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Case Report

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Radiological, Surgical, and Pathological Correlation in Jejunal Heterotopic Pancreas: Follow the Signature

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Abstract

Jejunal heterotopic pancreas is an uncommon entity and is generally picked up incidentally on autopsy or imaging. They are solitary, submucosal lesions that follow the morphology of the normal pancreatic parenchyma unless complicated. Contrast CT and MRI show characteristic findings that can be used for diagnosis. This case illustrates the classical features of jejunal heterotopic pancreas with surgical and pathological correlation.

Keywords

Heterotopic, Pancreas, Computed tomography, Jejunum

Introduction

Heterotopic pancreas refers to the presence of pancreatic tissue outside its normal location with ductal and vascular dissociation or discontinuity. It has a prevalence of 0.5- 14 % and is commonly detected incidentally during surgery or autopsy. With the increasing use of imaging especially cross-sectional modalities, there is an increase in the recognition of this entity. Up to a third of cases undergo complications such as bleeding, obstruction, pancreatitis, pseudocyst formation, and can host neoplasms. Uncomplicated cases show characteristic imaging features depending on the location and amount of ductal and acinar elements and closely resemble the normal pancreatic parenchyma.

Case Report

39-year female presented to the gastroenterology outpatient department with complaints of vague central abdominal pain for 2-3 months. There was no history of vomiting, weight loss or altered bowel habits. Physical examination was unremarkable. Baseline laboratory investigations were within normal limits. On palpation, the abdomen was soft. Ultrasonography (USG) of the abdomen was normal. Contrast-enhanced Computed Tomography (CECT) of the abdomen was done for further evaluation. Plain acquisition followed by arterial and venous phases were obtained. On the plain scan, a suspicious contour bulge in one of the jejunal loops (Figure 1) was seen. In the arterial phase, a homogenously avidly enhancing oval mass measuring 23 x 14 mm was seen related eccentrically to the jejunal loop (Figure 2). Persistent enhancement was seen in the venous phase (Figure 3). No calcification or fat density was seen. No bowel luminal narrowing or significant lymphadenopathy was noted. The lesion was extraluminal with underlying normal mucosa. The lesion resembled normal pancreatic parenchyma in all phases with tiny and linear hypodense areas within. A possibility of jejunal heterotopic pancreas was considered with the hypodense foci representing

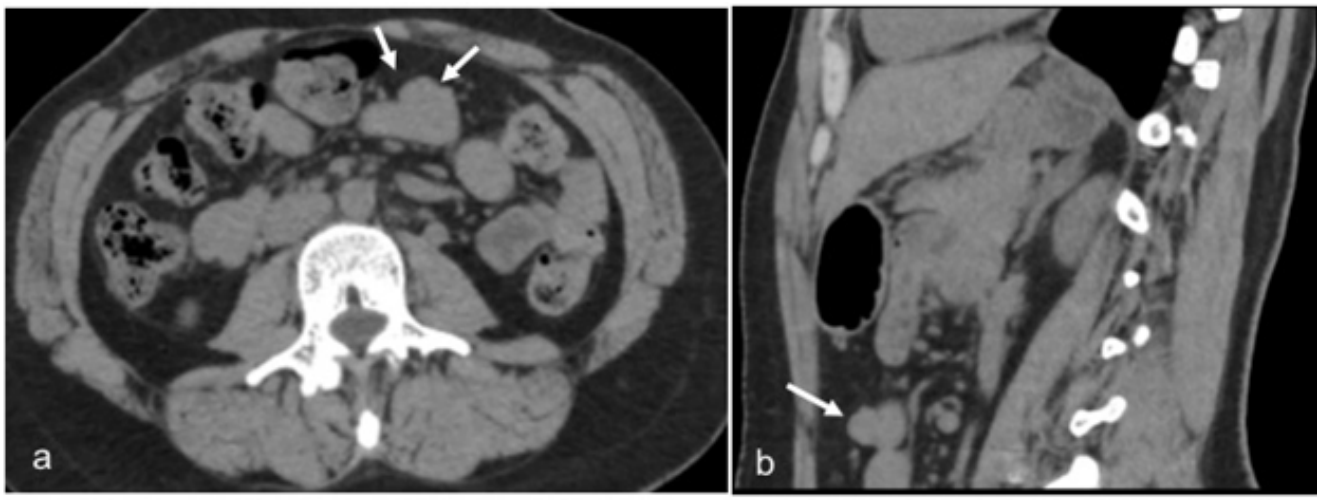

Figure 1: a, b: Plain CT in the axial and sagittal section shows a lobulated isodense lesion producing a contour change in the jejunum (white arrow).

