

Incidental Duodenal Pancreatic Heterotopia During Laparoscopic Sleeve Gastrectomy: A Case Report and Literature Review

Authors' Contribution:
Study Design A
Data Collection B
Statistical Analysis C
Data Interpretation D
Manuscript Preparation E
Literature Search F
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The abstract of this study was presented as an e-poster in the annual International Congress of SAGES 2019 (Society of American Gastrointestinal and Endoscopic Surgeons 2019) [2019 Scientific Session of the Society of American Gastrointestinal and Endoscopic Surgeons (SAGES), 2019 3–6 April: 2019; Baltimore, Maryland, USA, Posters (abstract)]

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Conflict of interest: None declared

Patient: Male, 15
Final Diagnosis: Duodenal pancreatic heterotopia
Symptoms: None
Medication: —
Clinical Procedure: Wedge resection and primary repair
Specialty: Surgery

Objective: Congenital defects/diseases

Background: Heterotopic pancreas is pancreatic tissue that presents outside the normal anatomical location. It is mostly discovered in the upper gastrointestinal tract (mostly the foregut). We report the first case report of incidentaloma of duodenal heterotopic pancreas in obese patients during laparoscopic sleeve gastrectomy.

Case Report: A 15-year-old Saudi male obese patient was admitted electively for laparoscopic sleeve gastrectomy. Incidentally, during intraoperative procedure, a duodenal nodule was noted in the first part of the duodenum. A wedge resection of the mass was done after a standard laparoscopic sleeve gastrectomy was accomplished and it had an uneventful postoperative course. The histopathological examination showed heterotopic pancreas tissue.

Conclusions: Gastrointestinal stromal tumors are found to be the most common incidental pathology during bariatric surgery. The safety and efficacy of excision of similar lesions during laparoscopic sleeve gastrectomy needs to be further investigated.

MeSH Keywords: Bariatric Surgery • Duodenum • Incidental Findings • Pancreas

Full-text PDF: <https://www.amjcaserep.com/abstract/index/idArt/916369>

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Background

Heterotopic pancreas (HP) is the condition where pancreatic tissue presents outside the normal anatomical location without a blood supply connection with the main pancreas. It is mostly discovered in the upper gastrointestinal tract (GIT), most commonly at the foregut (28% at the stomach and 28% at the duodenum), at the proximal part of the jejunum (16%), and infrequently at the esophagus, ileum, Meckel diverticulum, biliary tree, mesentery, or spleen. The incidence of HP ranges from 0.25% to 1.2% [1]. It is extremely rare for HP to have malignant transformation and it is usually diagnosed during histopathological examinations as asymptomatic [1].

Incidental pathology found intraoperatively during laparoscopic sleeve gastrectomy (LSG), as well as arteriovenous malformations in the small bowel, gastrointestinal stromal tumors, leiomyomas, and gastrointestinal stromal tumors in the stomach, adenomas, and hemangiomas of the liver, are increasingly reported in the literature [1].

We report the first case of incidental duodenal HP in obese patients during LSG.

Case Report

A 15-year-old obese Saudi male patient with a body mass index of 39.49 kg/m², with an unremarkable medical and surgical history, was admitted electively for LSG as he failed to lose weight despite following the instructions and recommendations of the dietitians and endocrinologist. Intraoperatively, after initiating a standard 3-port LSG, including the antrum of the stomach, a 2–3 cm duodenal nodule was noted incidentally. The nodule was attached to the mesenteric surface of the first part of the duodenum extending from 6 to 9 o'clock (Figure 1). A decision was made to do a wedge resection of the mass (Video 1). During blunt and sharp dissection of the nodule, the mucosa was opened, and closure was done with Maxon 3-0 in 3 layers. The first layer was done using 3 interrupted stitches followed by the second layer using a continuous stitch. No drains were inserted. Six hours post-operative, the patient started fluid intake and his recovery was uneventful. He was discharged in less than 24 hours. The histopathological examination of the duodenal nodule showed normal HP tissue with no signs of malignancy (Figure 2), and the integrity of the mucosal layer was not breached.

