J Clin Invest Surg. 2016; 1(2): 79-83
doi: 10.25083/2559.5555.12.7983

Case Report

Heterotopic pancreatic tissue of the stomach leading to gastric diverticulum and upper gastro-intestinal bleeding

Silviu Stoian[1], Florinel Pop[1,2], Victor D. Strâmbu[1,2]

[1]Carol Davila Hospital, Department of General Surgery, Bucharest, Romania
[2]Carol Davila University, Faculty of General Medicine, Bucharest, Romania

Abstract

Heterotopic pancreatic tissue of the stomach is a rare condition. Gastric diverticulum is also a rare condition, mostly located at the fornix. Therefore, the existence of a pyloric gastric diverticulum containing a submucosal tumor proved to be heterotopic pancreatic tissue of the stomach is an extremely rare condition. The patient was a young thin male with epigastralgia chronically treated for gastritis/ulcer.

Following an episode of melena, he underwent gastroscopy that diagnosed antral gastric diverticulum containing a polyp. The lesion was surgically removed. The pathology report stated: heterotopic pancreatic tissue of the stomach with secondary development of a traction diverticulum.

Heterotopic pancreas tissue of the stomach is a rare condition but the association with gastric diverticulum is completely unusual. The possibility of the ectopic tissue leading to secondary diverticulum development should be considered.

Keywords: diverticulum, gastric, pancreatic, bleeding

✉ Correspondence should be addressed to: Silviu Stoian; e-mail: dr.stoian@gmail.com

Case report

The patient is 27 years old male considered to have gastritis/ ulcer based on chronic epigastric pain and therefore chronically treated with proton pump inhibitors and anti-acid products with mixed efficiency. He was thin (60 kg weight for 1.78 m height), and was subject to surgical removal of Meckel's diverticulum in his childhood. After a melena stool he underwent gastroscopy that noticed a 1 cm gastric polyp developed in a gastric diverticulum located 3-4 cm above the pylorus. Given the very low probability of such a lesion, as soon as the patient arrived in our clinic we repeated the gastroscopy with an identical result. Neither gastroscopy provided the precise location of the diverticulum as reported to the gastric faces or margins. The results for all the blood tests were in the normal range.

We performed open surgery and discovered the lesion on the greater curvature 3-4 cm above the pylorus. The diverticulum measuring 2-3 cm in diameter containing a 1 cm diameter sessile polyp was removed by means of a limited gastrectomy (4 cm diameter). Postoperatory evolution was simple with quick discharge, disappearance of epigastralgia but with no weight gain. The control gastroscopy performed 2 months after surgical intervention was normal (Figure 1, 2, 3).

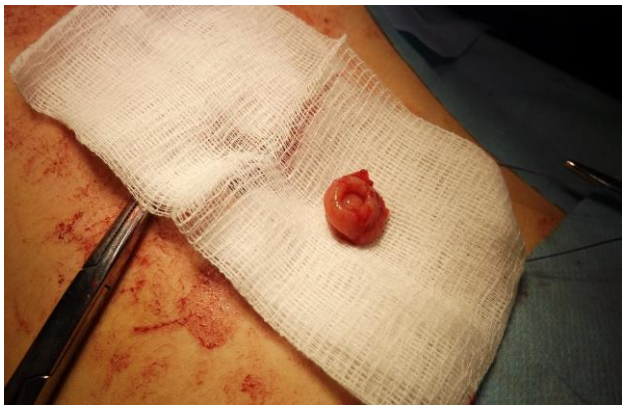

Figure 1. The resected specimen of 4 cm diameter. This was the position of the polyp in the diverticulum seen at endoscopy.