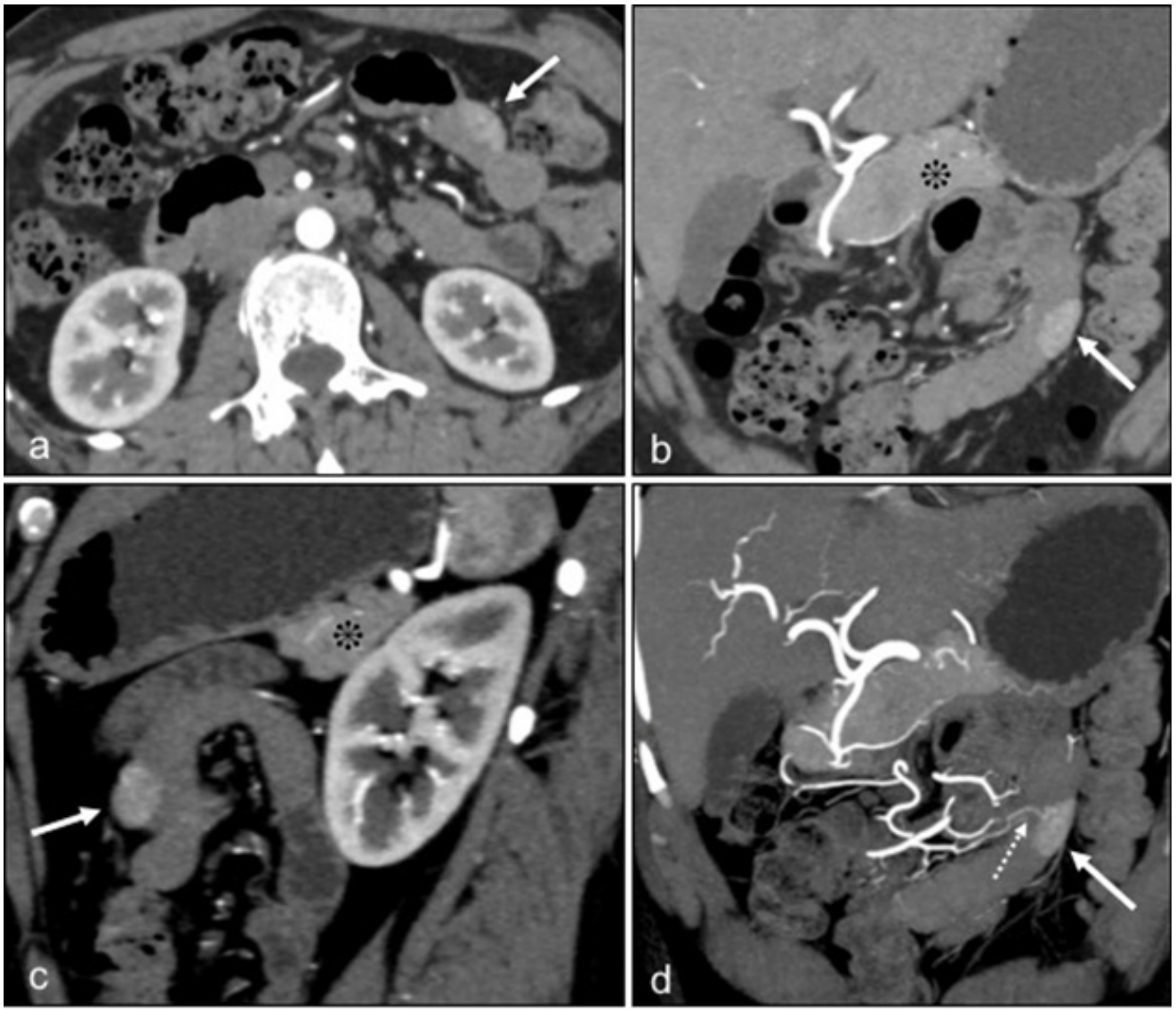

Figure 2: a, b, c: CECT arterial phase in axial, coronal, and sagittal sections show a well-defined relatively homogenous enhancing lesion (white arrow) eccentrically related to the jejunum similar to the pancreas (*). No adjacent infiltration was seen. d. MIP in coronal shows arterial supply from a jejunal branch of superior mesenteric artery (dashed arrow).

ductal elements. Differentials of a small gastrointestinal stromal tumor (GIST) and neuroendocrine tumor (NET) were included. The patient opted for the removal of the lesion even though a correlation between her symptoms and the lesion could not be established. Laparoscopic resection of the mass was done. Intra-operatively, a non-encapsulated flat yellowish mass was seen on the serosal aspect of the jejunal loop (Figure 4). Resection of the mass along with a segment of jejunum was done with anastomoses of the bowel. The postoperative period was unremarkable.

On gross examination, the mass was irregular grey, white to grey, yellow measuring approximately 25 x 15 x10 mm. On histopathological examination, pancreatic tissue was noted in the submucosa and muscularis propria of the jejunum comprised of acinar structures arranged in lobules along with pancreatic ducts and Langerhans cells (Figure 5, 6). The final diagnosis was heterotopic jejunal pancreas - mixed acinar and duct type.

Discussion

