

# Laparoscopic Spleen-Preserving Distal Pancreatectomy for Epidermoid Cyst in An Intrapancreatic Accessory Spleen: A Case Report

**Xiang Zheng**

Zhejiang University School of Medicine Second Affiliated Hospital

**Bo Zhou**

Zhejiang University School of Medicine Second Affiliated Hospital

**Qing jing Sun**

Zhejiang University School of Medicine Stomatology Hospital

**Ming Jin**

Zhejiang University School of Medicine Second Affiliated Hospital

**Sheng Yan** (✉ [shengyan@zju.edu.cn](mailto:shengyan@zju.edu.cn))

Zhejiang University School of Medicine Second Affiliated Hospital <https://orcid.org/0000-0002-4153-3546>

---

## Case report

**Keywords:** Epidermoid cyst, Intrapancreatic accessory spleen, Laparoscopic distal pancreatectomy

**Posted Date:** December 17th, 2020

**DOI:** <https://doi.org/10.21203/rs.3.rs-127790/v1>

**License:**  This work is licensed under a Creative Commons Attribution 4.0 International License.

[Read Full License](#)

---

# **Abstract**

## **BACKGROUND**

Pancreatic tail cystic lesions are increasingly encountered in clinical practice, however it is difficult to make a correct diagnosis preoperatively because there are many types of pancreatic neoplastic and non-neoplastic cysts. Epidermoid cyst in an intrapancreatic accessory spleen (ECIPAS) is a rare non-neoplastic cyst and located in the pancreatic tail. Therefore, it should be considered in the differential diagnosis of pancreatic tail cystic lesions.

## **CASE PRESENTATION**

A 51-year-old man was admitted for investigation of abdominal pain. The physical examination and laboratory tests found no abnormalities, except for an elevation of carbohydrate antigen (CA)19-9. Imaging revealed a 2.6-cm cystic lesion within the pancreatic tail, and the solid component surrounding the cyst was enhanced similarly to those of the splenic tissue. ECIPAS was speculated. With regards to the symptoms and difficulty to completely exclude a malignant tumor, laparoscopic spleen-preserving distal pancreatectomy was performed. The final pathological diagnosis was epidermoid cyst arising from an intrapancreatic accessory spleen. The patient was discharged at day 5 postoperatively after an uneventful recovery. CA19-9 returned to normal after surgery. During 2-years follow-up, there was no evidence of tumor recurrence.

## **CONCLUSION**

We describe typical imaging features of ECIPAS and showed that laparoscopic distal pancreatectomy was safe and effective for treating ECIPAS.

# **Background**

Although pancreatic tail cystic lesions are being increasingly encountered in clinical practice, it is difficult to make an exact diagnosis preoperatively[1–3]. Epidermoid cyst in an intrapancreatic accessory spleen (ECIPAS) is an exceedingly rare entity, and all the ECIPAS cases reported so far have been found in the pancreatic tail[4, 5]. ECIPAS should therefore be considered in the differential diagnosis of pancreatic tail cystic lesions. It is difficult to diagnose ECIPAS preoperatively using conventional imaging, thus it is commonly misdiagnosed as another cystic neoplasm, such as a mucinous cystic neoplasm (MCN), solid pseudopapillary tumor (SPT), intraductal papillary mucinous neoplasm (IPMN) or cystadenocarcinoma [6–9]. ECIPAS was thought to be benign until recently when it was found to develop into a malignant tumor during 6-years follow-up[10], which highlights its malignant potential. Thus, it would be necessary to make a definitive diagnosis of this disease as well as to differentiate it from other potentially malignant pancreatic tail cystic neoplasms. We describe a case that was speculated to be ECIPAS, treated by laparoscopic spleen-preserving distal pancreatectomy.

## Case Presentation

A 51-year-old man was admitted to our hospital with a history of abdominal pain for 6 months. The patient had no symptoms of fever, nausea, vomiting or weight loss. The patient's symptoms started 6 months ago, with recurrent episodes of abdominal pain that could relieve spontaneously. No history of trauma or pancreatitis was recorded. The physical and laboratory examinations were normal, except for elevation of carbohydrate antigen (CA)19 – 9 to 55 U/mL (normal range 0–37 U/mL). Contrast-enhanced computed tomography (CT) found a cystic lesion measuring 2.6 cm within the tail of the pancreas, and the thick solid wall surrounding the cyst was enhanced similarly to those in splenic tissue (Fig. 1A–1D). Upon magnetic resonance imaging (MRI), the cyst was hyperintense in T1-weighted imaging and heterogeneous in T2-weighted imaging (Fig. 1E and 1F); therefore, the cystic component was considered to be mucinous or bloody liquid. The solid component showed high signal intensity in diffusion-weighted imaging and high intensity in T1-weighted imaging, and the capsule wall showed visible enhancement (Fig. 1E–1I). Endoscopic ultrasonography (EUS) indicated a unilocular cystic solid lesion in the pancreatic tail and the cyst was not found to communicate with the main pancreatic duct (Fig. 2A and 2B). Contrast-enhanced EUS using sulfur hexafluoride microbubbles showed that the solid component was enhanced in the arterial phase (Fig. 2C and 2D). Additionally, an EUS based fine-needle aspiration (FNA) using a 22-G needle from the solid component was performed. The FNA sample consisted predominantly of leukocytes and proteinaceous debris, and no squamous epithelial cells or malignant cells were found.

Based on the radiographic and pathological findings, ECIPAS was speculated. Considering the symptoms and the difficulty to completely exclude the malignant tumor due to elevation of CA19-9, laparoscopic spleen-preserving distal pancreatectomy was performed. The surgical specimen revealed a well-defined cystic mass, measuring 2.5 cm at its greatest diameter, located in the tail of pancreas (Fig. 3A). The cut surface showed that the mass was composed of a cyst and brown solid spleen-like tissue (Fig. 3A). Microscopic analysis demonstrated that the solid component was accessory splenic tissue, and the cyst wall was lined with a thin stratified squamous epithelium (Fig. 3B). The final pathological diagnosis was ECIPAS. The patient was discharged at day 5 postoperatively after an uneventful recovery. CA19-9 returned to normal after surgery. During 2-years follow-up, there was no evidence of tumor recurrence.

## Discussion And Conclusions

ECIPAS is an extremely rare entity. ECIPAS was thought to be benign until recently malignant transformation was found during 6-years follow-up[10]. Li *et al*[11] reviewed 56 cases of ECIPAS since the first case was diagnosed by Davidson *et al* in 1980[12]. Most of the cases were incidentally detected, while the others had symptoms of abdominal pain, discomfort, nausea, vomiting, back pain, fever, or weight loss. In all cases, the cystic lesions were found in the pancreatic tail. The cysts could be either unilocular or multilocular, lined by a keratinized or nonkeratinized stratified squamous epithelium or a cuboidal epithelium. The average cyst size was 4.3 cm (range 1.3–15 cm). Although most cases of ECIPAS were benign, it was necessary to differentiate it from other potentially malignant pancreatic tail

cystic neoplasms, including MCN, SPT, pseudocyst, IPMN and cystic pancreatic neuroendocrine tumor (p-NET).

Elevation of serum CA19-9 level was common in ECIPAS patients. Hu *et al* reported that nearly 40% of ECIPAS showed high levels of CA19-9[5, 13], hence increasing the difficulty to distinguish ECIPAS from malignant tumors preoperatively. It has been reported that the squamous epithelial lining of ECIPAS expressed CA19-9 in an immunohistochemical analysis, and serum CA19-9 levels markedly decreased to normal levels postoperatively in patients[14]. These findings suggest that serum CA19-9 is secreted by the epithelial lining cells of ECIPAS. In the current case, although ECIPAS was speculated, the symptoms and high CA19-9 level encouraged us to perform surgery.

