use of guidewires, and fluoroscopy, but in general, it is best performed by

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therapeutic endoscopists. EUS-guided gastroenterostomy, which is a more challenging procedure than duodenal stenting, is performed by therapeutic endoscopists who have significant expertise in pancreaticobiliary endoscopy and, specifically, with interventional EUS.

G&H What are the technical and clinical success rates associated with the endoscopic procedures for the treatment of malignant gastric outlet obstruction?

MK The technical success rate for both procedures is above 90%, and approximately 80% to 90% of patients undergoing either procedure achieve clinical success.

Patients who do not achieve clinical success are typically those who experience technical failure (eg, the stent could not be placed), those with advanced malignancy or gastroparesis related to malignancy, or those who have significant peritoneal carcinomatosis or metastatic deposits causing more distal obstruction.

G&H How common is symptom recurrence with EUS-guided gastroenterostomy and duodenal stent placement?

MK Recurrent obstruction with EUS-guided gastroenterostomy is rare and has been observed in only 4% of patients up to 1 year of follow-up. However, symptom recurrence with duodenal stenting is seen in the majority of patients who survive longer than 6 to 12 months, as the lifespan of these stents is approximately 3 months. The reason for this difference is that duodenal stenting entails placement of an uncovered stent across the malignant stricture, which carries a high risk for tumor ingrowth and overgrowth within a few months following insertion. In contrast, EUS-guided gastroenterostomy involves placement of a fully covered stent during a bypass procedure, in which the stent is placed away from the tumor, eliminating the risk of tumor ingrowth and overgrowth.

G&H How can risk factors for failure of stent placement be avoided?

MK Passage of a guidewire across the stricture is a prerequisite for duodenal stenting. Sometimes, the guidewire cannot be passed due to high-grade obstruction. In these instances, endoscopists can use endoscopy and fluoroscopy, injection of contrast, different guidewires, and, occasionally, endoscopic retrograde cholangiopancreatography cannulas and catheters to advance the guidewire across the stricture. In patients with a more distal small bowel obstruction, use of enteroscopes or colonoscopes is required. For EUS-guided gastroenterostomy, technical failure can be avoided with adequate training in interventional EUS, an understanding of the intricacies of the procedure, and extensive experience with placement of a lumen-apposing metal stent.

Importantly, endoscopists should ensure adequate filling and distention of the small bowel with fluid and contrast so that the loop of small bowel distal to the obstruction is apposed to the stomach. A lumen-apposing metal stent can then be placed. During stent placement and puncturing of the small bowel, endoscopists should use a cautery-tipped lumen-apposing metal stent rather than a guidewire, as advancement of the guidewire can push the small bowel away from the stomach and

make the procedure risky or impossible. Endoscopists should also avoid jabbing, such as when performing fine-needle aspiration. Instead, access to the small bowel is achieved with a slow advancement of the catheter using the cautery tip.

G&H What adverse events are associated with these procedures?

MK The most reported adverse event for EUS-guided gastroenterostomy is stent misdeployment, which typically occurs during the initial learning curve. For the most part, this risk can be avoided by following the tips mentioned previously. Perforation, leakage, bleeding, stent obstruction due to food impaction, and peritonitis have all been reported with EUS-guided gastroenterostomy as well.

The main adverse event associated with placing a duodenal stent is perforation. Although perforation is rare, endoscopists are advised to avoid placement of the flanges around luminal angulations and bends. Additionally, the stricture should be tight enough to hold the stent in place; otherwise, the stent may migrate and put the patient at risk for small bowel perforation. Recurrent gastric outlet obstruction due to tumor ingrowth or food impaction is another major concern with this procedure. Of note, biliary obstruction and pancreatitis owing to a duodenal stent impinging on the papilla are rare adverse events that may occur with placement of duodenal stents across the ampulla.

G&H What have studies reported regarding length of hospital stay?

MK Typically, patients with malignant gastric outlet obstruction are inpatients who are admitted with signs and symptoms of the disease and an inability to tolerate oral intake. When stents are placed, these patients can begin eating the following day and, thus, can be discharged after 1 day. In general, patients are started on a liquid diet and then advanced to a low-fiber, low-residue diet 24 hours after stent placement.

G&H What length of survival can be expected on average with each procedure?

MK These procedures do not affect survival. Rather, survival is dictated by the stage of malignancy that the patient has. Patients with late-stage pancreaticobiliary malignancies usually have a length of survival of a few months.

G&H In whom should EUS-guided gastroenterostomy be avoided?

MK In patients whose survival is expected to be fewer than 3 months, placement of a duodenal stent is preferred over EUS-guided gastroenterostomy, as patients will likely not experience the benefit of a bypass procedure. Duodenal stenting is also the more straightforward and technically easier procedure for this patient population. EUS-guided gastroenterostomy can be risky in patients who have perigastric varices (resulting from pancreaticobiliary tumors) that can be detected on pre-procedural imaging. In addition, EUS-guided gastroenterostomy is best avoided in patients with massive ascites, usually due to peritoneal carcinomatosis, as this procedure can lead to peritonitis, leakage, or stent or anastomotic dehiscence.

G&H What are the priorities of research?

MK The main priority of research is to standardize EUS-guided gastroenterostomy and determine the best technique (eg, direct vs balloon-assisted), as currently the procedure is technically difficult to perform. Studies are needed comparing EUS-guided gastroenterostomy to duodenal stenting. My colleagues and I are in the process of putting together a randomized trial to compare both techniques and identify which one best suits certain

patients. Lastly, cost-effectiveness studies regarding these 2 procedures would be beneficial.

Dr Khashab is a consultant for Boston Scientific, Olympus, and Medtronic.

Suggested Reading

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