During regular follow-up (1 week then 5 weeks postoperative), the patient was doing well, tolerating oral intake of food, and was following the standard post-operative protocol.

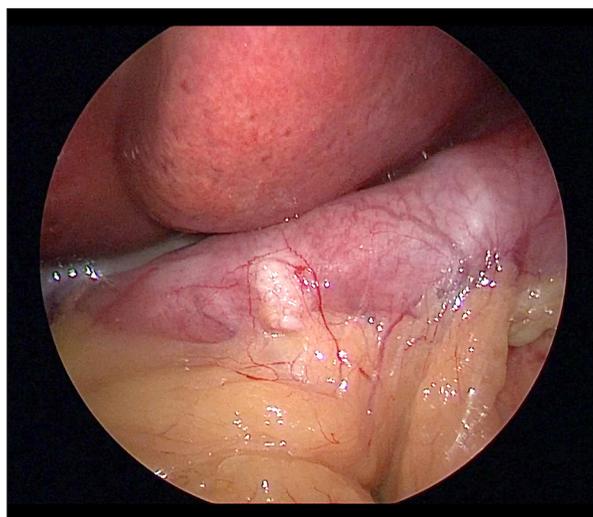


Figure 1. Laparoscopic view of first part of duodenum showing 2–3 cm irregular nodule attached to the mesenteric surface about 1 cm away from the pylorus.



Video 1. Excision of incidental duodenal pancreatic heterotopia during laparoscopic sleeve gastrectomy.

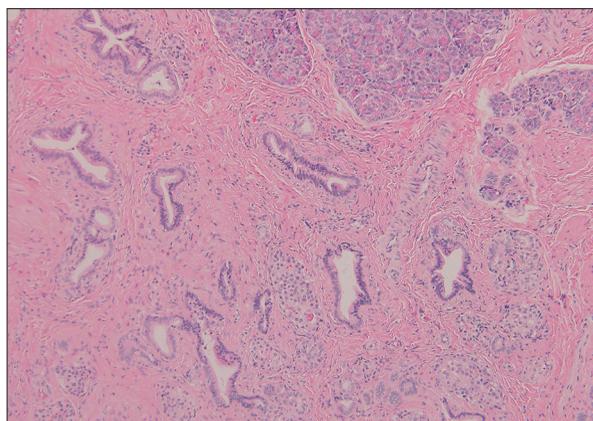


Figure 2. Microscopic view of specimen showing normal well recognized pancreatic tissue including islets of Langerhans. Histology hematoxylin and eosin staining 100× magnification.

Discussion

Autopsy specimens of HP have an incidence ranging from 0.55% to 15%. It is known that the pancreas is formed by several endodermal invaginations of the primitive duodenal wall. The pathogenesis of HP is unknown, but could occur either through misplacement theory (arisen during the rotation of the foregut when fragments of the pancreas become separated and develop into mature elements) or from pancreatic metaplasia of endodermal tissue which migrates to the submucosa during the embryonic life [2–4].

The HP mass is frequently found in the submucosa. However, it can also present as a subserosal nodule, a round or lobulated white or yellowish lump of tissue, a few centimeters in length, and central umbilication usually presents in larger tumors at the site of the draining duct [5,6].

Though of congenital origin, most patients with HP are asymptomatic; symptoms, such as small bowel obstruction and obstructive jaundice, appear in older adults. Some tumors have been reported in HP, for example, adenocarcinoma, cystic tumors, and islet cell tumors [4,7,8].

Due to the fact that there is no specific indicator or biochemical marker to diagnose HP, it is difficult to diagnose preoperatively. Increased amylase levels might be found as a result of complications related to HP, such as pancreatitis, small bowel obstruction, or GI bleeding [5,9]. The radiographic and endoscopic appearance is characteristic and includes a well-defined dome-shaped filling defect with central umbilication [4].

