A diagnosis of portal system thrombosis can be easily obtained with conventional digital imaging [1]; however, the etiology of the thrombosis can be difficult to assess in the absence of the characteristic hallmarks of a malignant or benign thrombus. When a definitive diagnosis is required, transabdominal ultrasound-guided fine needle aspiration (FNA) of the portal vein thrombus can be performed [2], but this technique is not widely used because of the risk of post-biopsy bleeding complications.

We report the case of a 29-year-old man with a history of hepatocellular carcinoma (HCC), for which he had undergone a major hepatic resection when still a child. After a 20-year recurrence-free interval, a left lobe hepatectomy was performed because of HCC recurrence. The right lobe was treated 9 months later with multiple transarterial chemoembolizations because of multifocal recurrence. When, 6 months later, a major radiological and alpha-fetoprotein tumor response was observed, the patient underwent liver transplantation.

One year after the transplant, a splenic vein thrombosis was detected on a computed tomography (CT) scan (Fig. 1). An endoscopic ultrasound (EUS)-guided approach was considered the most appropriate to obtain a diagnosis as to the nature of the thrombus. An EUS-guided FNA was performed using a transgastric approach (Fig. 2), with a 25-gauge needle (Wilson-Cook Medical, Winston-Salem, North Carolina, USA), without any immediate or delayed complications (Video 1).

![Fig. 1 Contrast-enhanced computed tomography (CT) image showing a thrombus in the splenic vein.](image1)

![Fig. 2 Endoscopic ultrasound (EUS) appearance of the portal vein confluence with a thrombotic mass floating into the confluence (red line). SMV, superior mesenteric vein; PV, portal vein; SV, splenic vein.](image2)

![Fig. 3 Cytological appearance of the endoscopic ultrasound-guided fine needle aspiration (EUS-FNA) specimen showing pleomorphic liver cells with round nuclei and ample granular cytoplasm, diagnostic of hepatocellular carcinoma.](image3)

![Video 1 Endoscopic ultrasound (EUS) showing a complete thrombosis of the splenic vein from the splenic hilum to the portal confluence. A 25-gauge needle is advanced through the gastric wall and a thin portion of pancreatic parenchyma, into the splenic vein. Suction is applied and an aspirate obtained to be processed for cytology.](video)
Cytopathologic examination of the specimen revealed malignant cells consistent with HCC (Fig. 3). Given the advanced stage of the disease, the patient was referred for systemic treatment. He died 9 months later.

EUS provides a unique opportunity to image the region in close proximity to the portal vein system. To our knowledge, only three cases of EUS-FNA of the portal vein have been reported [3, 4]. This is the first reported case of EUS-FNA of the splenic vein.

When liver transplantation or major surgery is planned, a firm diagnosis of possible neoplastic invasion of the portal system is critical as macrovascular invasion is a major determinant of prognosis [5]. Conversely, EUS-FNA of a thrombus in the portal system may help to indicate interventional vs. systemic anti-thrombotic approaches in benign thrombosis. Future studies should establish the efficacy and safety profile of this technique, especially when vessel occlusion is partial or the thrombus is floating.

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References

Corresponding author
Gabriele Delconte, MD
Diagnostic and Therapeutic Endoscopy Unit, Department of Surgery
Fondazione IRCCS Istituto Nazionale Tumori
Via G. Venezian 1
20133, Milan
Italy
gabriele.delconte@istitutotumori.mi.it