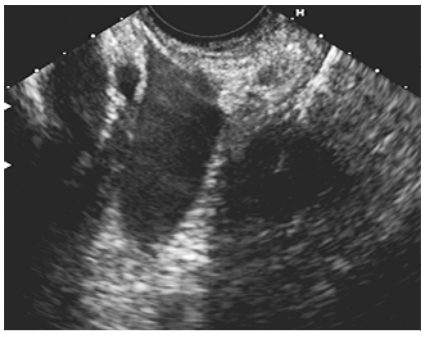
Endoscopic ultrasound-guided fine needle injection of alcohol for ablation of an insulinoma: a well documented successful procedure



▶ **Fig. 1** Echoendoscopic image showing the endoscopic ultrasound-guided fine needle aspiration.

Video 1 Endoscopic ultrasound-guided fine needle injection (EUS-FNI) of 99 % ethanol into an insulinoma.

A 21-year-old woman presented with recurrent hypoglycemia, syncope, and episodic seizures, associated with rapid weight gain (body mass index [BMI] 60). Hyperinsulinemia was confirmed and she was started on treatment with diazoxide. Magnetic resonance imaging showed a 1.5-cm nodule at the pancreatic head. Endoscopic ultrasound (EUS) confirmed a 1.5-cm hyperechoic nodule within the pancreatic head, between the common bile duct and the main pancreatic duct. EUS-guided fine needle aspiration (EUS-FNA) was performed with a 22-gauge needle (Echo-Tip; Cook Medical, Limerick, Ireland) (▶ **Fig. 1**) and the definitive diagnosis of an insulinoma was established by immunohistochemical analysis (▶ **Fig. 2**).

Surgical treatment (Whipple's procedure) was contraindicated because of the patient's high BMI. Therefore, EUS-guided fine needle injection (EUS-FNI) was suggested to ablate the lesion. The patient was hospitalized for prior hyperhydration. EUS-FNI was performed with 99 % ethanol (1.5 mL) using a 22-gauge needle (Echo-Tip), with the patient under general anesthesia. After 60 seconds, ultrasound monitoring showed the typical image of a hyperechogenic shadow forming from within the lesion. No portal vein thrombosis was detected on EUS after the alcohol injection (▶ **Video 1**) and there was no evidence of acute pancreatitis after 2 days of in-hospital observation. At follow-up 2 weeks after discharge, the patient's serum glucose had returned to normal levels, she had lost 4 kg and the diazoxide dose was reduced.

Pancreatic neuroendocrine tumors (pNETs) account for 1 % – 2 % of all pancreatic tumors. PNETs are classified as either functional or nonfunctional, the latter being more common (up to 85 %). Among functional pNETs, insulinomas are the most common [1 – 2]. EUS is a useful diagnostic tool, showing a sensitivity of up to 85 % [3]. Insulinoma resection was first reported in 1929 and remains the treatment of choice [4]. Nevertheless, EUS-FNI of ethanol into an insulinoma has been described as an efficient and safe technique for hypoglycemia resolution, and is indicated for patients with a prohibitive surgical risk [5].

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Competing interests

None

The authors

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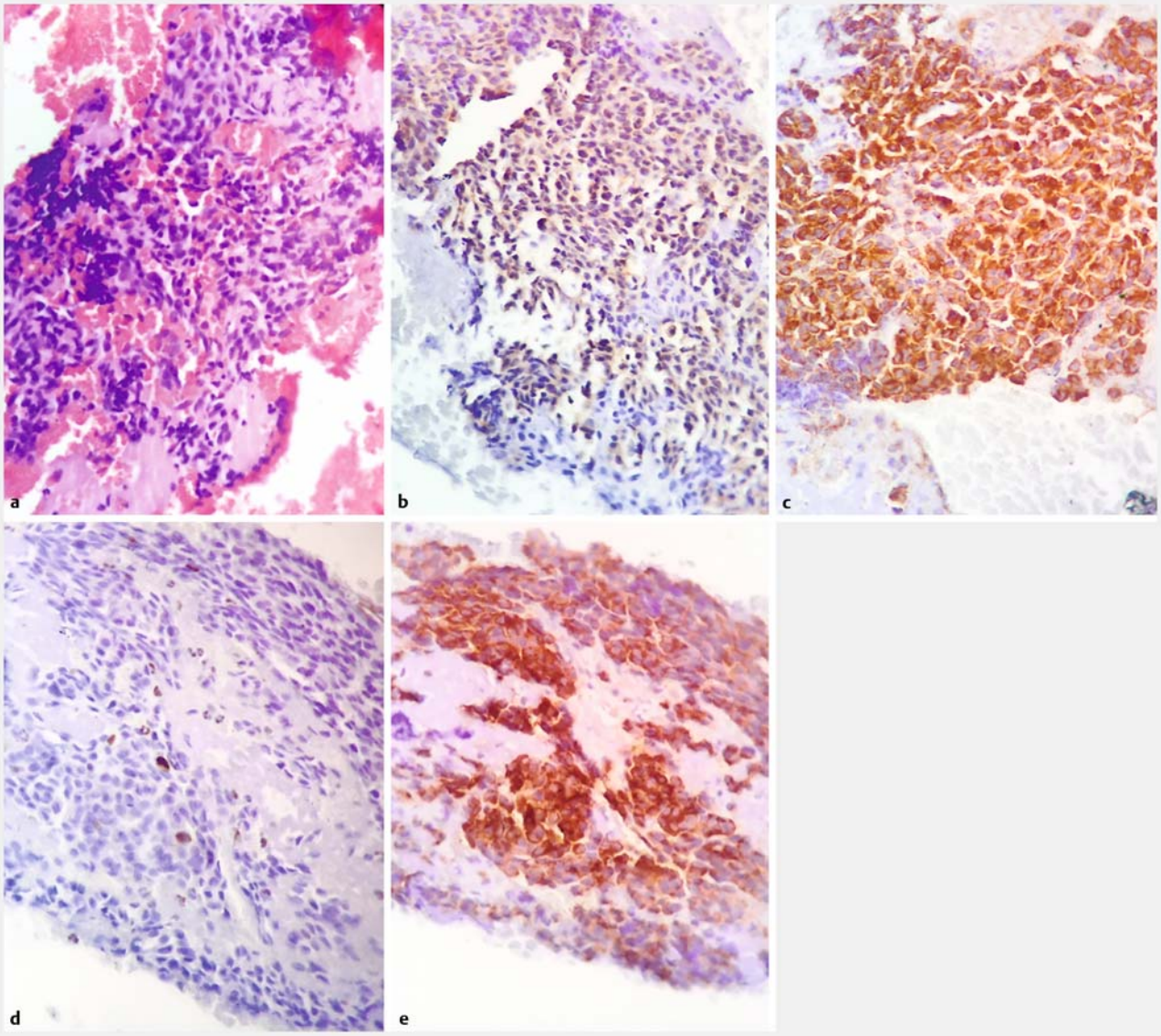

▶ **Fig. 2** Histological analysis of the fine needle aspirate showing the appearance on: **a** hematoxylin and eosin (H&E) staining; **b – e** immunohistochemical staining with: **b** CD 56; **c** insulin; **d** Ki 67; **e** synaptophysin.

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