

All-Purpose Palliative Endoscopy in Pancreatic Cancer

by Patrick Hickey, Hiral Shah, Shashin Shah

INTRODUCTION

Pancreatic cancer is a devastating diagnosis with rapid progression and poor prognosis. It is the fourth leading cause of cancer death in the United States while having the least survival improvement over the last three decades.¹ Less than 20% of diagnosed pancreatic cancers present as localized and potentially curable tumors at time of diagnosis.² Because of often advanced disease, availability of palliative treatments is increasingly important. Biliary obstruction, duodenal obstruction and pain are commonly associated complications amenable to endoscopic therapies. Historically, the diagnosis and palliative treatment of pancreatic cancer required percutaneous and surgical interventions. Advances in endoscopic modalities have begun to change the approach to unresectable pancreatic cancer. We review a case of newly diagnosed advanced pancreatic cancer that obliged endoscopic diagnostics and palliative therapy. The endoscopic procedures performed in this case are described in detail with supporting literature review.

CASE PRESENTATION

A 59 year-old Caucasian female with a history of peptic ulcer disease presented to her family physician with six weeks of worsening epigastric abdominal pain, intractable nausea and vomiting, and 50 pound weight loss over several months. A computed tomography (CT) of the abdomen and pelvis revealed a large pancreatic mass in the uncinate process encasing the superior mesenteric vein and artery concerning for pancreatic cancer with extensive local invasion and adjacent adenopathy (Figure 1). The mass was found to be

compressing the duodenum distal to the papilla. There was mild pancreatic and biliary ductal dilatation, several subcentimeter liver lesions concerning for metastatic disease and basilar lung nodules.

Upon her referral to our gastroenterology department, linear endoscopic ultrasound (EUS) was performed for diagnostic and therapeutic purposes. A large mass measuring 4.5 x 3.2 cm was noted as the linear ultrasound endoscope was advanced to the gastroesophageal junction. There was also difficulty passing into the third portion of the duodenum because of significant luminal narrowing. The mass involved the superior mesenteric artery and vein, there was regional adenopathy and a lesion in the left lobe of the liver were noted. Fine needle aspiration (EUS-FNA) of the mass was performed using a 25-gauge needle and the specimen was sent for cytology.

The patient's chronic abdominal pain was managed by celiac plexus neurolysis (CPN) utilizing 0.25% bupivacaine and 98% dehydrated ethanol. The patient was admitted for serial blood pressure monitoring and further palliative endoscopic interventions. Lab abnormalities included alanine aminotransferase (ALT) 151 U/L, aspartate aminotransferase (AST) 74 U/L and a total bilirubin of 2.1 mg/dL. Whole body imaging showed multiple minuscule bilateral pulmonary metastases without osseous metastasis.

On the second day of hospitalization, the EUS-FNA cytology confirmed pancreatic adenocarcinoma. The patient's abdominal pain had significantly improved following CPN. She decided to proceed with duodenal stenting for obstruction and endoscopic retrograde cholangiopancreatography (ERCP) with sphincterotomy and biliary stenting to alleviate her obstructive jaundice. A duodenoscope was advanced to the major papilla and cannulated with difficulty owing

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to distorted anatomy from the duodenal obstruction. Cholangiography showed dilatation of intrahepatic, proximal and mid bile ducts with a 2 cm stricture in the distal bile duct. A sphincterotomy was performed and an 8 mm diameter x 6 cm length uncovered self-expanding metal stent was deployed across the stricture resulting in good bile flow. A pediatric upper endoscope could not traverse the duodenal stricture. A sphincterotome was used to pass a guidewire into the distal duodenum until contrast injection showed dilated duodenal lumen and a 3 cm stricture. External marking identified the distal deployment site. Fluoroscopic and endoscopic guidance was used to deploy a 9 cm length x 22 mm diameter uncovered duodenal stent. Post-deployment contrast showed improved small bowel filling and endoscopic suction was rapid suggesting correct placement. The procedure was well tolerated and abdominal x-ray confirmed favorable position of the stents (Figure 3).

