

Ectopic (heterotopic) pancreas in the mesentery of the jejunum: Imaging findings

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Received 4 May 2013; revised 5 June 2013; accepted 10 July 2013

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ABSTRACT

Ectopic pancreatic tissue in the mesentery of the jejunum is an entity that is seen very rarely. Most patients are asymptomatic and usually this is an incidental finding at autopsy or laparotomy. Most of the cases are clinically silent, but symptoms either might be due to the localization of the ectopic tissue or due to the complications including obstruction or bleeding. Surgery is not indicated unless complications occur, so diagnosis is very important for prevention of unnecessary surgery. Here, we present a case that had ectopic pancreatic tissue in the mesentery of the jejunum. We show the computed tomography and magnetic resonance imaging findings of this patient.

Keywords: Ectopic Pancreas; Computed Tomography; Magnetic Resonance Imaging

1. INTRODUCTION

Ectopic pancreas is a rare developmental anomaly defined as pancreatic tissue that has no contact with the native pancreas and has its own duct system and vascular supply [1,2]. The reported incidence ranges from 0.55% - 13.7%, but the true incidence is unknown [3,4]. Most patients are asymptomatic and usually this is an incidental finding at autopsy or laparotomy. Most often the ectopic pancreas is located in the upper gastrointestinal tract [2,3], and most common in stomach (25% - 38%), duodenum (17% - 21%) and jejunum (15% - 21%) [5]. It has also been detected in gallbladder, ileum, periampullary region, omentum, Meckel's diverticulum, umbilicus, bile ducts, spleen, fallopian tubes and mediastinum [2, 4-7].

Though most of the cases are clinically silent or symptoms are non-characteristic, epigastric pain, weight

loss, bowel obstruction and bleeding can be the complaints [4,5,8]. Pseudocyst formation, pancreatitis, and malignant transformation, ileoileal intussusception are also reported due to ectopic pancreatic tissue [4, 8-10].

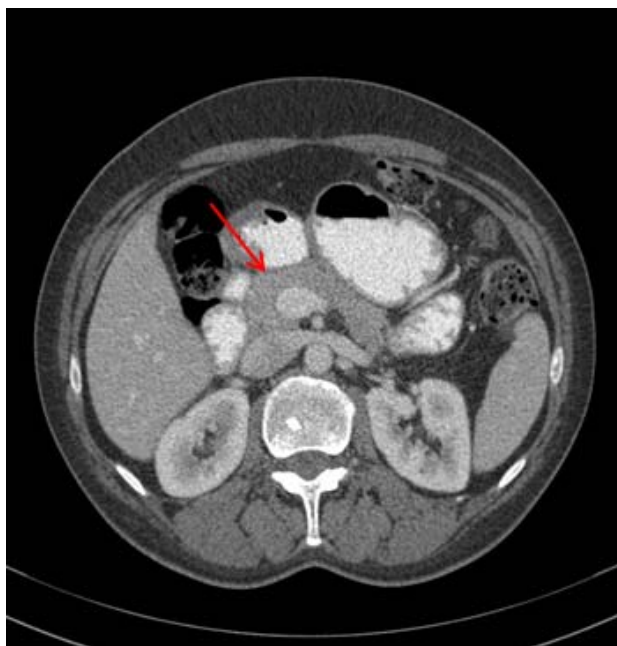
Here we present a case with heterotopic pancreas located in the mesentery of the jejunum, which is incidentally detected. This is a very rare entity and we present the computed tomography (CT) and magnetic resonance imaging (MRI) findings of this patient.