Preoperative diagnosis of ECIPAS is difficult. MCN, cystadenocarcinoma, pseudocyst, cystic p-NET or potential malignant tumor is suspected in most cases[15–18]. Including the present case, only six (10.7%) among the 56 reported cases were correctly diagnosed preoperatively[15, 19–22]. Most cases of ECIPAS were diagnosed after surgery based on the pathological findings[23]. Advances in imaging techniques facilitated the diagnosis of ECIPAS as compared with previously; however, few studies have reported the imaging characteristics of ECIPAS. ECIPAS is a well-defined, unilocular or multilocular cystic mass located in the tail of the pancreas on multimodality imaging. The well-defined boundary is a differentiating morphological feature suggestive of a benign tumor. The cystic wall of ECIPAS showed contrast enhancement similar to that of the spleen during multiphasic CT or MRI. Therefore, the accessory spleen surrounding the cyst was a key component for correct diagnosis. However, only a few cases of ECIPAS had a sufficient solid component that allowed splenic tissues be detected through radiological imaging. Fortunately, there was a large amount of solid tissue present in our case; therefore, correct preoperative diagnosis of ECIPAS was achieved. Including the present case, four of 56 cases were diagnosed as ECIPAS preoperatively based on the similar density on enhanced CT and intensity on MRI between the solid component and the spleen[15, 20, 21]. The cystic component of ECIPAS usually appears to be hypodense on nonenhanced CT, hypointense on T1-weighted imaging and hyperintense on T2-weighted imaging. However, it sometimes appears hyperdense on nonenhanced CT and hyperintense on T1-weighted imaging, in the presence of hemorrhage or keratinized materials within the cyst[5, 24, 25]. In the present case, the cystic component was hyperdense on nonenhanced CT and hyperintense on T1-weighted imaging, and remained unenhanced during multiphasic scans. Thus, the cystic content was considered to be mucinous or bloody liquid that was confirmed by the resected specimen following surgery.

EUS-FNA is a commonly used technique to evaluate pancreatic masses, and it has been investigated for diagnosis of ECIPAS. In Tatsas *et al*'s report, three of six cases of intrapancreatic accessory spleen were diagnosed successfully; however, one case of ECIPAS failed to be diagnosed by EUS-FNA[26]. In the only case of ECIPAS diagnosed postoperatively, the FNA sample revealed only predominant macrophages and proteinaceous debris; therefore, no pathological evidence of ECIPAS was acquired prior to surgery[26]. Among the remaining five cases of ECIPAS reported in the English-language literature, one was correctly diagnosed by EUS-FNA[17, 21, 27–29]. Matsumoto *et al* reported a case of ECIPAS that was accurately

diagnosed by EUS-FNA[21]. Their histological findings showed that sinusoids and abundant polymorphous lymphocytes were consistent with an intrapancreatic accessory spleen[21]. Therefore, to acquire pathological evidence of ECIPAS using EUS-FNA seems to be difficult. This is mainly because the amount of splenic tissue surrounding the epidermoid cyst was too small in most cases to be successfully aspirated by FNA. In the present case, although leukocytes were found, we failed to reveal splenic sinusoids and endothelial cells within the acquired specimen.

Treatment of ECIPAS consists of surgical resection and follow-up. As most cases of ECIPAS are reported not to have malignant potential, unnecessary surgery can be avoided with a correct preoperative diagnosis. However, in cases of ECIPAS with symptoms, or in those in which it is difficult to completely exclude malignancy, laparoscopic spleen-preserving distal pancreatectomy is suggested since this procedure has been commonly used to treat benign or low-grade malignant tumors of the pancreatic tail. Fujii *et al*[30] reported that laparoscopic distal pancreatectomy could be a useful, minimally invasive surgical approach for treating ECIPAS with additionally decreased postoperative pain, length of stay and associated mortality and morbidity. In the present case, the symptoms and serum CA19-9 level encouraged us to perform surgery in this patient. The patient recovered uneventfully and had no evidence of tumor recurrence during 2-years follow-up, suggesting laparoscopic spleen-preserving distal pancreatectomy is effective and safe for ECIPAS.

In conclusion, it is difficult to make an exact diagnosis of pancreatic tail cystic lesions preoperatively. ECIPAS is an exceedingly rare entity, and all cases reported so far have been found in the pancreatic tail. Therefore, although rare, ECIPAS should be considered in the differential diagnosis of pancreatic tail cystic lesions. Imaging and endoscopic evaluation may be helpful in the diagnosis, but preoperative diagnosis is still challenging. A similar enhancement between the solid component of the cystic lesions and the splenic parenchyma is critical for correct diagnosis. Treatment of ECIPAS by laparoscopic distal pancreatectomy is an effective procedure with the advantages of minimal invasiveness.

## Abbreviations

ECIPAS

Epidermoid cyst in an intrapancreatic accessory spleen

CA

Carbohydrate antigen

MCN

Mucinous cystic neoplasm

SPT

Solid pseudopapillary tumor

IPMN

Intraductal papillary mucinous neoplasm

CT

Computed tomography

MRI  
Magnetic resonance imaging  
EUS  
Endoscopic ultrasonography  
FNA  
Fine-needle aspiration  
p-NET  
Pancreatic neuroendocrine tumor

## Declarations

### AVAILABILITY OF DATA AND MATERIALS

The datasets used and analyzed in this report are available from the corresponding author on reasonable request.

### ACKNOWLEDGMENTS

The patient signed a written informed consent form for the purpose of publication of the results of this case study.

**Author contributions:** Zheng X reviewed the literature, acquired the data and contributed to manuscript drafting; Zhou B analyzed and interpreted the pathological and immunohistochemical findings, and contributed to manuscript drafting; Sun JQ and Jin M analyzed and interpreted the imaging findings and contributed to manuscript drafting; Yan S acquired the data and was responsible for revision of the manuscript for important intellectual content; all authors issued final approval for the version to be submitted.

This work was supported by grants from the Natural Science Foundation of Zhejiang Province (No. LQ19H100004). The funder of LQ19H100004 was Xiang Zheng who was the first author, responsible for the overall study concept and design as well as the revision and final drafting of the manuscript.

Our study was approved by the Ethics Committee of Second Affiliated Hospital of Zhejiang University School of Medicine. Written informed consent was obtained from all subjects in our study.

**Informed consent statement:** Informed written consent was obtained from the patient for publication of this report and any accompanying images.

**Conflict-of-interest statement:** The authors declare that they have no conflict of interest.

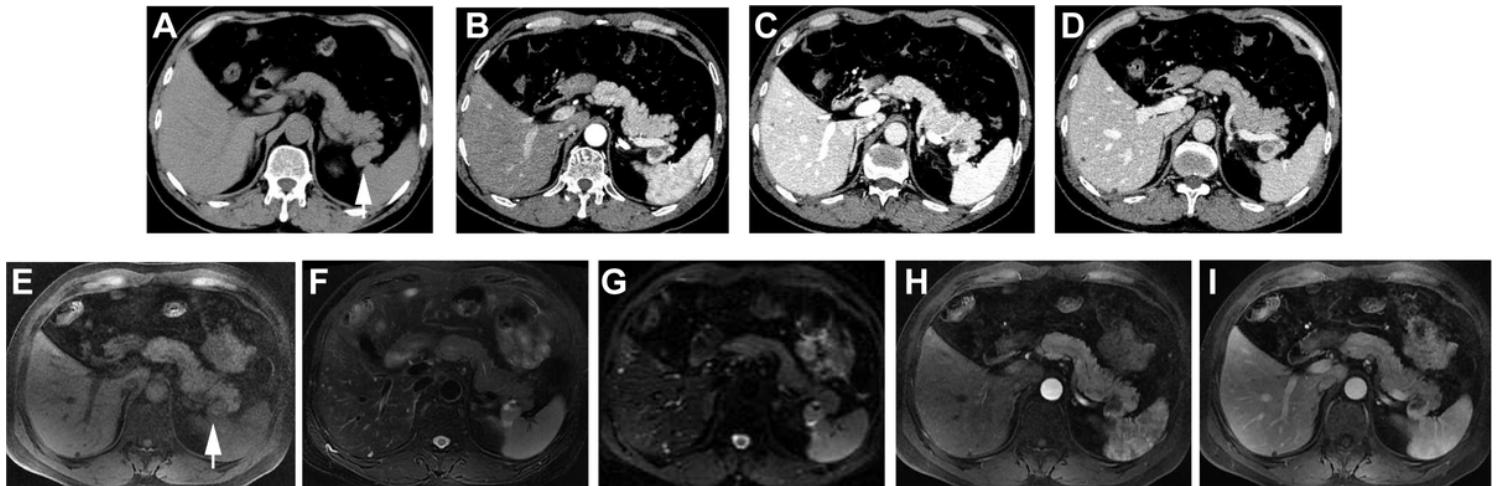
**Correspondence to:** Sheng Yan, MD, PhD, Associate Professor of Medicine, Chief Doctor, Department of General Surgery, Second Affiliated Hospital, School of Medicine, Zhejiang University, 88 Jiefang Road, Hangzhou 310009, Zhejiang Province, China. [shengyan@zju.edu.cn](mailto:shengyan@zju.edu.cn)

