

Endoscopy ultrasound-guided hepatogastrostomy as an alternative treatment in a patient with cholangiocarcinoma and failure of endoscopic retrograde cholangiopancreatography

Łukasz Krupa¹, Robert Staroń¹, Małgorzata Wojnicka-Stolarz¹,
Jacek Lepiech¹, Dorota Gutkowska^{1,2}, Krzysztof Gutkowski^{1,2}

¹ Department of Gastroenterology and Hepatology with the Internal Diseases Unit, Teaching Hospital No.1, Rzeszów, Poland

² Medical Department, University of Rzeszów, Rzeszów, Poland

A 75-year-old male patient with no chronic diseases and with a history of upper abdominal pain, jaundice, and significant weight loss was admitted to the hospital. Blood tests revealed elevated levels of bilirubin (228 $\mu\text{mol/l}$ [reference range, 4–22 $\mu\text{mol/l}$]), CA 19–9 (140.9 U/l [<34 U/l]), aspartate transaminase (284 U/l [15–46 U/l]), and alanine transaminase (366 U/l [11–66 U/l]). Cholestasis was also documented (γ -glutamyltransferase, 791 U/l [12–58 U/l]; alanine phosphatase, 314 U/l [28–126 U/l]). Transabdominal ultrasound and computed tomography showed a pathological mass within segment 7 of the liver, a significant intrahepatic biliary dilation, as well as thickening and stricture within the right main and common hepatic ducts. A histopathological examination of the liver specimen obtained during an ultrasound-guided biopsy confirmed the diagnosis of cholangiocarcinoma.

The case was discussed by a multidisciplinary team, and the mass was considered nonresectable. Endoscopic retrograde cholangiopancreatography (ERCP) was unsuccessful despite 2 attempts. As we had no access to interventional radiology, we decided to perform an endoscopic ultrasound (EUS)-guided biliary drainage as an alternative method. A dilated left-sided intrahepatic bile duct was punctured through the stomach wall with a 19-gauge needle, and cholangiography was performed. It revealed a critical stricture under the liver hilum, with the narrowing of the common bile and hepatic ducts (FIGURE 1A). As the next step of the ERCP procedure, a wire was inserted to the dilated left

intrahepatic duct and hepatogastrostomy was performed with a cystotome 6 Fr. (FIGURE 1B and 1C). The cystotome was removed and an 8-cm partially covered, self-expanding metal stent was inserted, anastomosing the lumen of the stomach and left intrahepatic bile duct (FIGURE 1D and 1E). The procedure allowed us to achieve a very good drainage of the bile and contrast to the lumen of the stomach.

As a result of endoscopic treatment with the use of a novel technique of hepatogastrostomy combined with chemotherapy, the patient survived for 22 months. During this time, he was readmitted to the hospital twice with abdominal pain, successfully managed with simple analgesia. The hepatogastrostomy stent remained patent, and repeated laboratory tests did not show any significant abnormalities.

ERCP remains the treatment of choice for obstructive jaundice due to pancreatic and biliary malignancy. However, even if performed by experienced clinicians, the procedure is unsuccessful in 3% to 12% of cases.^{1,2} Traditionally, such cases were managed with percutaneous biliary drainage or surgery. The adverse event profile of these procedures is significantly high; moreover, these methods are associated with a considerable risk of complications.³ EUS-guided biliary drainage (EUS-BD) is a less invasive and more physiological technique that prevents the stress of external drain. The hospital stay for patients treated with EUS-BD is significantly shorter compared with that in patients undergoing percutaneous biliary drainage.⁴ In many cases, it allows a continuation

Correspondence to:

Prof. Krzysztof Gutkowski, MD,
PhD, Klinika Gastroenterologii
i Hepatologii z Pododdziałem Chorób
Wewnętrznych, Kliniczny Szpital
Wojewódzki nr 1 w Rzeszowie,
ul. Chopina 2, 35-055 Rzeszów,
Poland, phone: +48 17 866 61 31,
email: kgutski@intertele.pl

