We present two cases of ampullary carcinoid tumors diagnosed and appropriately staged by EUS-FNA.

In case 1, a 46-year-old man presented with anemia and a 4.5-kg weight loss. Laboratory analysis showed: hemoglobin 11.2 mg/dL, total bilirubin 1.4 mg/dL, alkaline phosphatase 324 U/L, aspartate aminotransferase (AST) 221 U/L, and alanine aminotransferase (ALT) 205 U/L. Colonoscopy was unremarkable. Upper endoscopy showed an enlarged and ulcerated ampulla (Fig. 1). Mucosal biopsies showed non-specific inflammatory changes. Abdominal computed tomography (CT) disclosed dilation of the main pancreatic duct and the intrahepatic and extrahepatic biliary ducts. Endoscopic ultrasound (EUS) revealed a round hypoechoic 26-mm ampullary subepithelial mass, staged as T2N1Mx (Fig. 2). The pancreatic duct and bile duct were dilated up to 4 mm and 8 mm respectively. Fine needle aspiration (FNA) showed atypical cells with round, eccentric nuclei, suggestive of a low grade neuroendocrine tumor. Immunostains for synaptophysin and chromogranin A were positive. The patient underwent pancreaticoduodenectomy. Surgical pathology confirmed a T2N1M0 carcinoid tumor (Fig. 3). Imaging and clinical follow-up at 6 months were unremarkable.

In case 2, a 53-year-old woman presented with painless jaundice and a 9-kg weight loss. Physical examination revealed scleral icterus and mild non-tender hepatomegaly. Laboratory analysis showed: total bilirubin 5.9 mg/dL, alkaline phosphatase 405 U/L, AST 96 U/L, and ALT 190 U/L. Abdominal CT showed a dilated pancreatic duct and intrahepatic and extrahepatic biliary ducts. Endoscopy revealed an 18-mm ampullary subepithelial lesion, staged on EUS as T3N1Mx (Fig. 4 and Fig. 5). The pancreatic duct and common bile duct were dilated up to 5 mm and 13 mm.
respectively. FNA showed malignant pleomorphic cells with round, eccentric nuclei, suggestive of high grade neuroendocrine tumor (Fig. 6). Immunostains for cytokeratin, synaptophysin, and chromogranin A were positive.

The patient underwent pancreaticoduodenectomy. Histological examination confirmed a T3N1M0 high grade carcinoid tumor (Fig. 7). Imaging and clinical follow-up at 3 months were unremarkable.

Ampullary carcinoid tumors compromise 2% of ampullary malignancies and account for 0.3% of all gastrointestinal neuroendocrine tumors [1]. To date, approximately 100 cases of ampullary carcinoid tumor have been reported in worldwide literature [2]. Endoscopic diagnosis is usually limited by the subepithelial nature of the tumor. EUS-FNA provides accurate diagnosis and staging of ampullary malignancies in general [3]. In a series of 41 patients with ampullary tumors, the accuracy of EUS was found to be superior to that of CT and equivalent to that of magnetic resonance imaging (MRI) for T staging (EUS 73%, CT 26%, MRI 54%) and N staging (EUS 67%, CT 44%, MRI 77%) [4]. The role of EUS-FNA in the early diagnosis and staging of ampullary carcinoid tumors has been described only once before in the literature in English [5].

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Competing interests: None


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