## References

1. Balaban VD, Cazacu IM, Pinte L, Jinga M, Bhutani MS, Saftoiu A. **EUS-through-the-needle microbiopsy forceps in pancreatic cystic lesions: A systematic review.** *Endosc Ultrasound* 2020.
2. Kato T, Matsuo Y, Ueda G, Aoyama Y, Omi K, Hayashi Y, Imafuji H, Saito K, Tsuboi K, Morimoto M, et al. Epithelial cyst arising in an intrapancreatic accessory spleen: a case report of robotic surgery and review of minimally invasive treatment. *BMC Surg.* 2020;20:263.
3. Alkhateeb MA, Boqari D, Mansi NK. Pancreatic acinar cystadenoma in a background of diffuse multifocal pancreatic cystic lesions: A case report. *Int J Surg Case Rep.* 2020;73:223–7.
4. Paredes A, Beal EW, Dillhoff ME: **Epidermoid cyst within an intrapancreatic accessory spleen.** *BMJ Case Rep* 2018, 2018.
5. Hu S, Zhu L, Song Q, Chen K. Epidermoid cyst in intrapancreatic accessory spleen: computed tomography findings and clinical manifestation. *Abdom Imaging.* 2012;37:828–33.
6. Luo J, Chen J, Huang F, Zhou P, Huang P. Heterotopic accessory spleen with squamous epithelial cyst in pancreas mimicking other pancreatic tumor: a case report. *Ann Transl Med.* 2020;8:507.
7. Poola S, Laks S, Kragel P, Regan K. Intrapancreatic Accessory Spleen Masquerading as a Pancreatic Mucinous Neoplasm. *Surg J (N Y).* 2020;6:e128–30.
8. Servais EL, Sarkaria IS, Solomon GJ, Gumpeni P, Lieberman MD. Giant epidermoid cyst within an intrapancreatic accessory spleen mimicking a cystic neoplasm of the pancreas: case report and review of the literature. *Pancreas.* 2008;36:98–100.
9. Nakahira S, Sugimoto K, Yoshioka Y, Yoshida A, Uji K, Suzuki R, Nakata K, Miki H, Okamura S, Nakamura T, et al. [A case of epidermoid cyst in the intrapancreatic accessory spleen mimicking pancreatic malignant tumor]. *Gan To Kagaku Ryoho.* 2009;36:2413–5.
10. Wang J, Kang WJ, Cho H. Malignant Transformation of an Epidermoid Cyst in an Intrapancreatic Accessory Spleen: A Case Report. *Nucl Med Mol Imaging.* 2020;54:58–60.
11. Li BQ, Lu J, Seery S, Guo JC. Epidermoid cyst in intrapancreatic accessory spleen: A systematic review. *Pancreatology.* 2019;19:10–6.
12. Davidson ED, Campbell WG, Hersh T. Epidermoid splenic cyst occurring in an intrapancreatic accessory spleen. *Dig Dis Sci.* 1980;25:964–7.
13. Zavras N, Machairas N, Foukas P, Lazaris A, Patapis P, Machairas A. Epidermoid cyst of an intrapancreatic accessory spleen: a case report and literature review. *World J Surg Oncol.* 2014;12:92.
14. Hirabayashi K, Yamada M, Kono H, Hadano A, Kawanishi A, Takanashi Y, Kawaguchi Y, Nakagohri T, Mine T, Nakamura N. Epidermoid cysts are a characteristic feature of intrapancreatic but not of extrapancreatic accessory spleens. *Virchows Arch.* 2017;471:91–8.
15. Itano O, Shiraga N, Kouta E, Iri H, Tanaka K, Hattori H, Suzuki F, Otaka H. Epidermoid cyst originating from an intrapancreatic accessory spleen. *J Hepatobiliary Pancreat Surg.* 2008;15:436–9.
16. Iwasaki Y, Tagaya N, Nakagawa A, Kita J, Imura J, Fujimori T, Kubota K. Laparoscopic resection of epidermoid cyst arising from an intrapancreatic accessory spleen: a case report with a review of the

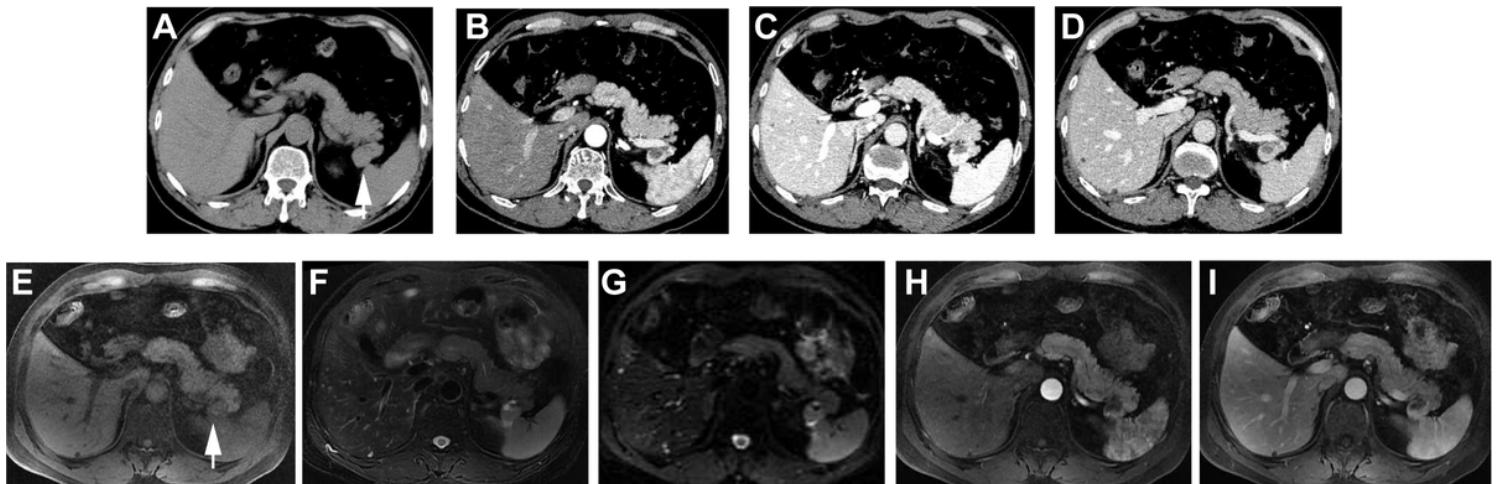
- literature. *Surg Laparosc Endosc Percutan Tech.* 2011;21:e275–9.
17. Khashab MA, Canto MI, Singh VK, Hruban RH, Makary MA, Giday S. Endosonographic and elastographic features of a rare epidermoid cyst of an intrapancreatic accessory spleen. *Endoscopy*. 2011;43(Suppl 2 UCTN):E193–4.
  18. Kwak MK, Lee NK, Kim S, Han GJ, Seo HI, Park DY, Lee SJ, Kim TU. A case of epidermoid cyst in an intrapancreatic accessory spleen mimicking pancreas neoplasms: MRI with DWI. *Clin Imaging*. 2016;40:164–6.
  19. Itano O, Chiba N, Wada T, Yuasa Y, Sato T, Ishikawa H, Koyama Y, Matsui H, Kitagawa Y. Laparoscopic resection of an epidermoid cyst originating from an intrapancreatic accessory spleen: report of a case. *Surg Today*. 2010;40:72–5.
  20. Kumamoto Y, Kaizu T, Tajima H, Kubo H, Nishiyama R, Watanabe M. **A rapidly growing epidermoid cyst in an intrapancreatic accessory spleen treated by laparoscopic spleen-preserving distal pancreatectomy: Report of a case.** *Int Surg* 2015.
  21. Matsumoto K, Kato H, Okada H. Epidermoid Cyst in an Intrapancreatic Accessory Spleen Diagnosed by Typical Radiographic Images and Endoscopic Ultrasound Fine-Needle Aspiration Findings With Contrast Agent. *Clin Gastroenterol Hepatol.* 2018;16:e13–4.
  22. Urakami A, Yoshida K, Hirabayashi Y, Kubota H, Yamashita K, Hirai T, Tsunoda T. Laparoscopy-assisted spleen-preserving pancreatic resection for epidermoid cyst in an intrapancreatic accessory spleen. *Asian J Endosc Surg.* 2011;4:185–8.
  23. Zhou B, Zhang Q, Zhan C, Ding Y, Yan S. Laparoscopic spleen-preserving pancreatic resection for epidermoid cyst in an intrapancreatic accessory spleen: case report and literature review. *Ther Clin Risk Manag.* 2018;14:937–44.
  24. Yokomizo H, Hifumi M, Yamane T, Hirata T, Terakura H, Murata K, Fujita H, Matsukane H. Epidermoid cyst of an accessory spleen at the pancreatic tail: diagnostic value of MRI. *Abdom Imaging*. 2002;27:557–9.
  25. Kubo T, Takeshita T, Shimono T, Hashimoto S, Miki Y. Squamous-lined cyst of the pancreas: Radiological-pathological correlation. *Clin Radiol.* 2014;69:880–6.
  26. Tatsas AD, Owens CL, Siddiqui MT, Hruban RH, Ali SZ. Fine-needle aspiration of intrapancreatic accessory spleen: cytomorphologic features and differential diagnosis. *Cancer Cytopathol.* 2012;120:261–8.
  27. Gleeson FC, Kendrick ML, Chari ST, Zhang L, Levy MJ. Epidermoid accessory splenic cyst masquerading as a pancreatic mucinous cystic neoplasm. *Endoscopy*. 2008;40(Suppl 2):E141–2.
  28. Reiss G, Sickel JZ, See-Tho K, Ramrakhiani S. Intrapancreatic splenic cyst mimicking pancreatic cystic neoplasm diagnosed by EUS-FNA. *Gastrointest Endosc.* 2009;70:557–8. discussion 558.
  29. Zhang Z, Wang JC. An epithelial splenic cyst in an intrapancreatic accessory spleen. A case report. *JOP*. 2009;10:664–6.
  30. Fujii M, Yoshioka M, Shiode J. Two Cases of an Epidermoid Cyst Developing in an Intrapancreatic Accessory Spleen Identified during Laparoscopic Distal Pancreatectomy. *Intern Med.* 2016;55:3137–