Heterotopic pancreas refers to the presence of pancreatic tissue outside its normal location with ductal and vascular discontinuity. It has a prevalence of 0.5- 14 % and is commonly detected incidentally during surgery or autopsy [1]. Persistence and incorporation of endodermal invaginations within the developing gut can result in the development of heterotopic pancreas [2]. Common locations include the stomach and duodenum. Other uncommon and rare locations reported include the esophagus, mediastinum, jejunum, omentum, spleen, fallopian tubes, mesentery, lung, and lymph nodes [2, 3]. Most cases are asymptomatic with complications manifesting commonly in the 5th – 6th decade and include bleeding, obstruction, pancreatitis, pseudocyst, and tumor formation [4, 5].

Heterotopic pancreas is usually solitary, embedded in various layers of the bowel wall depending on the location. In the esophagus and stomach, they are generally submucosal with prominent luminal component and a central dimple representing the ductal opening [6, 7].

Heterotopic pancreas in jejunum presents as endo or exoluminal or mixed pattern lesion (8). Unlike lesions in the esophagus and stomach, the jejunal pancreas generally lacks central umbilication. Ultrasonography and barium studies have a limited role in the diagnosis. Uncomplicated cases resemble normal pancreas morphology and enhance like pancreas on contrast CT. In a study by Kim et al, ductal structures were identified in 16 % of cases seen as tiny round or linear hypodense foci within the heterotopic pancreas. [8]. MRI offers a better characterization of the ectopic pancreas due to

