

## Is it tumor encasement or arterial dissection/thrombosis? EUS to the rescue!



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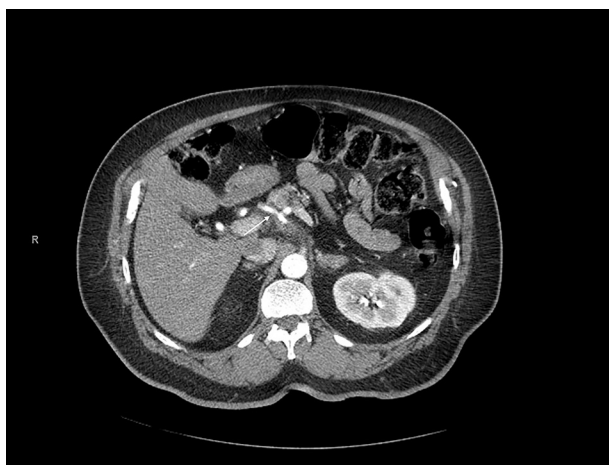
EUS plays an important role in the management of GI and pancreatobiliary diseases. However, several nondigestive pathologic conditions may be detected as well, expanding the diagnostic potential of EUS.<sup>1,2</sup>

### CASE REPORT

A 68-year-old man with a history of diverticulosis presented to the emergency department with left lower-quadrant

abdominal pain. An emergency CT scan revealed an infiltrative mass in the pancreatic head ( $3.4 \times 2.4$  cm). Infiltration of the fat around the celiac axis with mild luminal narrowing was also described (Fig. 1). The findings were suggestive of dissection or tumor encasement.

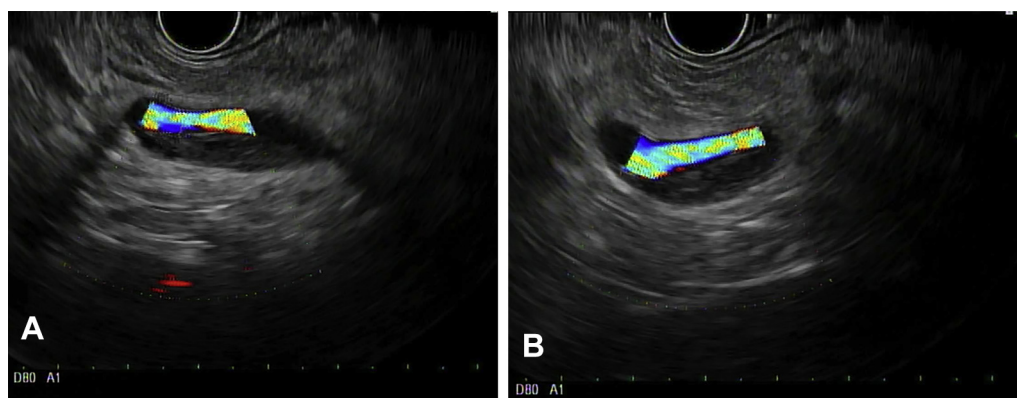
Angio-CT at the referring hospital described a pancreatic head tumor that seemed to encase the celiac axis and the common hepatic artery. The patient was then referred to our tertiary cancer center for further evaluation of the pancreatic head mass.



**Figure 1.** Emergency CT view showing hazy infiltration of the fat around the celiac axis and common hepatic artery with mild luminal narrowing of the common hepatic artery (*white arrow*).



**Figure 2.** EUS view showing a cystic/solid mass in the uncinus process of the pancreas. There are multiple solid nodules and papillary projections within this cystic mass.



**Figure 3.** EUS view showing a thrombus inside celiac axis/proximal common hepatic artery.



**Figure 4.** Angio-CT view at our institution showing extensive soft tissue thickening that extended along the celiac trunk, associated with encasement and narrowing of the common hepatic artery.



**Figure 6.** CT view at 2-month follow-up visit showing marked improvement of previously seen soft-tissue thickening along the celiac axis.



**Figure 5.** Angio-CT view at our institution showing aneurysmal dilatation of the celiac trunk with possible focal dissection.

EUS showed a cystic/solid mass in the uncinata process of the pancreas (Fig. 2; Video 1, available online at [www.VideoGIE.org](http://www.VideoGIE.org)). The main pancreatic duct was not dilated. EUS-guided FNA was performed. Remote from the tumor,

the celiac axis/proximal common hepatic artery appeared to have a thrombus with an approximately 50% reduction in flow (Fig. 3A and B).

## FOLLOW-UP

Cytologic analysis of specimens from EUS-guided FNA revealed intraductal papillary mucinous neoplasm (IPMN) with low-grade dysplasia. Given the size of the lesion and the presence of a solid component, a Whipple procedure was recommended.

The EUS findings of thrombosis with reduction in flow and no tumor encasement were then further investigated by angio-CT of the abdomen, which revealed extensive soft tissue thickening that extended along the celiac trunk, associated with encasement and narrowing of the common hepatic artery (Fig. 4). Aneurysmal dilatation of the celiac trunk was also noticed, with findings most suggestive of focal dissection (Fig. 5). An atheromatous plaque or vasculitis were considered to be less likely possibilities.

The patient underwent arterial abdominal duplex examination that showed >70% stenosis of the celiac artery and velocity elevation in the common hepatic artery consistent with at least 50% stenosis, with normalization of flow 2 to 3 cm from the artery origin.

A Whipple procedure was recommended for the IPMN. One crucial issue during the Whipple procedure is preserving patency of the celiac artery and the common hepatic artery, given the resection of the gastroduodenal artery during this surgical procedure. If the celiac focal dissection were to progress to occlude the whole lumen, after resection of the gastroduodenal artery, no retrograde gastroduodenal artery flow would be possible into the proper hepatic artery to save the liver. Because of this,



**Figure 7.** CT view at 2-month follow-up visit showing persisting aneurysmal dilatation of the celiac trunk, with findings suggestive of focal dissection.

the surgery was delayed and the patient was prescribed anticoagulant therapy.

Two months later, follow-up CT showed marked improvement of the findings along the common hepatic artery and celiac trunk (Fig. 6), although findings of concern for focal aneurysm dilatation of the celiac artery and changes suggestive of dissection persisted on the follow-up study (Fig. 7). The patient underwent a successful Whipple procedure. Pathologic analysis of the

3.5-cm mass in the head of the pancreas was consistent with IPMN with high-grade dysplasia.

## CONCLUSION

With this case report, we would like to emphasize the potential role of EUS in the diagnosis of arterial pathologic conditions. Real-time dynamic arterial vascular assessment during EUS of a known or suspected pancreatic neoplasm could play an important role in the management of such cases. Focused attention to areas of vasculature with questionable or ambiguous findings on cross-sectional imaging can potentially be clarified by EUS to guide further medical or surgical management, as in the present case.

## DISCLOSURE

*All authors disclosed no financial relationships relevant to this publication.*

*Abbreviation: IPMN, intraductal papillary mucinous neoplasm.*

## REFERENCES

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