

Endoscopic ultrasound-guided ethanol ablation of pancreatic remnant following complicated total pancreatectomy

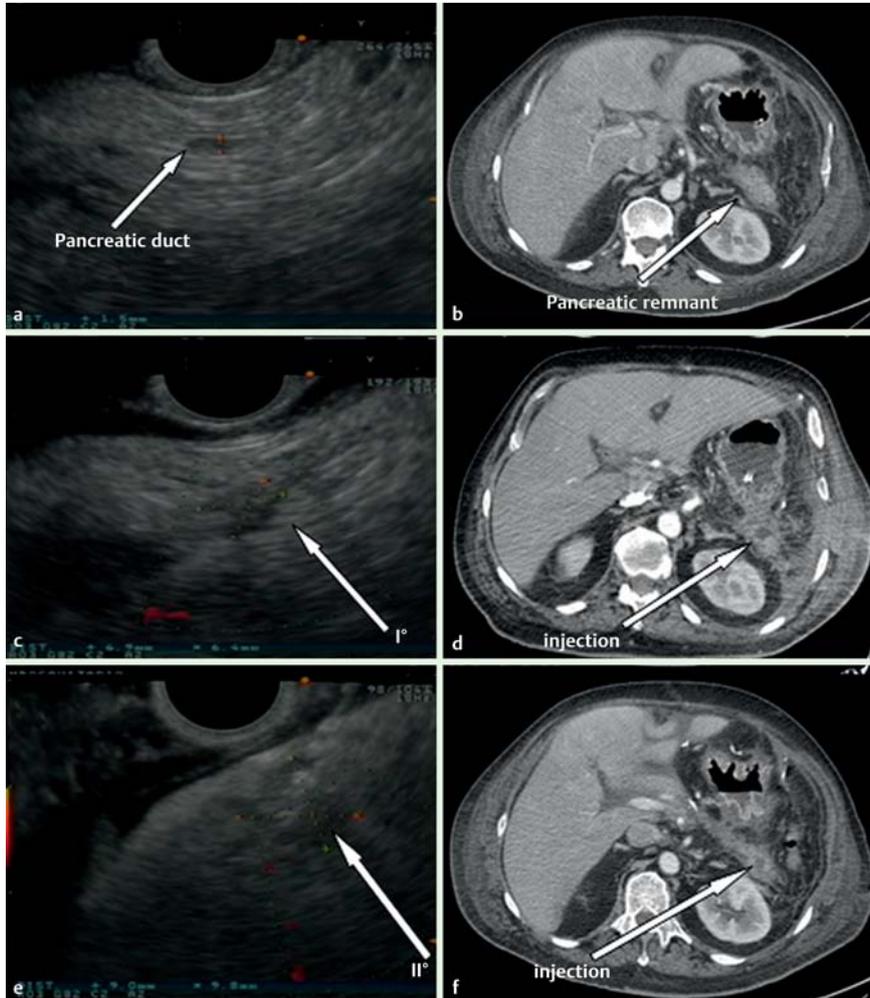


Fig. 1 **a** Pancreatic remnant with small visible pancreatic duct (arrow) at endoscopic ultrasound in a 59-year-old man who had undergone planned total pancreatectomy but had continuous abdominal drainage with markedly elevated amylase/lipase levels. **b** Pancreatic remnant (arrow) on the computed tomography scan. **c** First ethanol injection: hyperechoic area with hypoechoic border visible on endoscopic ultra-

sound soon after injection (arrow). **d** First ethanol injection: hypodense areas visible on the computed tomography scan 4 days after injection (arrow). **e** Second ethanol injection: hyperechoic area with hypoechoic border visible on endoscopic ultrasound soon after injection (arrow). **f** Second ethanol injection: hypodense areas visible on the computed tomography scan 4 days after injection.

Endoscopic ultrasound (EUS)-guided ethanol ablation of pancreatic tissue has been documented in pigs [1,2] and in humans in pancreatic insulinomas [3,4] and in pancreatic cysts [5]. No data are available on the effect of ethanol injection into normal human pancreas, including accidental injection during treatment of pancreatic lesions.

A 59-year-old man underwent total pancreatectomy following duodenocephalopancreatectomy for carcinoma of the distal common bile duct, which was complicated by anastomotic dehiscence of the jejunopancreatic anastomosis. Postoperatively he had continuous abdominal drainage of 150–200 mL/day of fluid with markedly elevated amylase/lipase levels.

An abdominal computed tomography (CT) and EUS showed a pancreatic remnant, 5 cm in length, with moderate abdominal effusion (● Fig. 1 a, b). During the next 2 months the patient had recurrent septic episodes, with culture from abdominal effusion positive for polymicrobial infection, and he was admitted into intensive care. Surgery was contraindicated due to the patient's poor condition and selective embolization of the pancreatic stump was not possible due to the inability to identify a vessel in the residual pancreas on the arteriogram. After informed consent, the patient was treated with two EUS-guided ethanol injections in the pancreatic remnant, the first with 1.5 mL of 96% alcohol, and the second, 1 week later, with 2.5 mL of 96% alcohol, resulting in a 6.9×6.4 mm and 9.1×7.1 mm hyperechoic area with a hypoechoic border, respectively, on EUS (● Fig. 1 c, e and ● Video 1). After both injections, the patient experienced opioid-responsive, severe abdominal pain, which lasted for 2 days, but there was no concomitant peak in the serum amylase/lipase levels. A CT scan taken on day 4 after each injection showed ovoid hypodense areas (8 mm and 13.8 mm, respectively) in the pancreatic remnant (● Fig. 1 d, f). The abdominal drainage decreased gradually and stopped completely 3 days after the second ethanol injection. The patient's condition progressively improved and he was discharged.

The present report is, to the best of our knowledge, the first documented case of EUS-guided ethanol injection for pancreatic remnant ablation. The observed effect was localized pancreatic damage without elevation of amylase/lipase levels, which is very similar to that seen in experimental pigs treated with alcohol injection [2]. There is a close temporal relationship between the time of administration of the ethanol injection and abdominal effusion healing and patient improvement. This report adds to the knowledge base on the effects of ethanol injection into human pancreas, keeping in mind that we applied the treatment in a pancreatic remnant and not in the intact pancreas.

Video 1

Endoscopic ultrasound (EUS)-guided ethanol injections into pancreatic remnant.

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Competing interests: None

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Bibliography

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