The histopathological examination of our specimen showed Type I HP tissue (Figure 2) based on the Heinrich classification (the histologic components): Type I (highest frequency) is composed of complete structures and consists of ducts, acini, and islets of Langerhans cells. Type II is composed of ducts and acini, while Type III is composed of ducts only [10]. Ductal and acinar cell components are present virtually in all cases. Islets of Langerhans are identified in only a third of cases [4].

References:

1. Fukino N, Oida T, Mimatsu K et al: Adenocarcinoma arising from heterotopic pancreas at the third portion of the duodenum. *World J Gastroenterol*, 2015; 21(13): 4082–88
2. Erkan N, Vardar E, Vardar R: Heterotopic pancreas: Report of two cases. *JOP*, 2007; 8: 588–91
3. Dolan RV, ReMine WH, Dockerty MB: The fate of heterotopic pancreatic tissue. A study of 212 cases. *Arch Surg*, 1974; 109: 762–65
4. Barbosa J, Dockerty M, Waugh J: Aberrant pancreas in the gallbladder wall. *Surg Gynecol Obstet*, 1946; 82: 527–42
5. Biswas A, Husain EA, Feakins RM, Abraham AT: Heterotopic pancreas mimicking cholangiocarcinoma. Case report and literature review. *JOP*, 2007; 8: 28–34
6. Hsia CY, Wu CW, Lui WY: Heterotopic pancreas: A difficult diagnosis. *J Clin Gastroenterol*, 1999; 28: 144–47
7. Armstrong CP, King PM, Dixon JM, Macleod IB: The clinical significance of heterotopic pancreas in the gastrointestinal tract. *Br J Surg*, 1981; 68: 384–87
8. Moen J, Mack E: Small-bowel obstruction caused by heterotopic pancreas in an adult. *Am Surg*, 1989; 55: 503–4
9. Barbosa JC, Dockerty M, Waugh JM: Pancreatic heterotopia. Review of the literature and report of 41 authenticated surgical cases of which 25 were clinically significant. *Surg Gynecol Obstet*, 1946; 82: 527–42
10. von Heinrich H: [A contribution to the histology of the accessory pancreas.] *Virchows Archiv Pathol Anat Bd*, 1909; 198: 392–401 [in German]
11. Betzler A, Mees ST, Pump J et al: Clinical impact of duodenal pancreatic heterotopia – Is there a need for surgical treatment? *BMC Surg*, 2017; 17(1): 53

Local resection of a HP lesion in symptomatic patients appears to be the most appropriate therapy. The standard therapy is surgery, but an endoscopic option is currently being studied for the removal of the HP tissue. The preferred treatment of HP incidentaloma during surgery in asymptomatic youth is local excision (as considered in our case) as it is at risk of becoming symptomatic or malignant when radical (extended oncological) surgery is considered [9,7,11].

HP adenocarcinomas have a better prognosis when compared to adenocarcinomas of the original pancreas, probably due to earlier presentation [11].

Conclusions

Incidentaloma during bariatric surgery is estimated to occur at an incidence of 2%, and gastrointestinal stromal tumors are found to be the most common incidental pathology during bariatric surgery. We report the first case of incidental duodenal HP removed safely by wedge resection during LSG. The safety and efficacy of excision of the similar lesion during LSG need to be more investigated through additional research, and exploration of the abdominal contents, including the duodenum, during LSG is highly recommended.

Acknowledgment

The authors acknowledge Dr. Susanna Wright, King Abdullah International Medical Research Center, King Saud bin Abdulaziz University for Health Sciences, King Abdulaziz Medical City, National Guard Health Affairs, Riyadh, Kingdom of Saudi Arabia and Dr. Sami Khairi, King Abdullah International Medical Research Center, King Saud bin Abdulaziz University for Health Sciences, Department of Neurosurgery, King Abdulaziz Medical City, National Guard Health Affairs, Riyadh, Kingdom of Saudi Arabia.

Conflict of interest

None.