## Figures



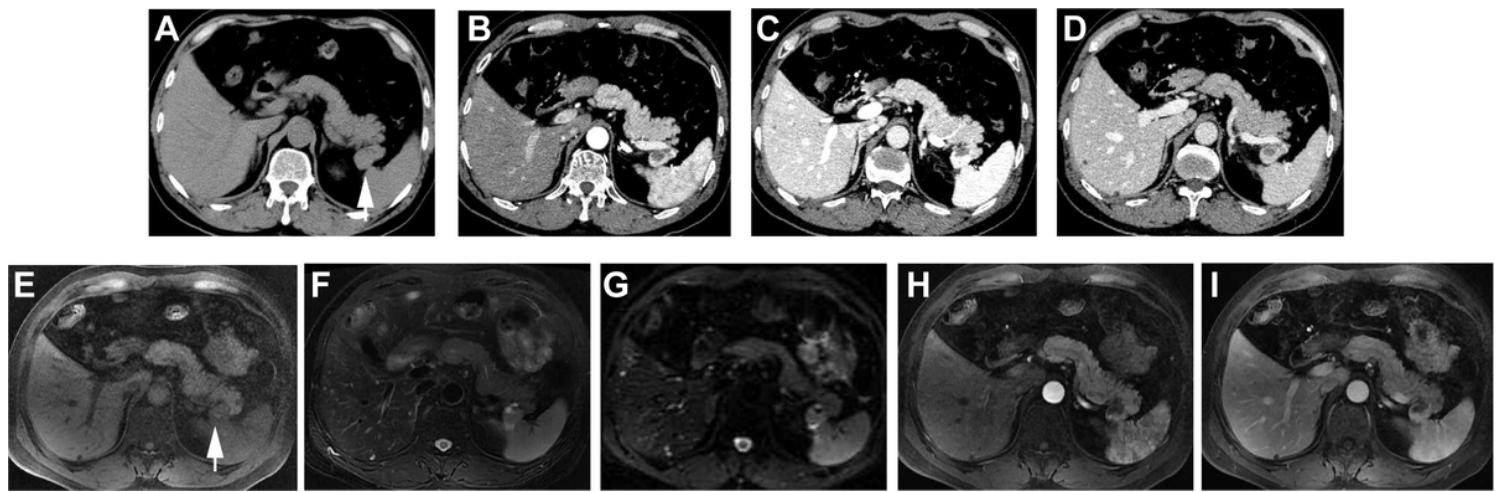
**Figure 1**

A well-defined cystic lesion (arrow) is revealed in the pancreatic tail. The Contrast-enhanced computed tomography (CT) (A–D) and contrast-enhanced magnetic resonance imaging (E–I) demonstrate the enhanced pattern in all phases. (A) Precontrast CT; (B) arterial phase; (C) portal phase; (D) delayed phase; (E) T1-weighted imaging; (F) T2-weighted imaging; (G) diffusion-weighted imaging; (H) arterial phase; (I) portal phase.



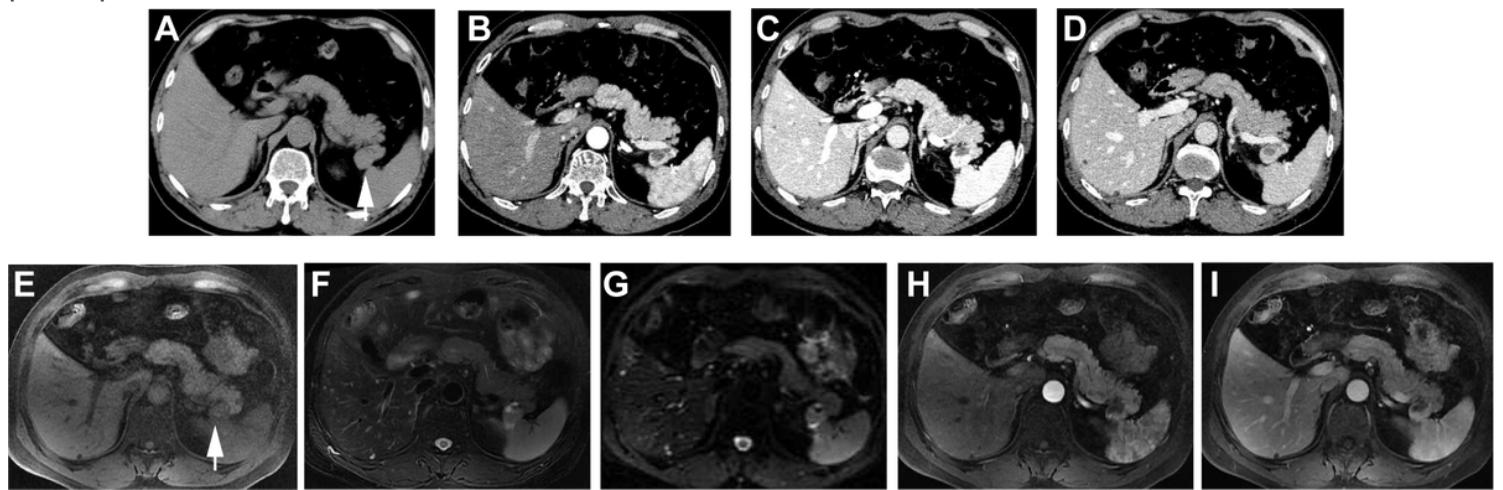
**Figure 1**

A well-defined cystic lesion (arrow) is revealed in the pancreatic tail. The Contrast-enhanced computed tomography (CT) (A–D) and contrast-enhanced magnetic resonance imaging (E–I) demonstrate the enhanced pattern in all phases. (A) Precontrast CT; (B) arterial phase; (C) portal phase; (D) delayed phase; (E) T1-weighted imaging; (F) T2-weighted imaging; (G) diffusion-weighted imaging; (H) arterial phase; (I) portal phase.



