EUS-Guided Gastroenterostomy (EUS-GE) in a Patient with Metastatic Pancreatic Cancer

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73 year-old gentleman presented with jaundice, nausea, and vomiting. The workup showed biliary obstruction and duodenal obstruction due to pancreatic adenocarcinoma. He was not a candidate for surgery due to metastatic disease. The endoscopic examination showed severe duodenal obstruction starting at the junction of first and second part of the duodenum. Since ampulla could not be accessed, ERCP was not possible. EUS (Endoscopic Ultrasound) guided choledochoduodenostomy (Fig. 1) was performed using electrocautery enhanced 8 mm x 8 mm lumen-apposing metal stent (LAMS) (Axios stent, Boston Scientific Corp, MA, USA) for biliary obstruction. In the same session duodenal obstruction was relieved by placing uncovered duodenal stent 22 mm x 12 cm, (Fig. 2) (Boston Scientific Corp, Marlborough, Mass, USA). The jaundice was completely relieved and due to the relief of duodenal obstruction by the duodenal stent he was able to tolerate low residue diet. He received chemotherapy. A year later his nausea and vomiting recurred. The endoscopic evaluation and upper gastrointestinal barium contrast study did confirm recurrent duodenal obstruction. We discussed various treatment options with the patient and he elected to have minimally invasive non-surgical EUS guided gastroenterostomy as opposed to surgical gastrojejunostomy.

Using a therapeutic double channel gastroscope (Olympus, USA) a biliary cannula with guide wire was passed through the obstructed duodenum under fluoroscopy using contrast injection. The guide wire was successfully passed beyond the obstructed duodenum into the proximal jejunum. Then 7 Fr nasobiliary tube was passed over the guide wire all the way to the proximal jejunum. The gastroscope was removed leaving the nasobiliary cannula in place. The therapeutic linear echoendoscope (Olympus, USA) was passed intothe stomach. Diluted contrast with saline and methylene blue was instilled into the jejunum. Using both fluoroscopy and ultrasound imaging via the echoendoscope, proximal jejunum was identified. A 19-gauge needle was passed to the jejunum and the blue colored diluted contrast was successfully aspirated confirming the correct location. An electrocautery enhanced 15 mm x 15 mm lumen-apposing metal stent (LAMS) was successfully deployed (Fig. 3). Endoscopy confirmed the good location and the small bowel was seen through the stent from the stomach. Upper GI contrast study confirmed the creation of gastroenterostomy and it did not show any leak. The patient was started on liquid diet and slowly progressed to low residue diet. His nausea and vomiting completely subsided. He was able to tolerate low residue diet well. EUS guided gastroenterostomy is a minimally invasive non-surgical technique for patients with malignant duodenal or gastric outlet obstructions.
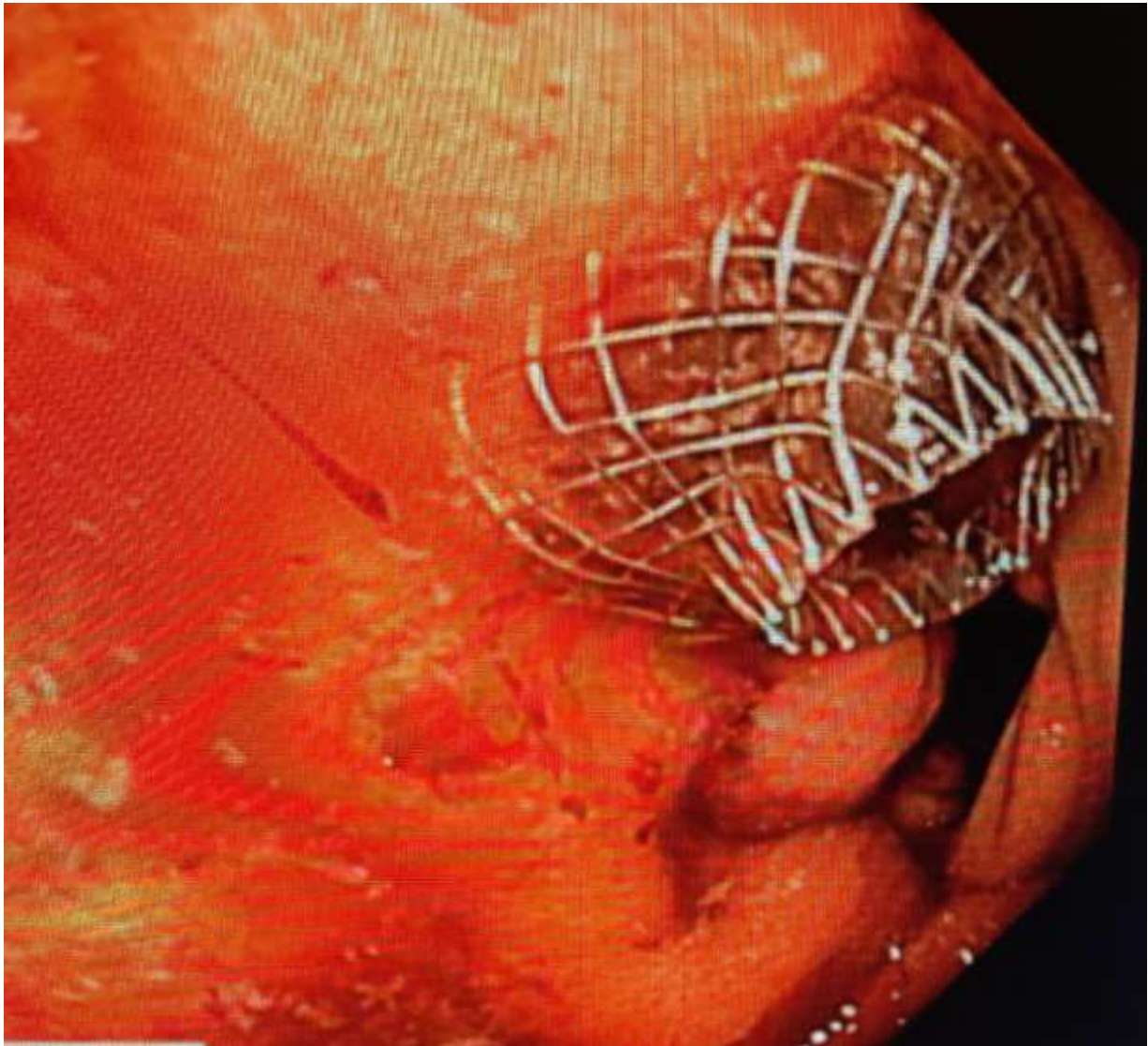
Figure 1. Lumen-apposing metal stent (LAMS) Axios 8 mm x 8mm placed via EUS creating