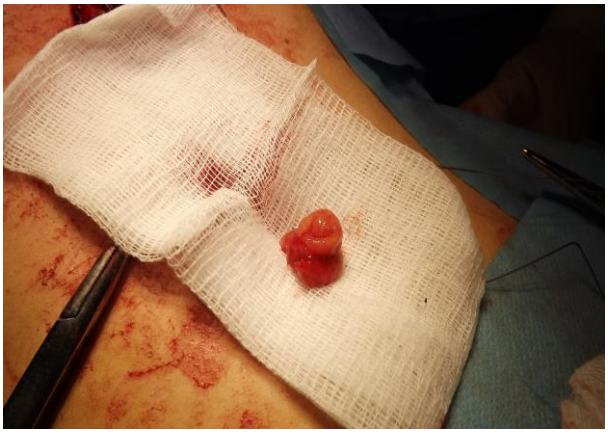

Figure 2. The sessile polyp almost out of the diverticulum.

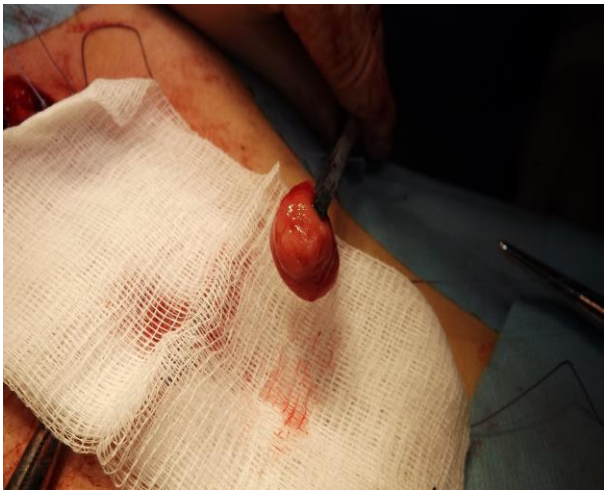

Figure 3. Reversed diverticulum for the clear view of the sessile character of the polyp.

Pathological findings

- Macroscopically: intradiverticular gastric polyp

- Microscopically: gastric wall fragment with lesions of chronic gastritis of moderate activity degree, Helicobacter pylori positive. There was identified deep chorionic presence of a large number of lymphoid structures of immunoreactive pattern, and pyloric metaplasia (Figure 4). In the centre of the specimen there is heterotopic pancreatic tissue composed of acinar cells, ducts and islets located in the submucosa with extensions in the muscular layer. At this level there is associated fibrosis leading to the development of a traction diverticulum (Figure 5).

Pathological conclusions: heterotopic pancreatic tissue of the stomach with secondary development of a traction diverticulum; chronic gastritis with moderate degree of activity and incipient atrophy.