2. CASE REPORT

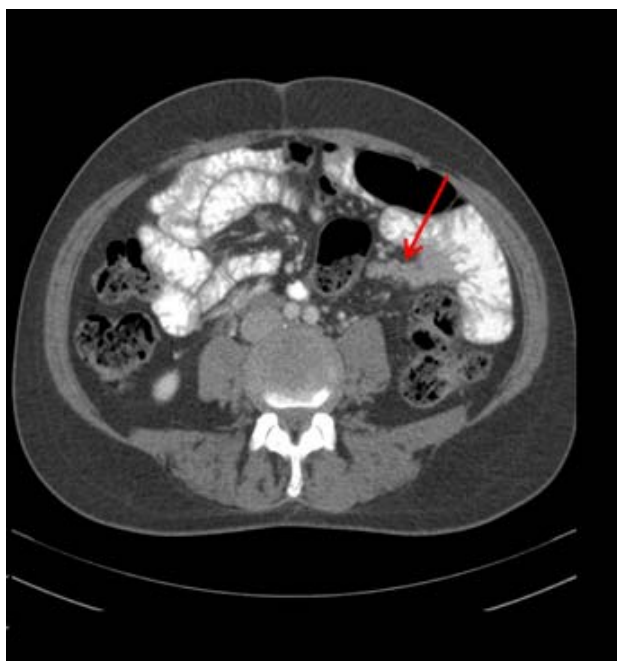
A 50-year-old woman presented to general surgery department with constipation and dyspeptic symptoms. She had no previous medical history. Her physical examination showed no abnormalities. Haematological and biochemical investigations, serum amylase and lipase levels were within normal limits. An upper gastrointestinal endoscopy revealed a normal oesophagus and stomach. Colonoscopy examination was normal but failed to determine the proximal colon. So further evaluation with computed tomography (CT) was decided.

Though CT showed no abnormality in the colon, it demonstrated a suspicious mass-like lesion in the mesentery of the proximal jejunum. This was isodense with the native pancreatic tissue and had similar enhancement pattern (**Figures 1(a) and (b)**). The initial diagnosis was ectopic pancreatic tissue and to prevent an unnecessary surgery magnetic resonance imaging (MRI) was also planned. MRI revealed that the signal characteristics and enhancement of the tissue were similar of the native pancreatic gland (**Figure 2**). The ectopic pancreatic duct could also be seen on dynamic T1 weighted images and it seemed to open into the lumen of the jejunum (**Figure 3**). So the final diagnosis was made as ectopic pancreatic tissue.

The patient was given medication for dyspeptic complaints and sent home. She did not have similar complaints during 6 months follow-up.



(a)



(b)

Figure 1. Abdominal computed tomography portal phase image. Normal pancreatic tissue is seen (arrow) (a). A suspicious mass-like lesion seen (arrow) in the mesentery of the proximal jejunum. It has the same density with the normal pancreatic tissue (b).

3. DISCUSSION

Ectopic pancreatic tissue is a rare congenital disorder which lacks both anatomical and vascular continuity with the orthotopic pancreas. Heterotopic pancreas may be present at any age, but it is encountered most commonly

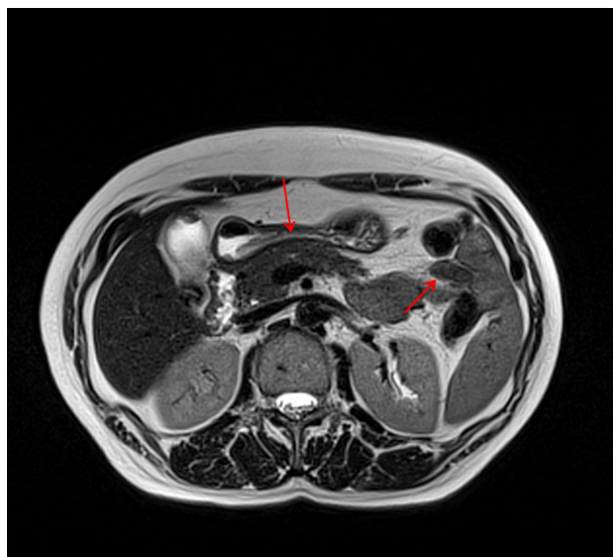


Figure 2. Axial T2 WI. Ectopic pancreatic tissue has the same signal characteristics with the native pancreas (arrows).