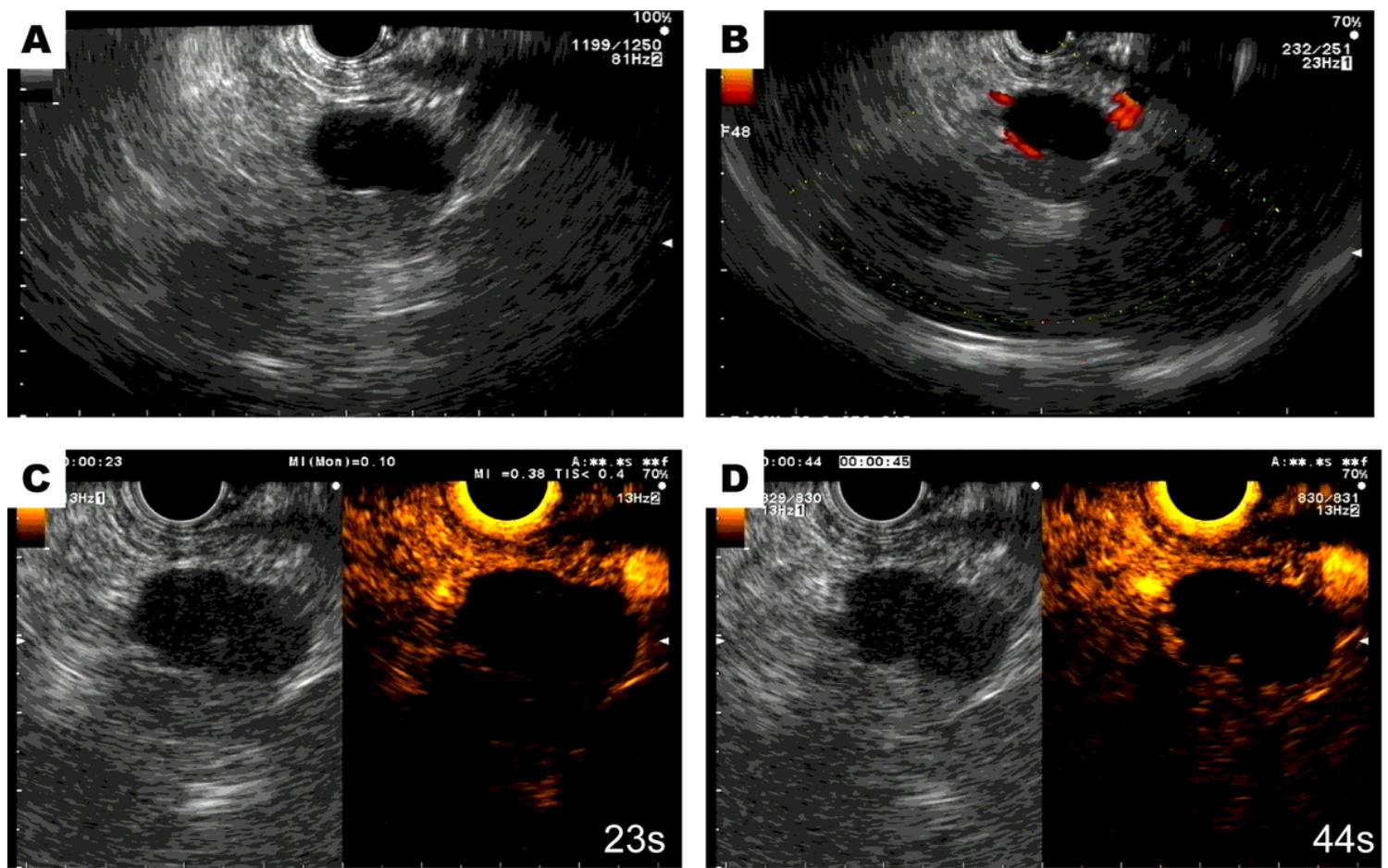
**Figure 1**

A well-defined cystic lesion (arrow) is revealed in the pancreatic tail. The Contrast-enhanced computed tomography (CT) (A–D) and contrast-enhanced magnetic resonance imaging (E–I) demonstrate the enhanced pattern in all phases. (A) Precontrast CT; (B) arterial phase; (C) portal phase; (D) delayed phase; (E) T1-weighted imaging; (F) T2-weighted imaging; (G) diffusion-weighted imaging; (H) arterial phase; (I) portal phase.



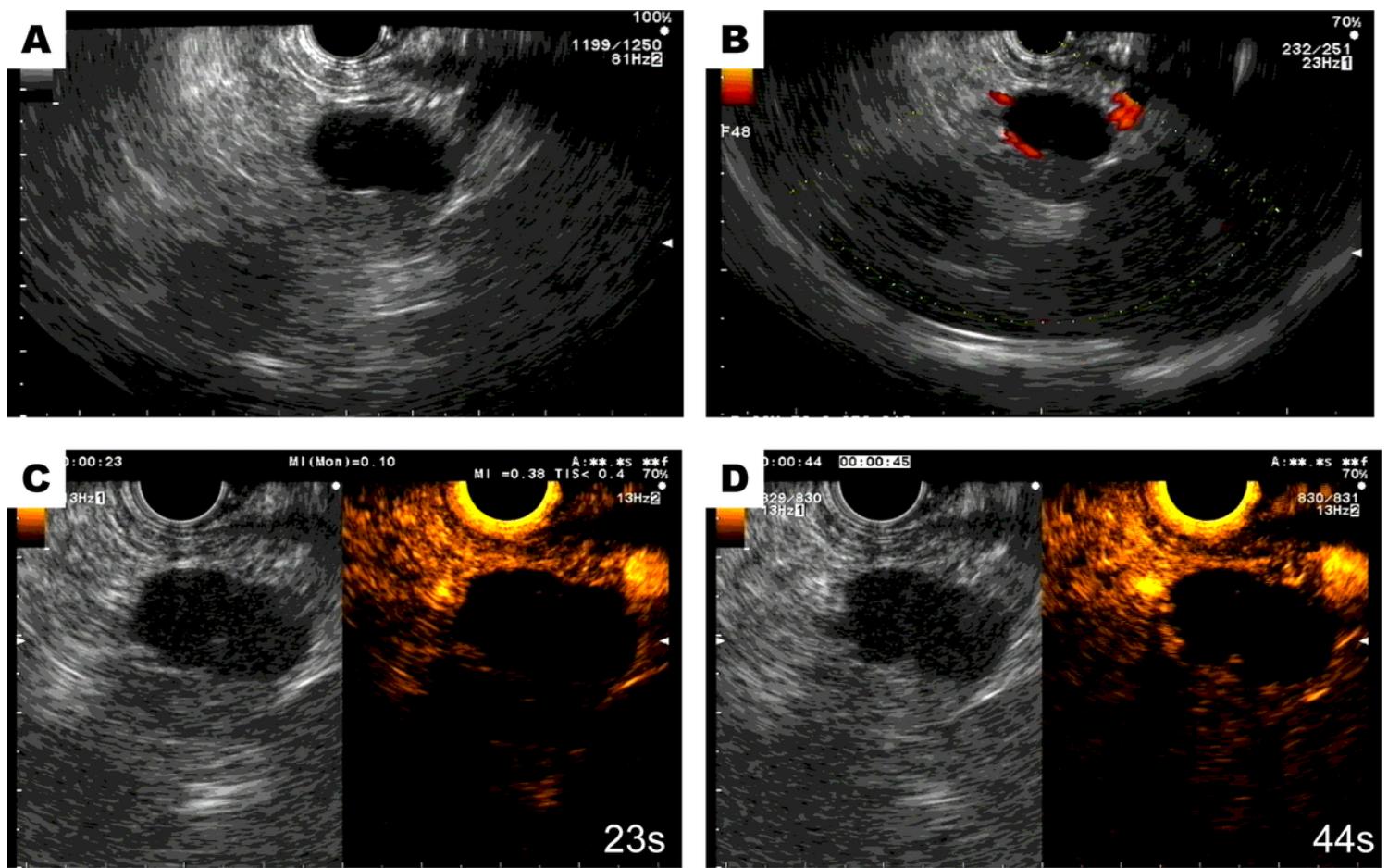
**Figure 1**

A well-defined cystic lesion (arrow) is revealed in the pancreatic tail. The Contrast-enhanced computed tomography (CT) (A–D) and contrast-enhanced magnetic resonance imaging (E–I) demonstrate the enhanced pattern in all phases. (A) Precontrast CT; (B) arterial phase; (C) portal phase; (D) delayed phase; (E) T1-weighted imaging; (F) T2-weighted imaging; (G) diffusion-weighted imaging; (H) arterial phase; (I) portal phase.