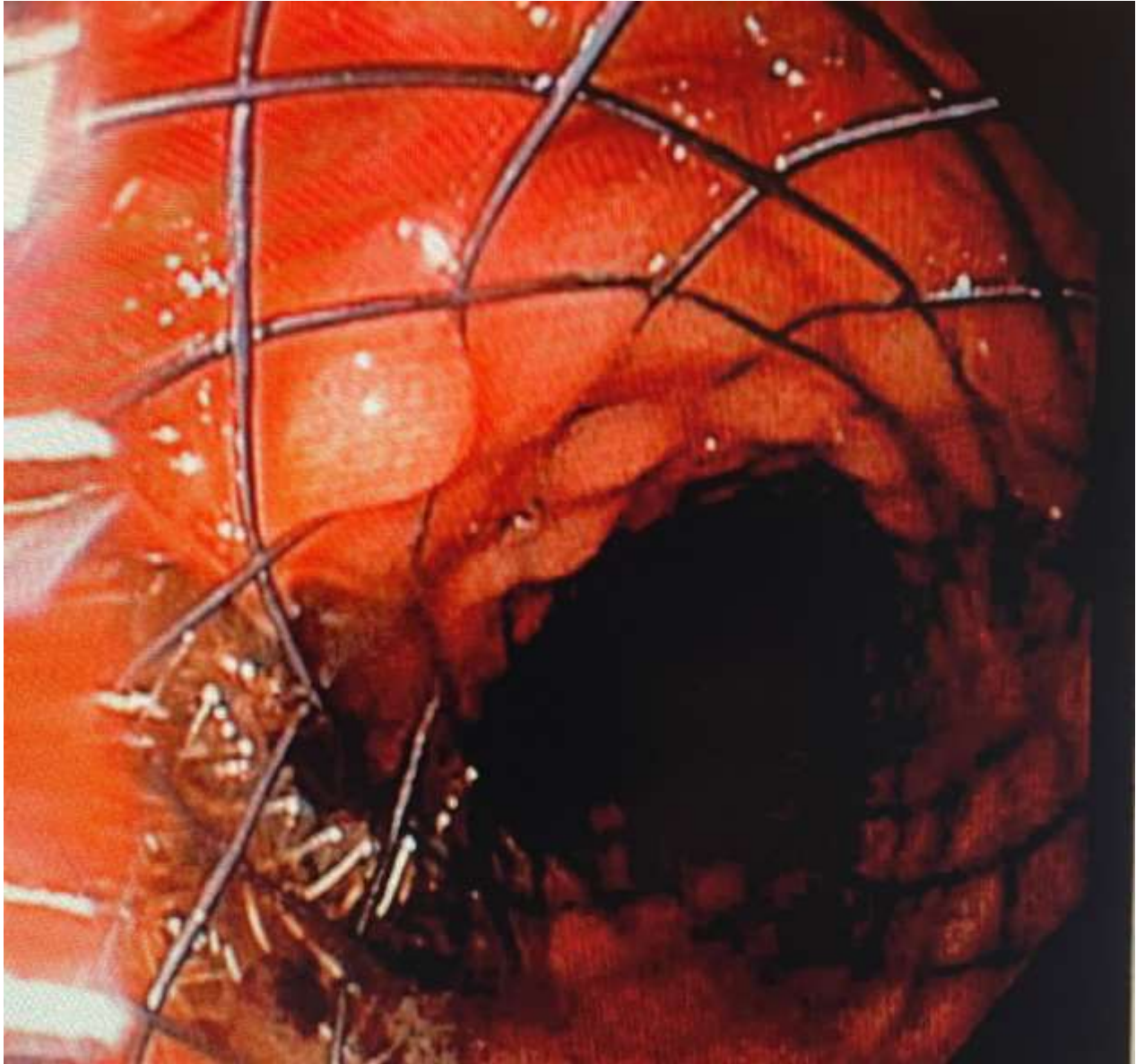choledochoduodenostomy to overcome biliary obstruction