Figure 3. Coronal dynamic T1 WI. Ectopic pancreatic tissue in the mesentery of the proximal jejunum. The arrow shows the duct of the ectopic tissue opening into the lumen of the jejunum.

in the fifth and sixth decades of life. It is more frequent in men than in women [8,11]. The etiology of ectopic pancreas is not clear but several theories have been proposed to explain it. Most accepted theory is that, during embryonic rotation of foregut in a fetus and fusion of dorsal and ventral parts of pancreas, small islands of pancreatic rests are carried away and then they continue to develop at this abnormal new location [11,12]. Heterotopic pancreas is usually an isolated lesion; however multifocal lesions can also be seen. First, ectopic pancreas was reported by Jean Schultz in 1727,

but the first histological confirmation was described by Klob in 1859. Heinrich classified the ectopic pancreas into 3 types. Type 1 with all the components of the pancreas including acini, ducts and islets; type 2, with acini and ducts and no islets; type 3, with ducts alone. Type 1 is the most common [13].

It is most commonly found in the upper gastrointestinal tract and the most often locations are antral part of stomach [2,3]. However it can be detected anywhere in the gallbladder, ileum, periampullary region, omentum, Meckel's diverticulum, umbilicus, bile ducts, spleen, fallopian tubes, lung and mediastinum [2-5,7].

The ectopic pancreas is asymptomatic in most patients, often being detected incidentally or on autopsy. The most common symptoms known as epigastric pain (77%), abdominal fullness (30%), tarry stools (24%), vomiting (18%) and diarrhoea (18%) [8]. Ectopic pancreas can undergo inflammatory changes, cystic degeneration or pseudocyst [4,8]. Presentation at gastric antrum or gastro-oesophageal junction may result in symptoms of obstruction or dysphagia [13]. Placed at ampulla of watery may cause jaundice [14]. Ectopic pancreatic tissue can also cause intussusceptions by being the leading point [9].

Malignant transformation of ectopic pancreas is very rare and it is similar to the native gland. Adenocarcinoma, intraductal papillary mucinous neoplasm, and malignant insulinoma of the ectopic pancreatic tissue have been reported. [4,15].

Preoperative diagnosis of ectopic pancreas is often not easy. Most cases are diagnosed post-laparotomy on histological examination. CT or barium swallow may be useful in finding the presence of mass but they are not specific for the detection of ectopic pancreatic tissue. Gastrointestinal stromal tumour, lymphoma or small bowel tumours can be counted in differential diagnosis when a mass-like ectopic pancreatic tissue is seen. Upper gastrointestinal endoscopy may be helpful to identify ectopic pancreatic tissue by showing presence of an intramural tissue [11].

Magnetic Resonance Imaging (MRI) is also a helpful procedure to identify ectopic pancreatic tissue. The signal characteristics and enhancement patterns are parallel with the main pancreatic tissue. MRI examination may also show ductal system in the heterotopic pancreatic tissue. In our case, we could show the heterotopic ductal system opening in the jejunum (**Figure 3**). Magnetic Resonance Cholangiopancreatography (MRCP) may improve the visualization of the ductal system [4].

In conclusion, ectopic pancreatic tissue in the mesentery of the Jejunum is a rare entity and it should be kept in mind in the differential diagnosis of abdominal masses. Preoperative diagnosis of ectopic pancreas is

still difficult, but important for the prevention unnecessary procedures.