The patient was hospitalized for seven days with rapid diet advancement aided by pancreatic enzyme supplementation. She had significantly reduced nausea, vomiting and abdominal pain, however she developed diarrhea, possibly secondary to CPN. Labs at the time of discharge were improved with ALT 67 U/L, AST 54 U/L, total bilirubin 0.6 mg/dL and CA 19-9 28,344 U/mL. Palliative chemotherapy was discussed and family discussions helped orient the patient and family through her diagnosis. She was discharged home with oncology and gastroenterology follow-up.

CASE DISCUSSION

In this case a patient with newly diagnosed pancreatic cancer underwent multiple palliative endoscopic therapies in a two day span. This presented the opportunity to review endoscopic therapy modalities and the evidence supporting their use in pancreatic cancer. Interventions focused on diagnostic evaluation (including anatomy and tissue sampling) as well as relief of biliary obstruction, duodenal obstruction and pain. We review the current literature supporting the use of these procedures.

Endoscopic ultrasound and EUS-FNA for pancreatic tumors have both been identified as an accurate way to diagnose pancreatic cancer.³ EUS provides the endoscopist the ability to capture high resolution ultrasound images of the pancreas. Compared to CT, EUS is more sensitive in local tumor staging and equally sensitive in detecting lymph node involvement

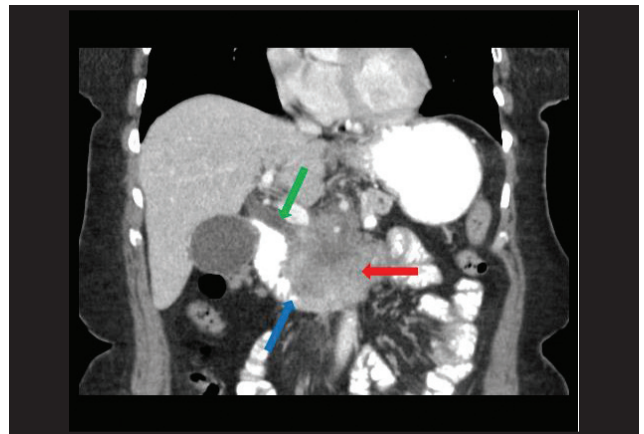


Figure 1. Coronal CT scan of the abdomen with IV and oral contrast showing a large 6.1 x 2.6 cm pancreatic mass (red arrow), common bile duct dilatation (green arrow), and luminal narrowing in the third portion of the duodenum (blue arrow).

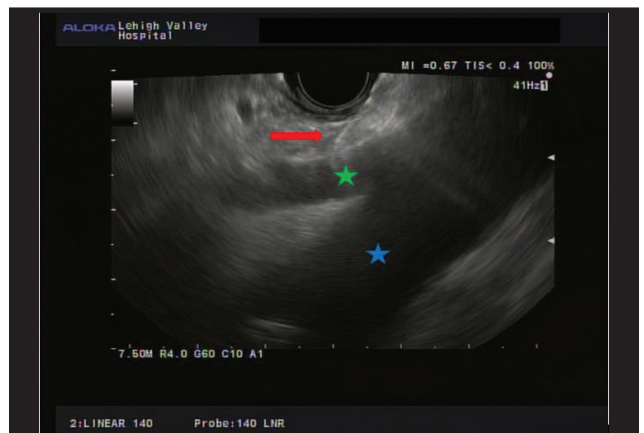


Figure 2. EUS allowing the visualization of a 22-gauge needle (red arrow) at the takeoff of the celiac artery (green star) prior to neurolysis of the celiac plexus. The aorta is also visualized (blue star).