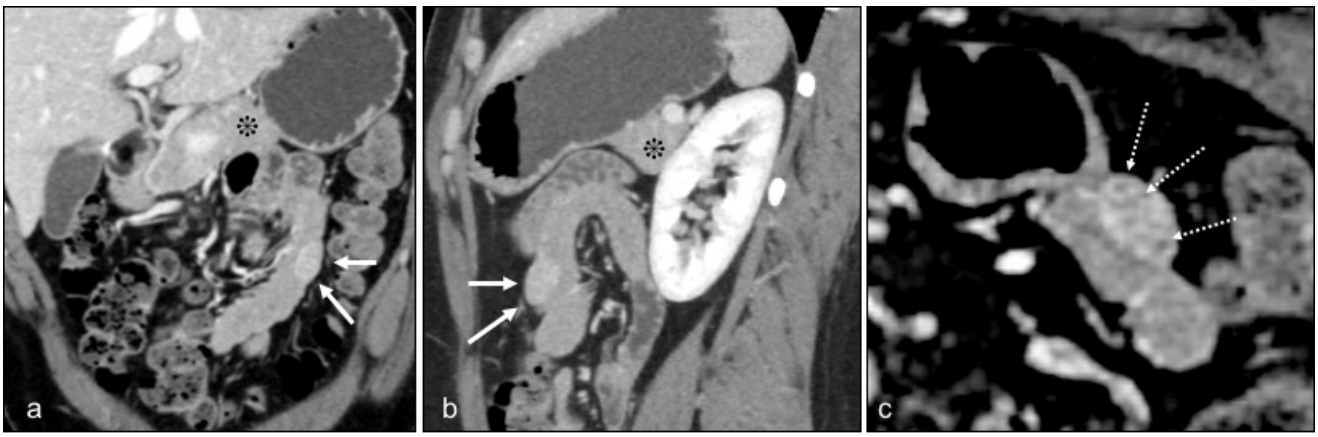

Figure 3: a, b: Coronal oblique and sagittal CT images in the venous phase show the lesion (white arrows) to be morphologically similar to the pancreatic parenchyma with similar enhancement (*) . c. Zoomed axial CT section in venous phase shows multiple round and linear hypodense areas (dashed white arrows) within the lesion probably corresponding to ductal elements.

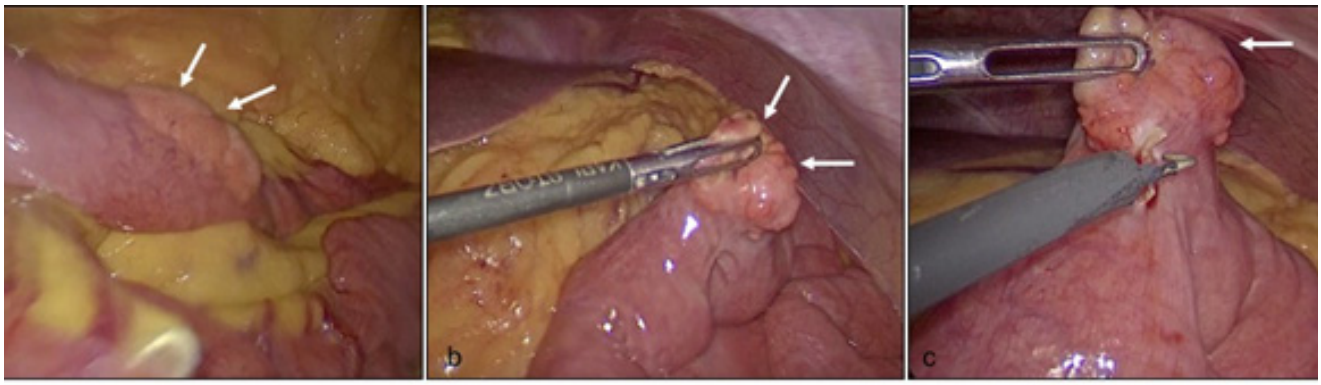

Figure 4: Pale yellowish, lobulated appearing tissue on the serosal aspect of jejunum seen intraoperatively during the process of laparoscopic excision (white arrows).