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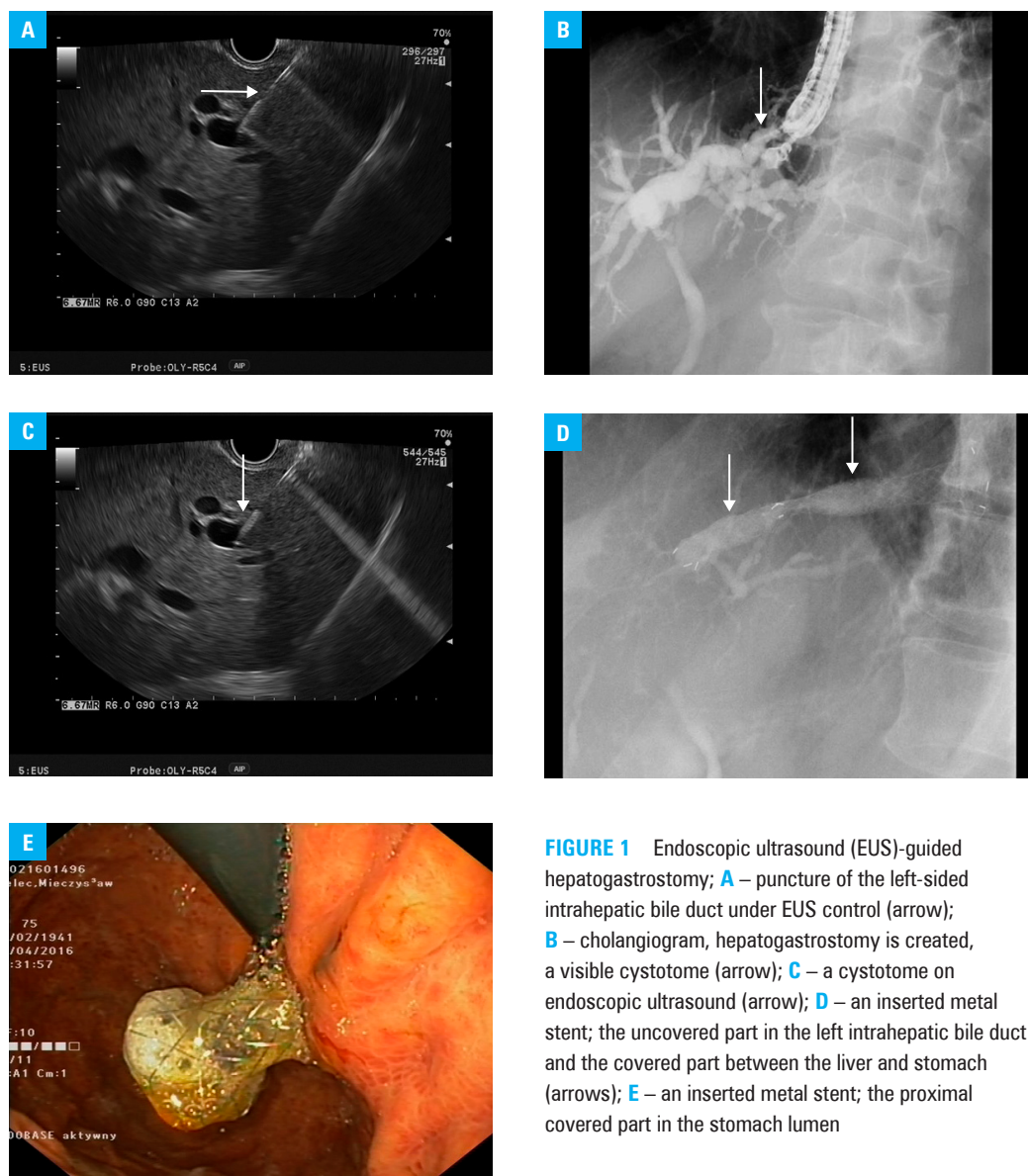


FIGURE 1 Endoscopic ultrasound (EUS)-guided hepatogastrostomy; **A** – puncture of the left-sided intrahepatic bile duct under EUS control (arrow); **B** – cholangiogram, hepatogastrostomy is created, a visible cystostome (arrow); **C** – a cystostome on endoscopic ultrasound (arrow); **D** – an inserted metal stent; the uncovered part in the left intrahepatic bile duct and the covered part between the liver and stomach (arrows); **E** – an inserted metal stent; the proximal covered part in the stomach lumen

of chemotherapy and improves the quality of life. The technical success rate for EUS-BD reaches 94.71% in expert endoscopy centers, with a significant procedure-related complication rate of about 23%.⁵ The most common adverse events associated with EUS-BD are bleeding, bile leakage, pneumoperitoneum, and stent migration.⁵ The procedure requires advanced endoscopic skills with a steep learning curve and should be performed only at high-volume expert centers.

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