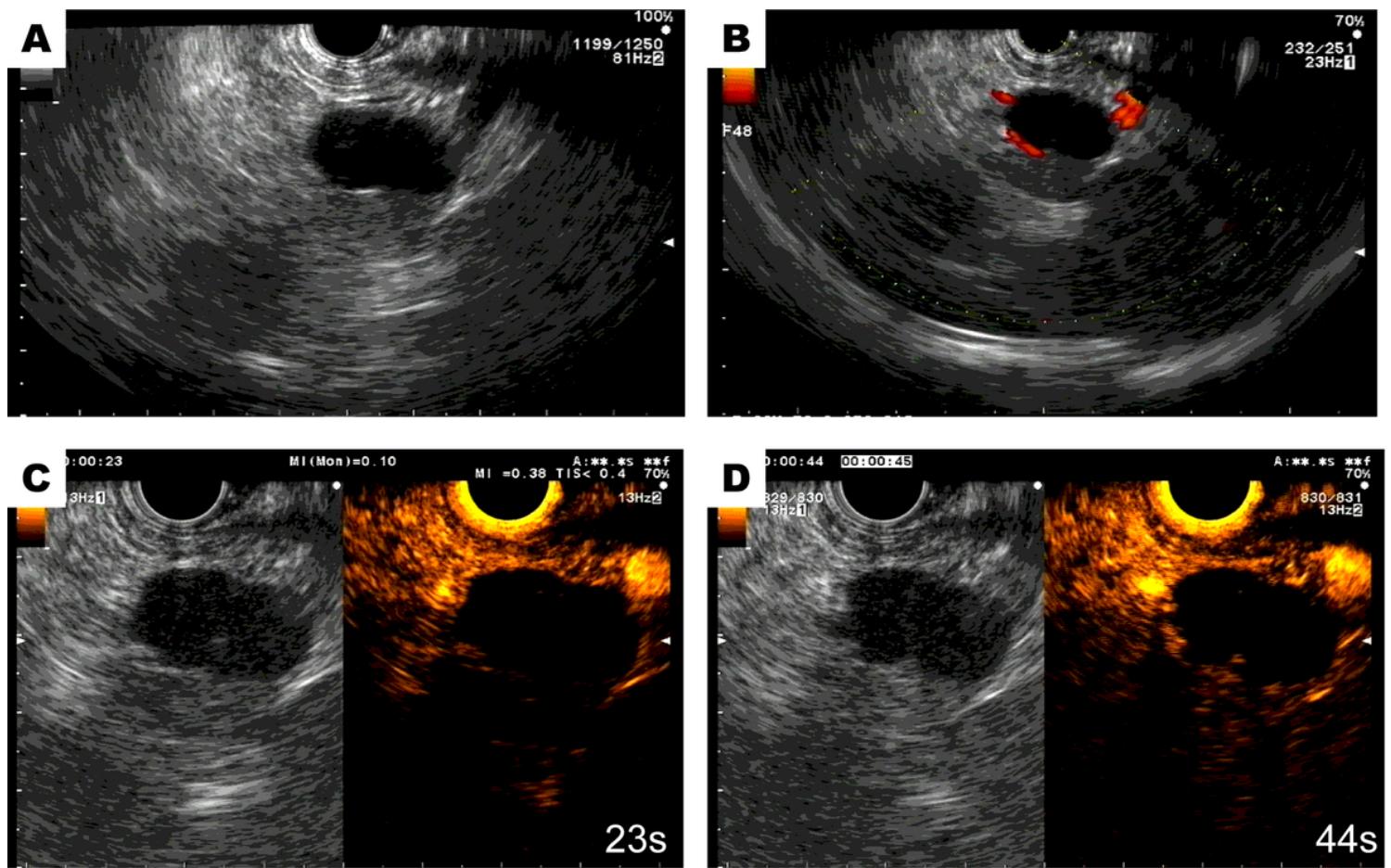
**Figure 2**

Endoscopic ultrasound (EUS) images showing a pancreatic mass located in the tail. (A) B-mode; (B) color Doppler. Contrast-enhanced EUS demonstrating the different time (C: 23 s and D: 44 s) of blood perfusion.



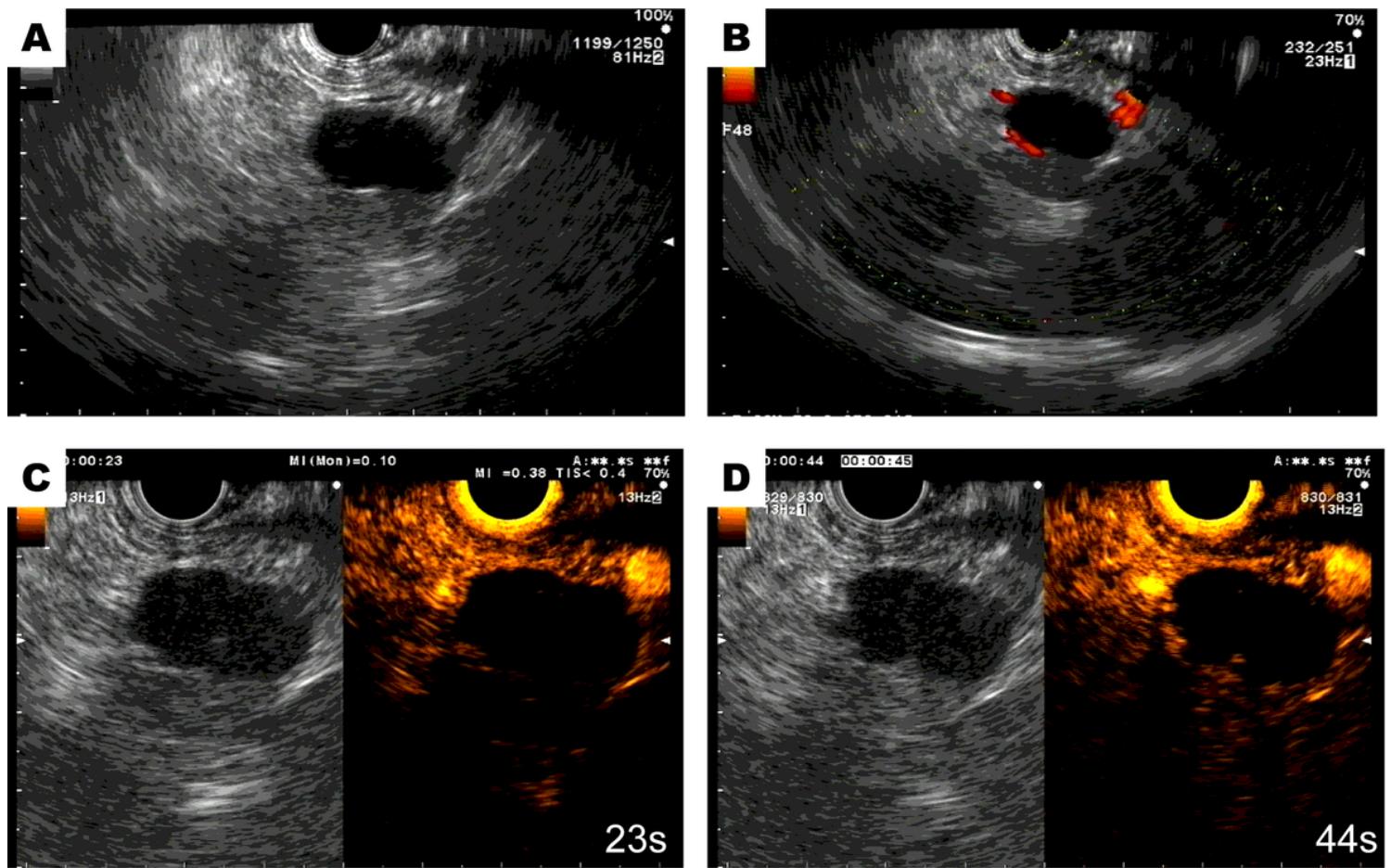
**Figure 2**

Endoscopic ultrasound (EUS) images showing a pancreatic mass located in the tail. (A) B-mode; (B) color Doppler. Contrast-enhanced EUS demonstrating the different time (C: 23 s and D: 44 s) of blood perfusion.