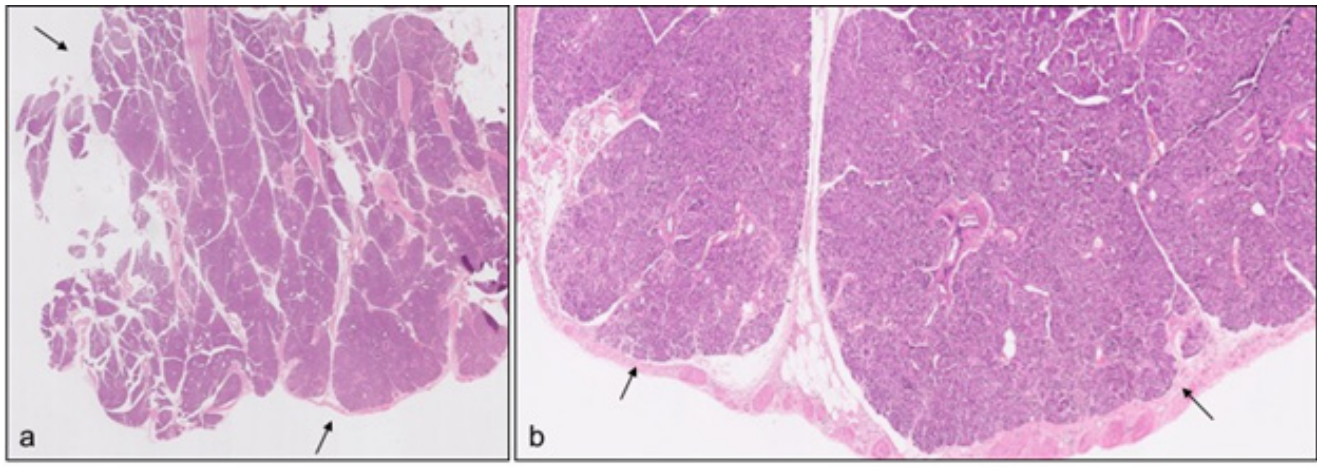

Figure 5: a. H&E (0.25x) shows a well-delineated mass in the muscular layer of the jejunum (black arrows). b. H&E (10x) shows lobules of pancreatic acini within the muscular layer (black arrows).

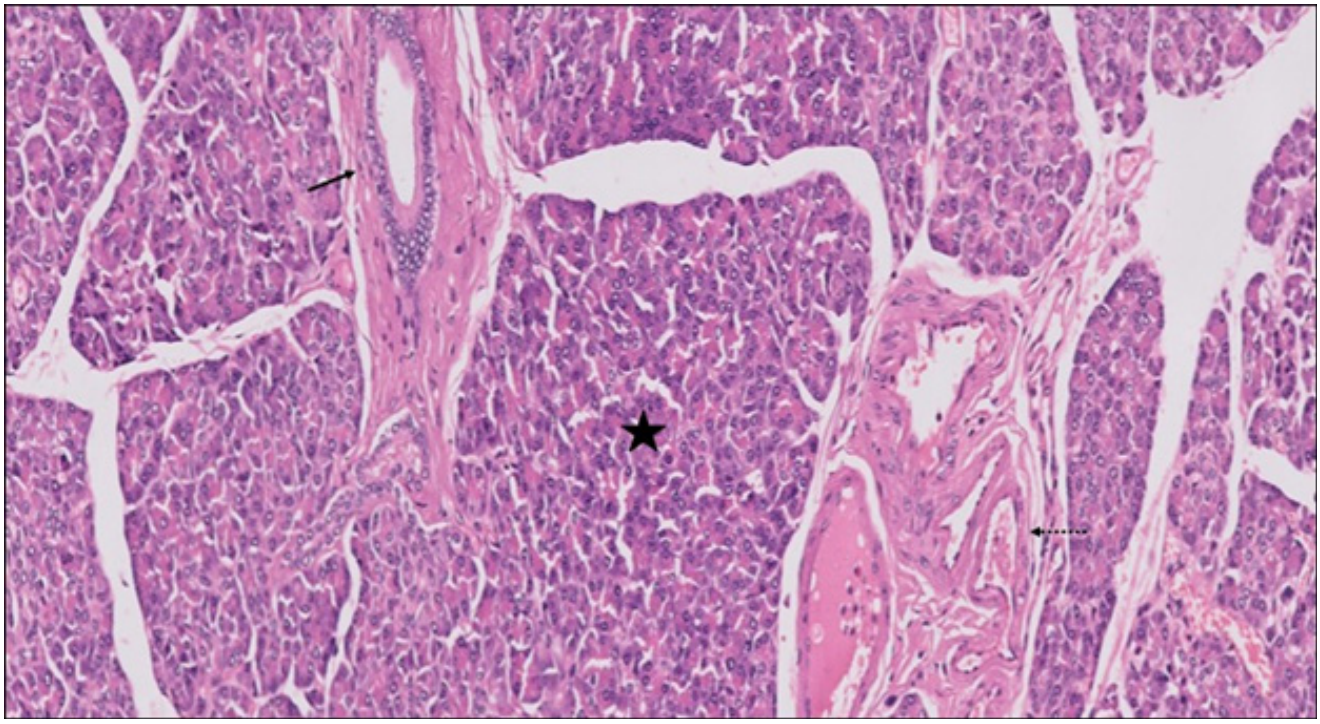

Figure 6: H&E (40x) shows pancreatic acinar cells (*) with ducts (black solid arrow) and blood vessels (black dashed arrow) in the septa.