REFERENCES

- [1] Shin, S.S., Jeong, Y.Y. and Kang, H.K. (2000) Giant heterotopic pancreas in the jejunal mesentery. *American Journal of Roentgenology*, **189**, 262-263. [doi:10.2214/AJR.05.1142](https://doi.org/10.2214/AJR.05.1142)
- [2] Klimis, T., Roukounakis, N., Kafetzis, I., Mouziouras, V., Karantonis, I. and Andromanos, N. (2011) Heterotopic pancreas of the gallbladder associated with chronic cholecystitis and high levels of amylasuria. *Journal of the Pancreas*, **12**, 458-460.
- [3] Almashat, S. and Sepehr, A. (2011) Obstructive and inflammatory gastric heterotopic pancreatic tissue. *Archives of Iranian Medicine*, **14**, 357-358.
- [4] Kung, J.W., Brown, A., Kruskal, J.B., Goldsmith, J.D. and Pedrosa, I. (2010) Heterotopic pancreas: Typical and atypical imaging findings. *Clinical Radiology*, **65**, 403-407. [doi:10.1016/j.crad.2010.01.005](https://doi.org/10.1016/j.crad.2010.01.005)
- [5] Rao, R.N., Kamlesh, Y., Pallav, G. and Singla, N. (2011) Ectopic pancreas presenting as periampullary tumour with obstructive jaundice and pruritus is a rare diagnostic and therapeutic dilemma. A case report. *Journal of the Pancreas*, **12**, 607-609.
- [6] Wang, W., Li, K. and Qin, W., *et al.* (2007) Ectopic pancreas in mediastinum: Report of 2 cases and review of the literature. *Journal of Thoracic Imaging*, **22**, 256-258. [doi:10.1097/01.rti.0000213587.44719.a7](https://doi.org/10.1097/01.rti.0000213587.44719.a7)
- [7] Ormarsson, O.T., Gudmundsdottir, I. and Marvik, R. (2006) Diagnosis and treatment of gastric heterotopic pancreas. *World Journal of Surgery*, **30**, 1682-1689. [doi:10.1007/s00268-005-0669-6](https://doi.org/10.1007/s00268-005-0669-6)
- [8] Canbaz, H., Çolak, T., Dufimez Apa, D., Sezgin, O. and Aydın, S. (2009) An unusual cause of acute abdomen: Mesenteric heterotopic pancreatitis causing confusion in clinical diagnosis. *The Turkish Journal of Gastroenterology*, **20**, 142-145.
- [9] Seifarth, F.G., Ryan, M.L., Triana, J. and Colin, G. (2011) Knight, diagnosis and laparoscopic treatment of ileoileal intussusceptions secondary to heterotopic pancreas in an infant: Case report and review of the literature. *Journal of Paediatric Surgery*, **46**, e33-e36. [doi:10.1016/j.jpedsurg.2010.10.025](https://doi.org/10.1016/j.jpedsurg.2010.10.025)
- [10] Silva, A.C., Charles, J.C., Kimery, B.D., Wood, J.P. and Liu, P.T. (2006) MR cholangiopancreatography in the detection of symptomatic ectopic pancreatitis in the small-bowel mesentery. *American Journal of Roentgenology*, **187**, W195-W197. [doi:10.2214/AJR.04.1756](https://doi.org/10.2214/AJR.04.1756)
- [11] Trifan, A., Târcoveanu, E., Danciu, M., Huțanașu, C., Cojocariu, C. and Stanciu, C. (2012) Gastric heterotopic pancreas: An unusual case and review of the literature. *Journal of Gastrointestinal and Liver Diseases*, **21**, 209-212.
- [12] Deshpande, V.P., Raghunath, B.V., Sarin, Y.K. and Sinha, S. (2012) Heterotopic pancreas causing duodenal obstruction in a patient previously treated for choledochal cyst. *Journal of Indian Association of Paediatric Surgeons*, **17**,

40-42. [doi:10.4103/0971-9261.91088](https://doi.org/10.4103/0971-9261.91088)

- [13] Stock, C., Keutgen, X.M., Pisapia, D., Crawford, C. and Zarnegar, R. (2011) Heterotopic pancreatic neoplasm presenting as an obstructing mass at the fourth portion of the duodenum. *Journal of the Pancreas*, **12**, 241-243.
- [14] Hsu, S.D., Chan, D.C., Hsieh, H.F., Chen, T.V., Yu, J.C. and Chou, S.J. (2008) Ectopic pancreas presenting as ampulla of Vater tumour. *The American Journal of Surgery*, **195**, 498-500. [doi:10.1016/j.amjsurg.2007.01.043](https://doi.org/10.1016/j.amjsurg.2007.01.043)
- [15] Ura, H., Denno, R., Hirata, K., Saeki, A., Hirata, K. and Natori, H. (1998) Carcinoma arising from ectopic pancreas in the stomach: Endosonographic detection of malignant change. *Journal of Clinical Ultrasound*, **26**, 265-268. [doi:10.1002/\(SICI\)1097-0096\(199806\)26:5<265::AID-JCU7>3.0.CO;2-A](https://doi.org/10.1002/(SICI)1097-0096(199806)26:5<265::AID-JCU7>3.0.CO;2-A)