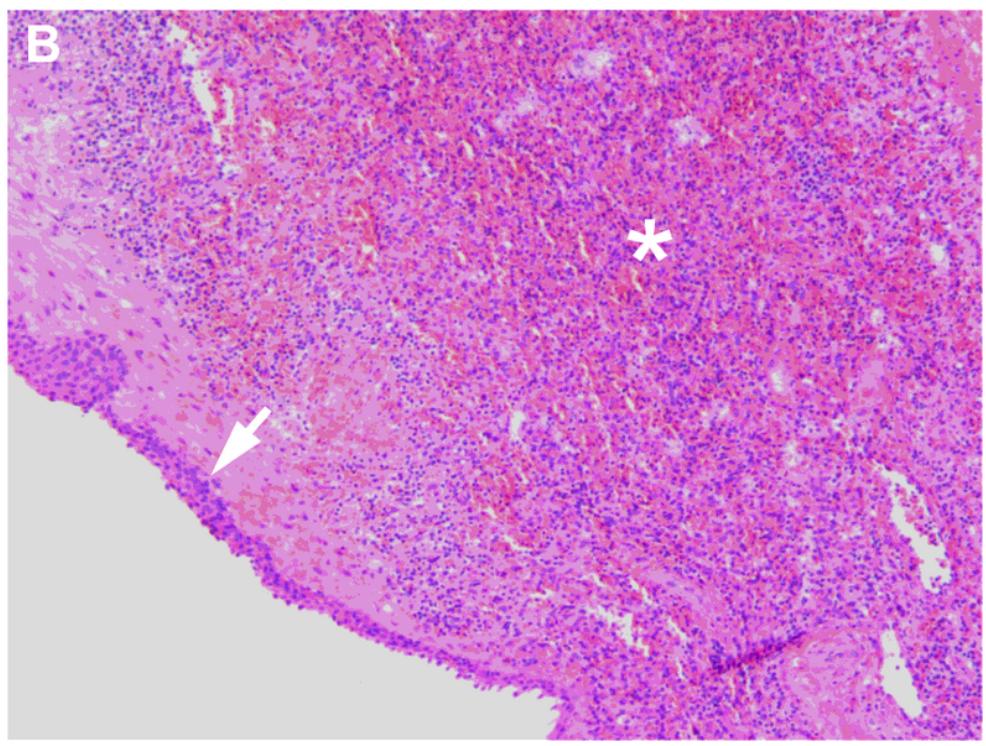
**Figure 2**

Endoscopic ultrasound (EUS) images showing a pancreatic mass located in the tail. (A) B-mode; (B) color Doppler. Contrast-enhanced EUS demonstrating the different time (C: 23 s and D: 44 s) of blood perfusion.



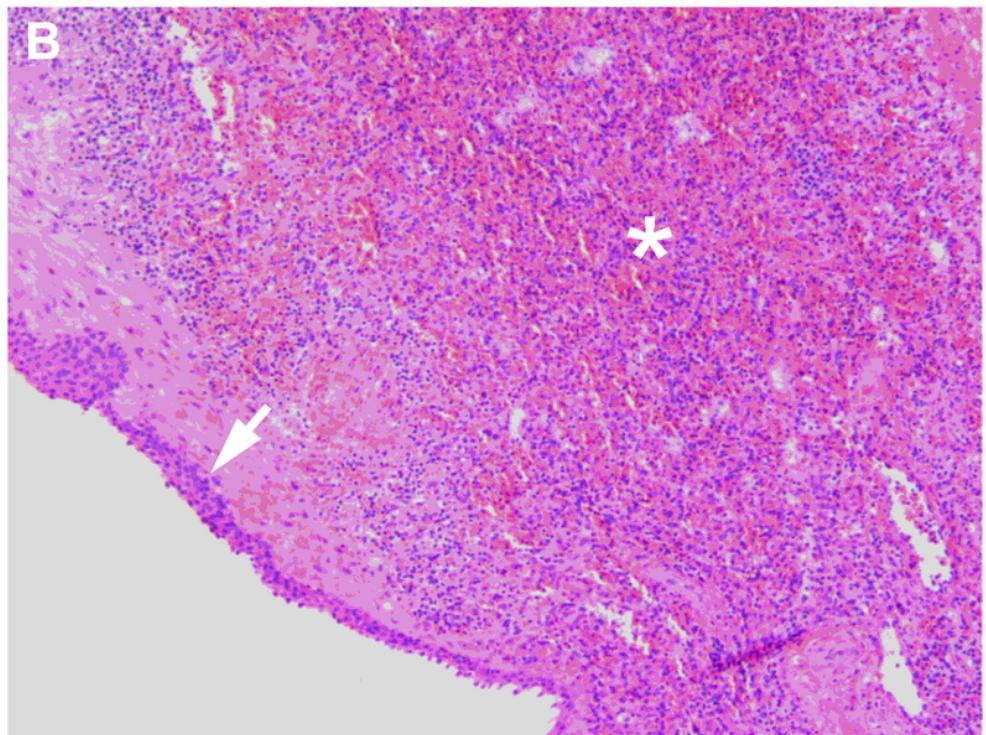
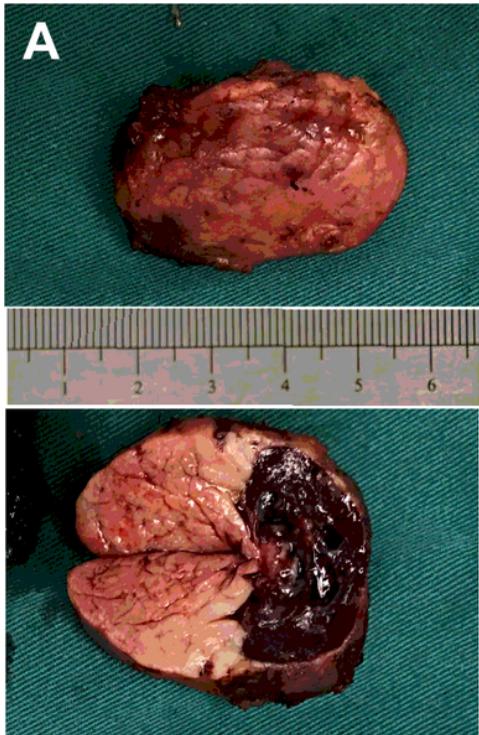
**Figure 2**

Endoscopic ultrasound (EUS) images showing a pancreatic mass located in the tail. (A) B-mode; (B) color Doppler. Contrast-enhanced EUS demonstrating the different time (C: 23 s and D: 44 s) of blood perfusion.