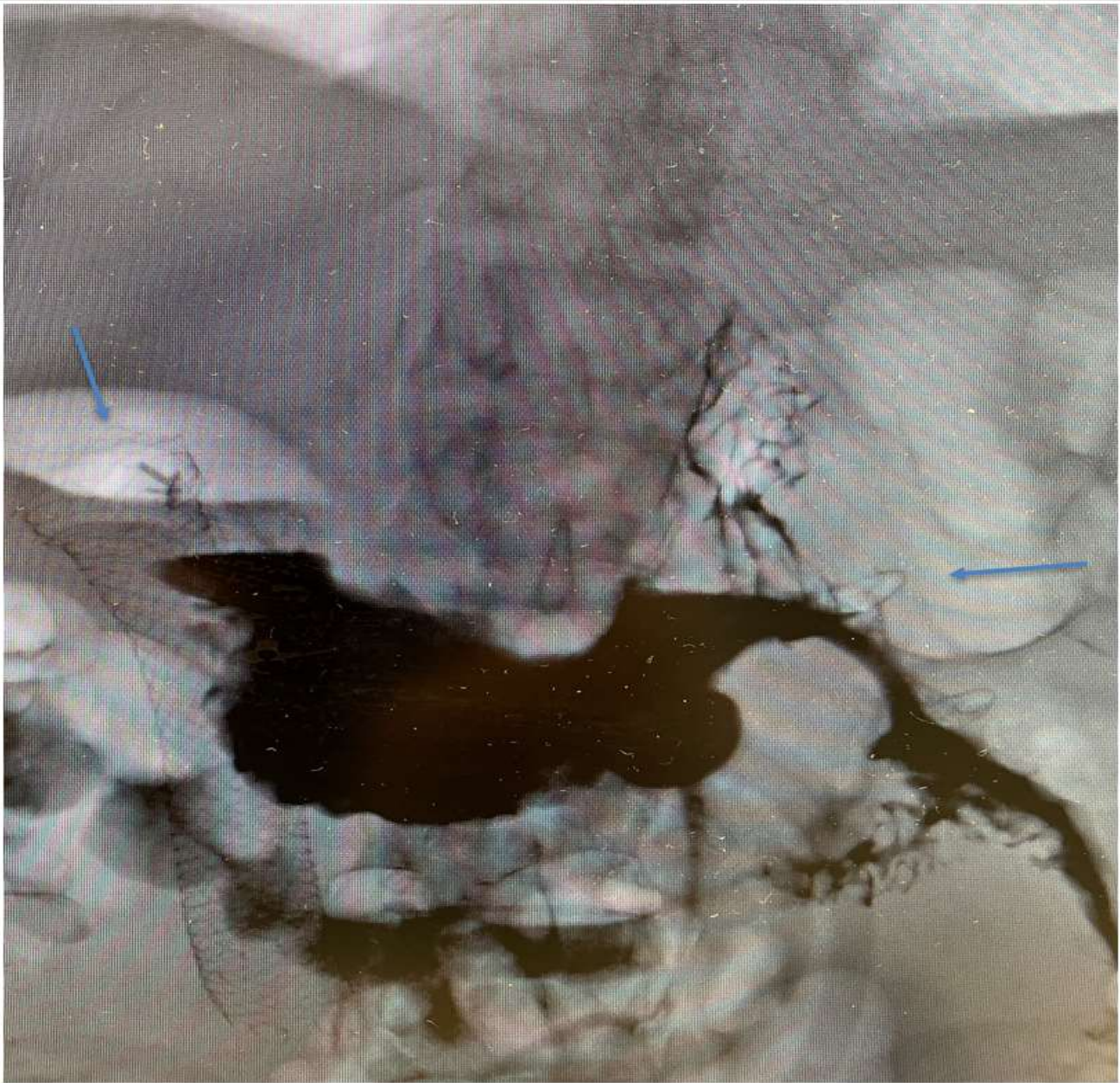**Figure 2.** Duodenal stent 22 mm x 12 cm for duodenal obstruction

Figure 3. UGI contrast study showing the contrast from the stomach draining through LAMS 15 mm x 15 mm on the right hand side (thick arrow) emptying into the proximal jejunum. Duodenal stent seen on the left hand side (thin arrow) of the picture.