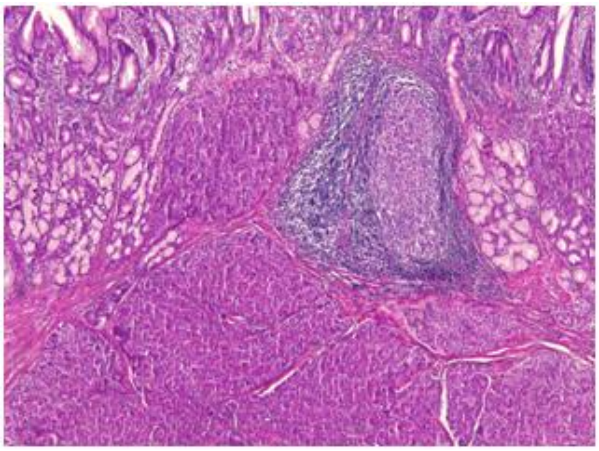

Figure 4. Gastric wall with heterotopic pancreatic tissue

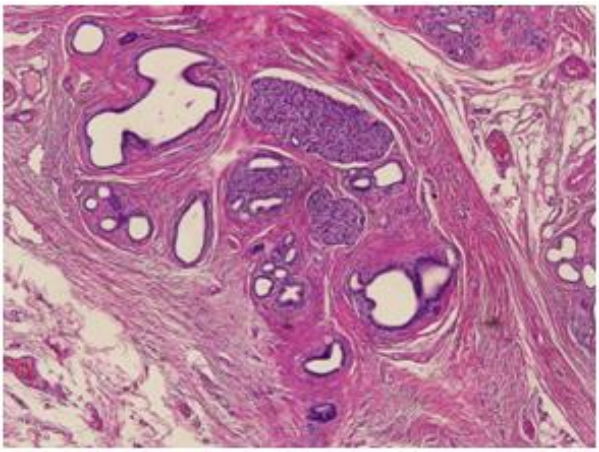

Figure 5. Pancreatic - acinar cells and duct

Discussion

Gastric diverticula are the least common form of gastro-intestinal diverticula. In Gastroscopy studies their incidence ranges between 0,01-0,11% with over 90% located in the fundic and cardial region and less than 10% in the antral and prepyloric region (1). They are often asymptomatic, otherwise the most common symptom is epigastralgia and bleeding is found with antrum-pyloric diverticula. They may be associated with other diverticula (2). Our patient has had Meckel's diverticulum surgically removed. Nevertheless, in our case we do not have a true gastric diverticulum but a secondary one.

Heterotopic pancreatic tissue of the stomach is also a very rare condition with an incidence of 0,4-1,2% depending on the method used in the diagnose. As the lesion is submucosal, the endoscopic biopsy of a suspected heterotopic pancreatic tissue almost always misses the pancreatic tissue and therefore the true diagnose because the specimen contains only mucosa. The higher percentage of the range comes from the studies performed on limited gastrectomy specimens or whole stomach examinations (3). Heirich in 1909 proposed three types of heterotopic pancreatic tissue:

- Heinrich I type with the specimen containing acinar cells, ducts and islets-as in our case. Possible haemorrhage and cystic changes. The symptoms consist mainly in epigastralgia and the endoscopy shows chronic gastritis. Ii was the type found in our patient, too.

- Heinrich II type with the specimen containing ducts (canalicular variety). It is generally asymptomatic.

- Heinrich III type with acinar tissue only (exocrine pancreas).

Heterotopic pancreas was first characterized in 1729 (in an ileal diverticulum) by Jean Schultz and refers to ectopic pancreatic tissue that lacks anatomic or vascular connection with the pancreas. Heterotopic pancreas is believed to arise during rotation of the foregut, when fragments of the pancreas become separated from the main body and are deposited at ectopic sites. The two best-known histogenic theories are based on foetal migration of pancreatic cells and on the penetration of immature gastric mucosa inside the submucosa followed by its differentiation into pancreatic tissue. This situation implies not only the stomach but may also involve duodenum, ileum, common bile duct, Meckel's diverticulum, and the liver. Our patient has no pathology report from his remote Meckel's diverticulum surgical removal.

Although heterotopic pancreas can present at any age, it is usually discovered in the fifth and sixth decade, and is three times more likely to occur in men than women (4). When gastric, the heterotopic tissue is located in over 50% of the cases within 5 cm of the pylorus. When in this situation it seems virtually certain that it will sooner or later give rise to symptoms of troublesome severity. Pre-operative recognition permits of a very much more conservative surgical procedure, i.e., local resection, the results of which are gratifyingly satisfactory (5).

Conclusions

Heterotopic pancreas tissue of the stomach is a rare condition but the association with gastric diverticulum is completely unusual. The possibility of the ectopic tissue leading to secondary diverticulum development should be considered. The possibility of finding abnormalities/ anomalies such as heterotopic pancreatic tissue or gastric diverticulum should be remembered when dealing with a patient who already proved to have an anomaly (Meckel diverticulum in our patient. When investigating an upper gastro-intestinal bleeding, both pancreatic ectopic tissue of the stomach and gastric diverticulum should be kept in mind (even at the bottom of the list).

