Transgastric endoscopic ultrasound with fine-needle aspiration and ERCP using percutaneous-assisted transprosthetic endoscopic therapy (PATENT) in a gastric bypass patient

Fig. 1 The percutaneous-assisted transprosthetic endoscopic therapy (PATENT) technique for performing endoscopic ultrasound-guided fine-needle aspiration (EUS-FNA).

Percutaneous-assisted transprosthetic endoscopic therapy (PATENT) is a novel endoscopic technique recently developed which uses a nonnatural orifice to gain access to the gastrointestinal tract for performance of interventional procedures during a single session [1]. PATENT permits endoscopic retrograde cholangiopancreatography (ERCP) in patients with long-limb Roux-en-Y gastric bypass (RYGB) and overcomes limitations of other access-gaining techniques [2,3]. We present the first case of endoscopic ultrasound (EUS) with fine-needle aspiration (FNA) using PATENT.

A 66-year-old woman with prior RYGB presented for evaluation of obstructive jaundice (total bilirubin 10.1 mg/dL). Abdominal CT demonstrated a 2-cm pancreas head mass suggestive of adenocarcinoma with intra- and extrahepatic biliary dilatation and pancreatic ductal dilatation. There was no definitive vascular invasion or encasement. Prominent lymph nodes were also noted. The patient was deemed a borderline candidate for pan-

creaticoduodenectomy. Neoadjuvant chemotherapy and biliary decompression were recommended. A peroral EUS exam from the small gastric pouch showed limited views of the tumor and FNA was nondiagnostic. ERCP was attempted using a single-balloon enteroscope, but cannulation of the biliary tree was unsuccessful. Repeat ERCP and EUS were successfully performed 4 days later with the patient supine and under general anesthesia, using the PATENT technique [2,3]. After passing a single-balloon enteroscope via the mouth to the excluded stomach, a gastrostomy tract was created using the Russell introducer method and a 7 cm × 18 mm fully covered esophageal self-expandable metal stent (SEMS) (Alimaxx-ES; Merit Medical Endotek, South Jordan, UT, USA) was placed across the tract. A linear-array echoendoscope (GF-UCT180; Olympus America, Center Valley, PA, USA) was passed via the gastrostomy tract through the esophageal SEMS to the excluded stomach and duodenum (Fig. 1, Fig. 2a). Standard EUS images were ob-

tained (Fig. 2b) and revealed a mass abutting the portal venous confluence. FNA with rapid on-site cytopathology demonstrated adenocarcinoma. ERCP (TJF-Q180V; Olympus America) was performed with placement of a 4 cm × 10 mm transpapillary uncovered biliary SEMS (Wallflex; Boston Scientific, Natick, MA, USA) (Fig. 2c). Following ERCP the esophageal SEMS was removed by traction and a standard 26-Fr balloon-tipped gastrostomy tube was placed in the tract. Neoadjuvant therapy was followed by restaging with abdominal CT 3 months later, which suggested development of metastases. The patient is receiving palliative chemoradiation.

This case demonstrates that the PATENT approach is an option in patients with RYGB in whom biliary or pancreas head pathology is strongly suspected and EUS with ERCP is deemed necessary.

PATENT is successful when therapeutic ERCP interventions are needed in RYGB patients [2,3]. As in the present case, PATENT appears useful for diagnostic purposes. Using PATENT in our patient allowed routine EUS with diagnostic FNA cytology when an initial EUS exam was limited and yielded a nondiagnostic specimen.

Wilson et al. [4] recently identified challenges of EUS in patients with surgically altered anatomy. EUS failed to image the common bile duct and pancreas head in 86% of patients with RYGB; however, the pancreas body and tail were visible for examination and accessible for adequate FNA. Thus, routine peroral EUS appears adequate for distal pancreas lesions in RYGB patients. Nearly 70% of pancreas adenocarcinomas occur in the pancreatic head, and EUS evaluation and the ability to perform diagnostic FNA in this area are paramount [5].

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Competing interests: None

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