

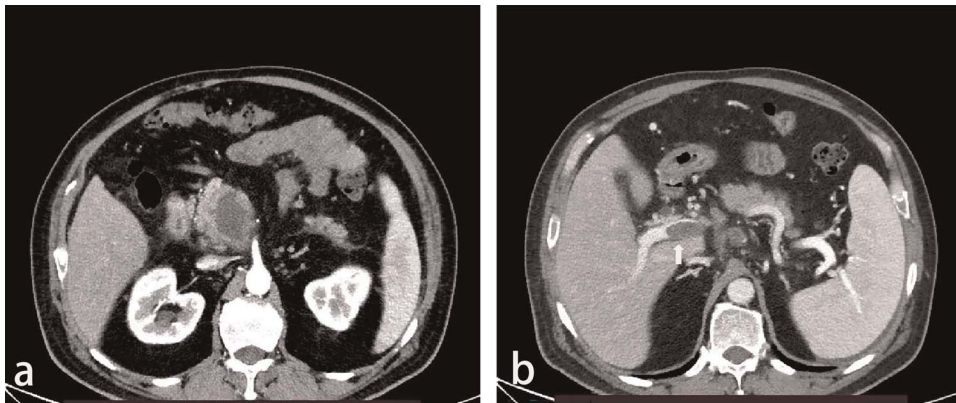
# Diabetic ketoacidosis and pancreatic mass: A clue requiring investigation

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A 54-year-old man with preexisting type 2 diabetes mellitus of 2 years' duration was admitted with a month history of intermittent upper abdominal pain. No positive abdominal sign was found. Laboratory test showed a picture of diabetic ketoacidosis, a glucose concentration of 27.1 mmol/L, a raised urine ketone concentration, and metabolic acidosis. After diabetic ketoacidosis was resolved by intravenous infusion of fluid and regular insulin, the patient underwent an enhanced computed tomography (CT) scan. A 44 × 26-mm solid-cystic mass was found in pancreatic uncinata with common hepatic artery contact and portal vein thrombosis and peripheral enhancement [Figure 1]. EUS showed a hypoechoic and inhomogeneous solid-cystic lesion with lymphadenopathy [Figure 2]. An EUS-guided fine-needle aspiration (EUS-FNA) was performed, which unexpectedly yielded pus-like specimen [Figure 3]. Cytologic findings showed numerous neutrophils

and necrotic debris without evidence of neoplasm. Microbial pus culture was negative.

The atypical solid mass with cystic change, vessel invasion, and ring-enhancement pattern suggested the possible diagnosis of pancreatic adenocarcinoma with central necrosis, cystic pancreatic endocrine tumor, or tuberculosis.<sup>[1–3]</sup> Normal temperature, negative T-spot test, unelevated CA19-9 added complexity to a definitive diagnosis. A second EUS-guided fine needle biopsy (EUS-FNB) targeting solid component was conducted but still produced similar pathological results. The patient received a 2-week therapeutic trial of sulperazon in combination with low-molecular-weight heparin and strict glucose control after multidisciplinary consultation. A second CT revealed an obvious shrinkage of mass and thrombus [Figure 4] and thus led to the final diagnosis of pancreatic abscess.



**Figure 1.** Contrast-enhanced computed tomography. (a), Arterial phase images of dynamic contrast study showed a solid-cystic lesion with rim enhancement. (b), White arrow denotes thrombus in portal vein.

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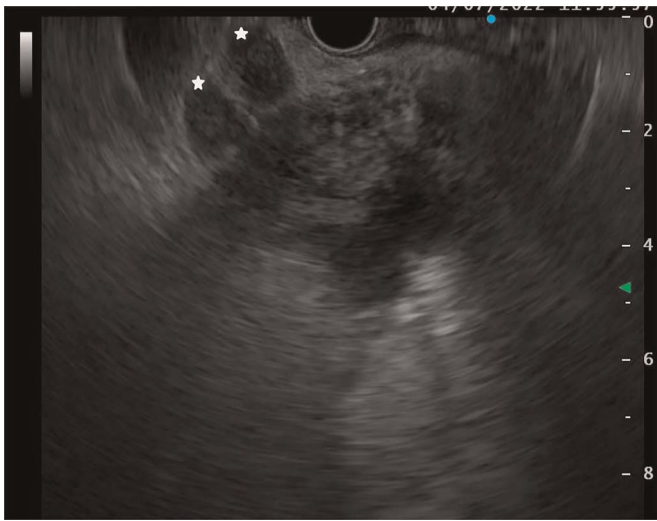
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Worsening of diabetes was considered as a clue of pancreatic carcinoma at first glance, which turned out to be the consequence of uncontrolled infection in this challenging case. The appearance on CT and EUS puts a mask on differential diagnosis. It is important to highlight that, although necrosis inside malignancy is mostly hypoechoic, it is typically hyperechoic inside abscess on EUS. Encapsulated necrosis may lead to occult signs of infection and false-negative microbial cultures. If infection is highly suspected after twice-negative EUS-FNA/B, diagnostic antimicrobial treatment is worth considering. In this situation, treatment response should be closely monitored to avoid irreversible outcomes.



**Figure 2.** EUS showing the mixed solid-cystic lesion of the pancreatic uncinate. The lesion was predominantly hypoechoic with hyperechoic area in the center. White stars denote two enlarged lymph nodes.



**Figure 4.** The size of mass significantly decreased after antibiotic treatment.



**Figure 3.** Purulent material collected by EUS-FNA.

## Acknowledgments

None.

## Conflict of Interest

The authors declare that they have no conflict of interest.

## Patient Consent Statement

Informed consent was obtained from the patient.

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## Author Contributions

Jia-Yi Ma, Bo Li, and Lin-Lin Zhao participated in the acquisition, interpretation, and manuscript drafting; Kai-Xuan Wang contributed to the conception and revised the manuscript for important intellectual content. All authors reviewed the manuscript.

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