Published in final edited form as:

Gastrointest Endosc. 2016 November ; 84(5): 855–856. doi:10.1016/j.gie.2016.06.008.

Intrahepatic Portosystemic Shunt: An Endoscopic Approach

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Keywords

Endoscopy; transjugular intrahepatic portosystemic shunt; portal hypertension; liver disease

Transjugular intrahepatic portosystemic shunt, also known as TIPS, involves the creation of a channel between the portal vein (PV) and the hepatic vein (HV). This is typically performed via an angiographic technique, and is effective treatment for adverse events of portal hypertension. However, it may lead to inadvertent biliary and arterial injury, and requires transjugular access. The procedure was performed in a porcine survival model (Video). The HV and PV were accessed with a 19-gauge fine-needle aspiration (FNA) needle preloaded with a digital pressure wire, and pressure measurements were obtained. A guidewire was advanced into the PV lumen, and dilation of the adjacent vascular surfaces was performed (Fig. 1A). A lumen-apposing metal stent was then deployed under EUS and fluoroscopic guidance (Fig. 1B). The distal and proximal ends of the stent were positioned inside the PV and HV, respectively, and flow was confirmed by Doppler (Fig. 1C). Pressure measurements were repeated after stent deployment. Necropsies were performed to evaluate for hemorrhage and stent placement. This study demonstrates technical feasibility of EUS-guided intrahepatic portosystemic shunt using a lumen-apposing stent, with direct portal pressure measurement, in a porcine survival model.

Supplementary Material

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Financial Disclosures: A. Schulman and A. Chiang have nothing to disclose. H. Aihara - Olympus (Consultant); M. Ryou - Covidien (Consultant, Honorarium); CC Thompson - Olympus (Consultant/Research Support); Boston Scientific (Consultant); Covidien (Consultant, Royalty, Stock).

Figure 1. Dilation of the adjacent vascular surfaces of the PV and HV (**A**) followed by lumenapposing metal stent placement (**B**) and confirmation of vascular flow (**C**).