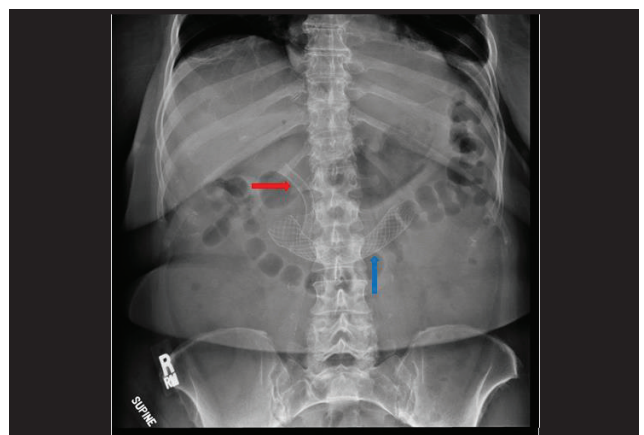


Figure 3. Abdominal x-ray showing well placed metal biliary stent (red arrow) and duodenal stent (blue arrow) placed for palliation of advanced pancreatic adenocarcinoma.

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and tumor resectability. FNA is the preferred method for obtaining tissue from pancreatic tumors.³

Most pancreatic cancers occur in the pancreatic head and commonly cause obstructive jaundice. Biliary stenting is the treatment of choice for unresectable pancreatic cancer in patients with obstructive jaundice.⁴ Endoscopic biliary stenting allows obstruction relief via minimally invasive approach. Endoscopic advantages over surgical decompression include fewer complications, lower-procedure related mortality, cost-effectiveness and improved quality of life.⁴ Historically, biliary stent occlusion was a significant limitation to stenting, but advancements in stent technology have improved stent patency. In unresectable cancers, uncovered biliary stents are commonly placed due to their tendency to migrate less and their equivalent patency to covered stents.

Pain is a large detractor from quality of life in pancreatic cancer. Treatment with opiate analgesics is often required and may be complicated by side-effects. Neuropathic pain can be difficult to control, but can be alleviated by CPN. The procedure involves injecting alcohol and local anesthetic into the celiac plexus to temporarily degrade nerve fibers. EUS-CPN allows direct access and better visualization of the celiac plexus than transcutaneous approaches (Figure 2). The pain alleviation rate after EUS-CPN is estimated to be 80%,⁵ with effects lasting 4-5 weeks. Procedural

complications include postural hypotension, diarrhea, transient pain exacerbation or abscess.

Duodenal obstruction commonly complicates pancreatic cancer with resultant anorexia, nausea and vomiting. An estimated 38% of patients with unresectable pancreatic adenocarcinoma develop duodenal outlet obstruction within one year of cancer diagnosis.⁶ Surgical procedures like gastrojejunostomy were historically used to treat malignant gastric outlet obstruction. Endoscopic enteral stenting in malignant gastric outlet obstruction is a promising alternative to surgical intervention. A recent meta-analysis compared gastrojejunostomy to endoscopic bowel stenting showing self-expandable metal stents had significantly less complications and shorter time to oral intake.⁷

CONCLUSION

Advances in endoscopic techniques confer gastroenterologists the ability to provide effective palliative treatment to patients with unresectable pancreatic cancer. These procedures are less invasive, have fewer complications, decrease hospital length-of-stay, reduce pain and improve quality of life. It is vital that palliative treatment of advanced pancreatic cancer focuses on quick, safe and effective interventions that improve patient quality of life. Clinicians should be aware of and offer these treatments to patients in need, and understand the management of patients before and after procedures. ■

Answers to this month's crossword puzzle:

1	A	L	C	O	H	O	L	I	C	6	R	A	P	I	8		
	B		H		O			9	C	A	R	E		A	I		
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	C		L			O			A		I		14	H	I	T	
15	E	L	A	I	16	D	I	C		C	17	C	O	W		E	
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25	B	O	N	D	I	N	G			26	A	C	T		27	N	D
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