its inherent T1 hyperintensity. "Ectopic duct" sign refers to the presence of duct-like structures on heavily weighted T2 images (MRCP) within the heterotopic pancreas which aid in differentiation from other submucosal masses [1, 4]. Heterotopic pancreas in the bowel can be overlooked if the image is degraded by bowel peristalsis. Differentials of jejunal heterotopic pancreas include GIST and NET. GIST generally is exophytic, heterogenous with absent peritumor fat line and shows relatively less enhancement than that is expected for an ectopic pancreas. NETs show avid arterial enhancement and washout, unlike heterotopic pancreas where the enhancement persists and follows the normal pancreatic parenchyma [9].

Heterotopic pancreas complicated by pancreatitis can pose a diagnostic dilemma as it changes the underlying signature. A high index of suspicion is required if any submucosal mass shows signs of inflammation that is otherwise unexplainable [5].

Malignant transformation is extremely rare with adenocarcinoma and insulinoma being reported (4). Imaging findings in such cases are generally non-specific.

Conclusion

Jejunal heterotopic pancreas is an uncommon entity and is generally asymptomatic. On imaging, uncomplicated cases follow the morphology and enhancement pattern of the normal pancreatic parenchyma. Presence of hypodense round or linear foci suggesting ductal elements has to be carefully looked for to strengthen the diagnosis.

References

1. Rezvani M, Menias C, Sandrasegaran K, Olpin JD, Elsayesn KM, et al. 2017. Heterotopic pancreas: histopathologic features, imaging findings, and complications. *RadioGraphics* 37(2): 484-499. https://doi.org/10.1148/rg.2017160091
2. Sandrasegaran K, Maglinte D, Cummings OW. 2006. Heterotopic pancreas: presentation as jejunal tumor. *AJR Am J Roentgenol* 187(6): 607-609. https://doi.org/10.2214/AJR.05.0555
3. Yang CW, Che F, Liu XJ, Yin Y, Zhang B, et al. 2021. Insight into gastrointestinal heterotopic pancreas: imaging evaluation and differential diagnosis. *Insights Imaging* 12(1): 144. https://doi.org/10.1186/s13244-021-01089-0
4. Kung JW, Brown A, Kruskal JB, Goldsmith JD, Pedrosa I. 2010. Heterotopic pancreas: typical and atypical imaging findings. *Clin Radiol* 65(5): 403-407. https://doi.org/10.1016/j.crad.2010.01.005
5. Thangasamy S, Zheng L, Mcintosh LJ, Lee P, Roychowdhury A. 2014. Dynamic contrast-enhanced MRI findings of acute pancreatitis in ectopic pancreatic tissue: case report and review of the literature. *JOP* 15(4): 407-410. https://doi.org/10.6092/1590-8577/2390
6. Cho JS, Shin KS, Kwon ST, Kim JW, Song CJ, et al. 2000. Heterotopic pancreas in the stomach: CT findings. *Radiology* 217(1): 139-44. https://doi.org/10.1148/radiology.217.1.r00oc09139
7. Mack T, Lowry D, Carbone P, Barbick B, Kindelan J, et al. Multimodality imaging evaluation of an uncommon entity: esophageal heterotopic pancreas. *Case Rep Radiol* 2014: 614347. https://doi.org/10.1155/2014/614347
8. Kim DW, Kim JH, Park SH, Lee JS, Hong SM, et al. 2015. Heterotopic pancreas of the jejunum: associations between CT and pathology features. *Abdom Imaging* 40(1): 38-45. https://doi.org/10.1007/s00261-014-0177-y
9. Liu C, Yang F, Zhang W, Ao W, An Y, et al. CT differentiation of gastric ectopic pancreas from gastric stromal tumor. *BMC Gastroenterol* 21(1): 52. https://doi.org/10.1186/s12876-021-01617-8