References

1. Rashid F, Aber A, Iftikhar SY. A review on gastric diverticulum. *World J Emerg Surg*. 2012; 7(1): 1. PMID: 22257431 https://doi.org/10.1186/1749-7922-7-1
2. Mohan P, Ananthavadivelu M, Venkataraman J. Gastric diverticulum. *CMAJ*. 2010; 182(5): E226. PMID: 20100850 https://doi.org/10.1503/cmaj.090832
3. Terada T. Heterotopic pancreatic tissue of the stomach: report of three cases and consideration of its histogenesis. *Case Rep Gastroenterol*. 2010; 4(3): 386-392. PMID: 21060705 https://doi.org/10.1159/000320676
4. Subasinghe D, Sivaganesh S, Perera N, Samarasekera DN. Gastric fundal heterotopic pancreas mimicking a gastrointestinal stromal tumour (GIST): a case report and a brief review. *BMC Res Notes*. 2016; 9: 185. PMID: 27005685 https://doi.org/10.1186/s13104-016-1995-5
5. Kilius A, Samalavicius NE, Danys D, Zaldokas G, Seinin D. Asymptomatic heterotopic pancreas in Meckel's diverticulum: a case report and review of the literature. *J .Med Case Rep*. 2015; 9: 108. PMID: 25956067 https://doi.org/10.1186/s13256-015-0576-x
6. Podda M, Atzeni J, Messina Campanella A, Saba A, Pisanu A. Syncope with Surprise: An Unexpected Finding of Huge Gastric Diverticulum. *Case Rep Surg*. 2016; 2016: PMID: 1941293
7. Moy BT, Marchioni Beery RM, Birk JW. Gastric Diverticulum: An Unusual Endoscopic Finding. *ACG Case Rep J*. 2016; 3(3): 150-1. PMID: 27144186 https://doi.org/10.14309/crj.2016.31
8. Feng YE, Zhang Z. Gastric diverticulum simulating a left adrenal mass: A case report and review of the literature. *Oncol Lett*. 2015; 10(4): 2477-80. PMID: 26622874 https://doi.org/10.3892/ol.2015.3559
9. Surve A, Zaveri H, Cottam D. Symptomatic gastric diverticulum after gastric imbrication with conversion to sleeve gastrectomy. *Surg Obes Relat Dis*. 2016; 12(2): 439-40. PMID: 26575354 https://doi.org/10.1016/j.soard.2015.09.012
10. Mahafza WS, Taib AA, Shahait AD, Al Awamleh A. Chronic gastritis in a gastric diverticulum misdiagnosed as a left adrenal mass. *Indian J Surg*. 2015; 77(1): 150-2. PMID: 25972678 https://doi.org/10.1007/s12262-015-1210-2

11. Laparoscopic resection of symptomatic gastric diverticula. Zelisko A, Rodriguez J, El-Hayek K, Kroh M. *JSLS*. 2014; 18(1): 120-4. PMID: 24680154 https://doi.org/10.4293/108680813X13693422520648
12. Marano L, Reda G, Porfidia R, Grassia M, Petrillo M, Esposito G, Torelli F, Cosenza A, Izzo G, Di Martino N. Large symptomatic gastric diverticula: two case reports and a brief review of literature. *World J Gastroenterol*. 2013; 19(36): 6114-7. PMID: 24106415 https://doi.org/10.3748/wjg.v19.i36.6114
13. Carbonero-Celis MJ, Romero-Moriña H, Northrop-Sharp B, Umbría-Jiménez S, Argüelles-Martín F, Asensio-García J. Upper digestive tract hemorrhage in a child with heterotopic pancreas in a gastric diverticulum. *Rev Esp Enferm Dig*. 2013; 105(1): 54-5. PMID: 23548014 https://doi.org/10.4321/S1130-01082013000100012
14. Tsitsias T, Finch JG. Gastric diverticulum of the prepyloric region: a rare presentation of gastric diverticulum. *Case Rep Gastroenterol*. 2012; 6(1): 150-4. PMID: 22679402 https://doi.org/10.1159/000338067