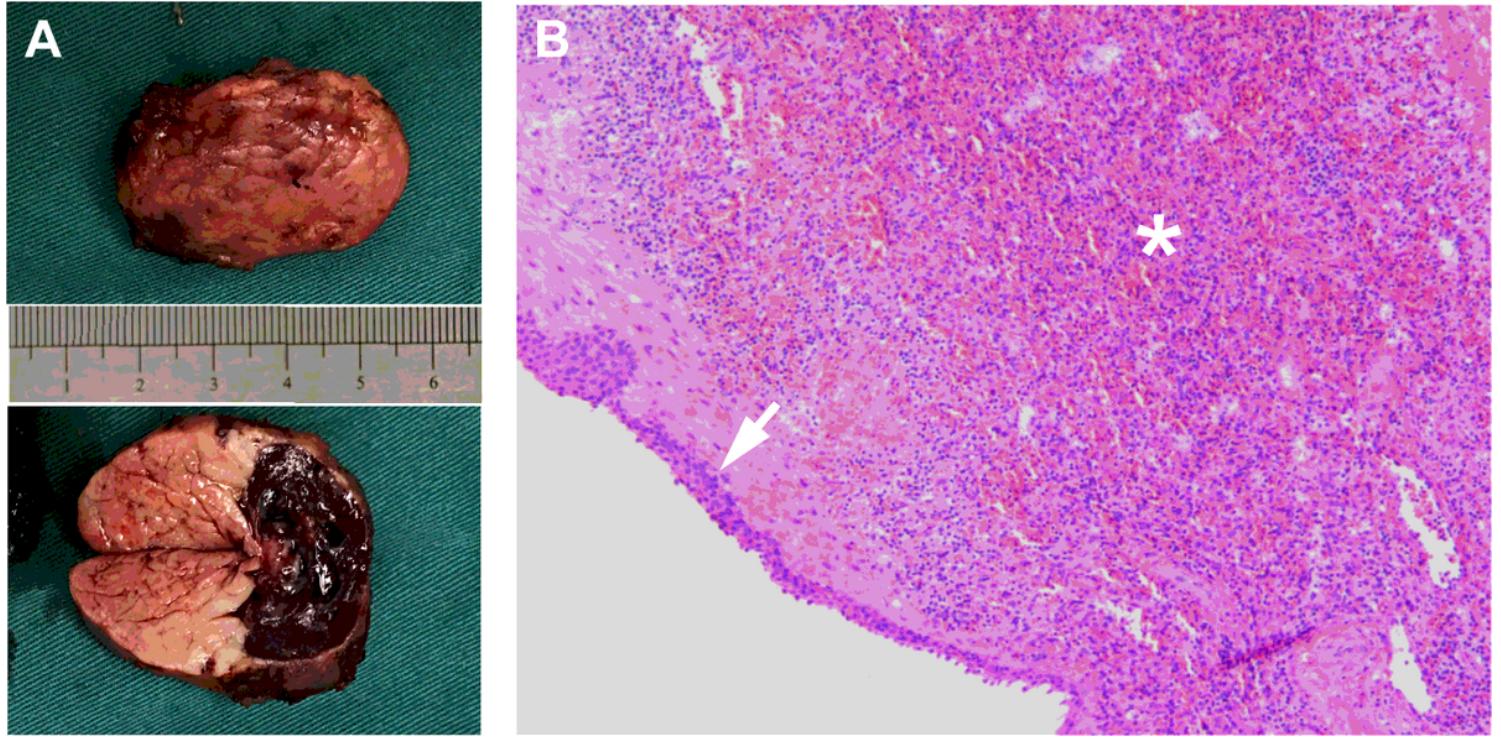
**Figure 3**

(A) Gross appearance of the cystic mass located in the pancreatic tail. The multilocular cyst measuring 2.6 cm at its greatest diameter is surrounded by a brown solid component. (B) Histological features of the pancreatic cyst. Microscopic analysis shows the squamous epithelial (arrow) cyst is enclosed by abundant splenic sinusoids, splenic cords and lymphoid tissues (asterisk), suggesting an epidermoid cyst arising in an intrapancreatic accessory spleen (hematoxylin and eosin,  $\times 50$ ).



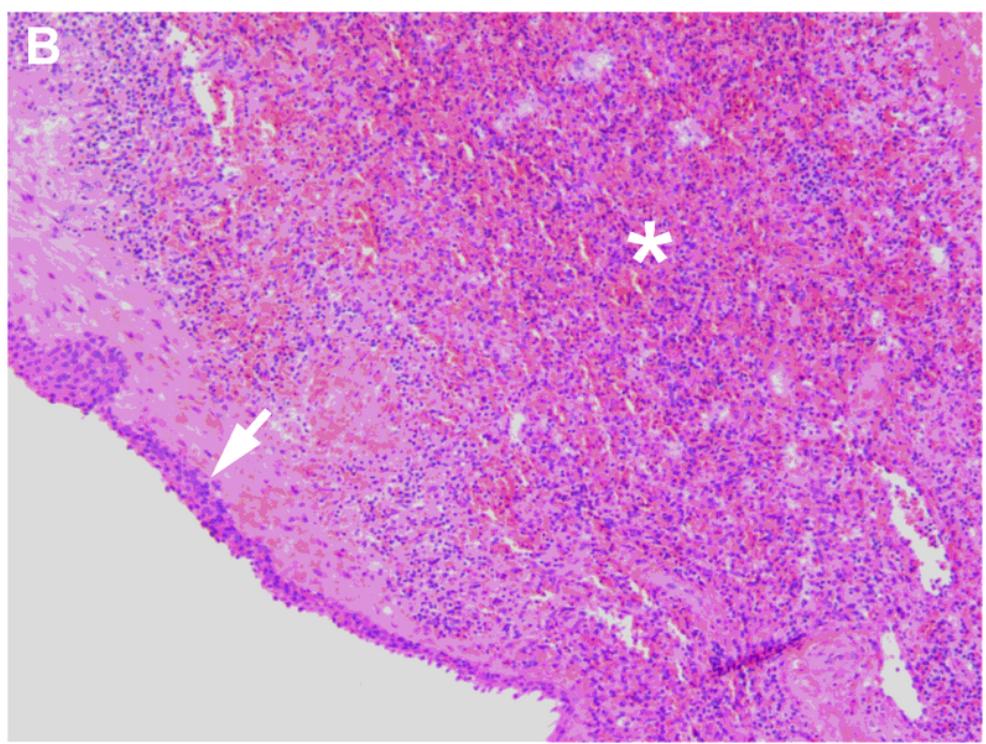
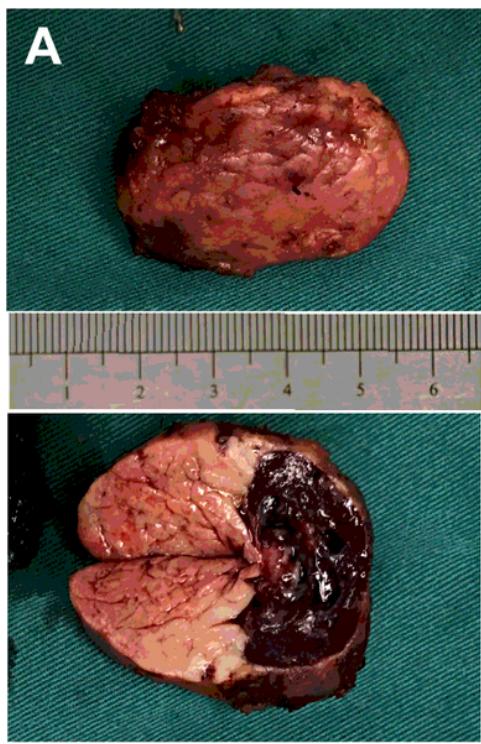
**Figure 3**

(A) Gross appearance of the cystic mass located in the pancreatic tail. The multilocular cyst measuring 2.6 cm at its greatest diameter is surrounded by a brown solid component. (B) Histological features of the pancreatic cyst. Microscopic analysis shows the squamous epithelial (arrow) cyst is enclosed by abundant splenic sinusoids, splenic cords and lymphoid tissues (asterisk), suggesting an epidermoid cyst arising in an intrapancreatic accessory spleen (hematoxylin and eosin,  $\times 50$ ).



**Figure 3**

(A) Gross appearance of the cystic mass located in the pancreatic tail. The multilocular cyst measuring 2.6 cm at its greatest diameter is surrounded by a brown solid component. (B) Histological features of the pancreatic cyst. Microscopic analysis shows the squamous epithelial (arrow) cyst is enclosed by abundant splenic sinusoids, splenic cords and lymphoid tissues (asterisk), suggesting an epidermoid cyst arising in an intrapancreatic accessory spleen (hematoxylin and eosin,  $\times 50$ ).



**Figure 3**

(A) Gross appearance of the cystic mass located in the pancreatic tail. The multilocular cyst measuring 2.6 cm at its greatest diameter is surrounded by a brown solid component. (B) Histological features of the pancreatic cyst. Microscopic analysis shows the squamous epithelial (arrow) cyst is enclosed by abundant splenic sinusoids, splenic cords and lymphoid tissues (asterisk), suggesting an epidermoid cyst arising in an intrapancreatic accessory spleen (hematoxylin and eosin,  $\times 50$ ).