CASE REPORT

Heterotopic pancreas in gastric antrum with macroscopic appearance of gastric polyp

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Abstract

Heterotopic pancreas is a relatively rare clinical diagnosis, not commonly involved in differential diagnostic considerations of GI symptoms. The authors report a case of heterotopic pancreas discovered endoscopically in the gastric antrum. A 60-year-old woman presented with epigastric pain. The patient took alendronate for osteoporosis. The endoscopic examination revealed Helicobacter pylori positive antral atrophic gastropathy and a well delineated hemispherical polyp, 8 mm in diameter, in the antrum of the stomach. Histology showed antral gastritis and the presence of heterotopic pancreas. After dietary measures and Helicobacter eradication, the patient was relieved of symptoms. According to the authors' opinion, the finding of heterotopic pancreas did not necessitate intervention, and was an incidental finding. The authors discuss the significance of heterotopic pancreas with the conclusion that the resection of the lesion is indicated only if consistent symptoms are present. ***(Fig. 3, Ref. 28.)***

Key words: heterotopic pancreas, submucosal tumour, stomach, gastroduodenoscopy.

Heterotopic pancreas is defined as the presence of abnormally located pancreatic glandular tissue with no structural or vascular continuity with the main pancreas (1). Synonymous terms such as aberrant pancreas, ectopic pancreas and pancreas accesorium seu supranumerale are used as well. As reported by Barbosa deCastro et al (2), Schultz reported the first example of heterotopic pancreas in 1727 and Klob published his first microscopic histological observations in 1859.

Prevalence of heterotopic pancreas is estimated to be approximately 2 % (3). Many or most of heterotopic pancreatic lesions cause no clinical symptoms, and are found incidentally during endoscopic examinations, laparotomies and autopsies. However it may result in various acute or chronic gastrointestinal (GI) manifestations, eventually it may develop serious complications including upper GI bleeding, gastric ulcers or even malignant degeneration.

Heterotopic pancreas is a relatively rare clinical diagnosis, not commonly involved in differential diagnostic considerations of GI symptoms. The purpose of this report is to present a case with this anomaly and provide up-to-date literature review on this topic.

Case Report

A 60-year-old woman was referred in July 2000 to the outpatient department of the University Hospital of Comenius University in Bratislava for the evaluation of epigastric pain. The patient had presented to the hospital with vague complaints of epigastric pain typically worsened during fasting. Patient reported also anorexia, easy fatigability and general weakness. Symptoms had been present for two months. Patient denied having haematemesis, melena, diarrhoea, nausea or vomiting. There was no history of weight loss or problems with swallowing. In past medical history, she reported pneumonia many years ago, tuberculosis of cervical lymph nodes successfully cured in 1989 and a long-term history of endogenous depression. The patient had

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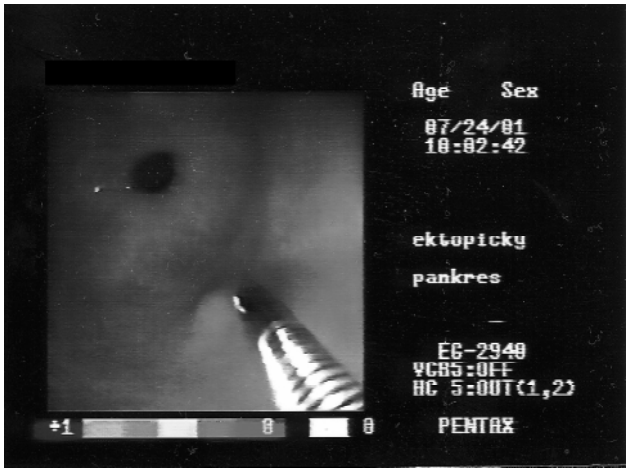

Fig. 1. Endoscopic appearance of heterotopic pancreas in the gastric antrum.

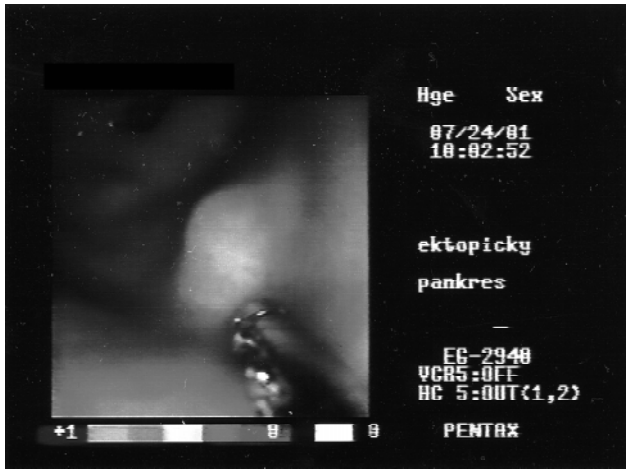

Fig. 2. Endoscopic appearance of heterotopic pancreas in the gastric antrum — closer view.

also a one-year history of osteoporosis and had regularly taken alendronate for about half a year. The patient denied alcohol use and smoking. The family history was non-contributory and the patient denied any known allergies. She also admitted long term use of various antidepressive medications. At the time of examination she took sertralin.

On examination, the patient was afebrile, with blood pressure of 120/80 mmHg, pulse of 72 beats/min and regular. The results of head, neck and chest examinations were normal. On abdominal examination, she reported epigastric pain on palpation. There was no palpable tumour or other resistance, liver and spleen were not palpable. Peristalsis was normal on auscultation. There were no signs of peritoneal irritation.

Esophagogastroduodenoscopy revealed atrophy in the gastric antrum and a flat polyp was present in the antrum approximately 3 cm proximal to the pylorus on the side of the greater curvature (Figs 1, 2). The polyp was hemispherical, well delineated, 8 mm in diameter and its colour did not differ from that of the surrounding mucosa. No central umbilication was present. The impression of the endoscopist was that a submucosal tumour was involved. Biopsy for examination of Helicobacter pylori using fast urease reaction test was taken with a positive result. Biopsy samples from the polyp and antral mucosa were taken. The pylorus, duodenum as well as the oesophagus were well visualised, and no abnormalities were detected.

Besides foveolar gastric mucosa fragments, the biopsy samples from the submucosal mass showed cellular acinar (alveolar) tissue together with ductal structures (Fig. 3). The anticytokeratin marker AE1 was positive in gastric foveolae and in small ductal structures. Uniform cellular tissue did not show AE1 expression. The demonstration of neuroendocrine activity using Grimelius and neuronspecific enolase markers was negative. The conclusion was that aberrant pancreatic tissue was present in the specimen. The possible presence of a papillary solid epithelial neoplasm was also considered, but according to the realised examinations, it was excluded. Biopsy samples from the antrum revealed chronic antral gastritis with intestinal metaplasia and erosions. Polymorphonuclear infiltration was present suggesting inflammation activity.

Abdominal ultrasound examination and chest X-ray were normal. The complete blood count, electrolytes, liver enzymes, glucose, creatinine as well as amylases levels were all within normal limits. Tumour markers Ca 125, CEA, Ca 19-9 levels were not increased.

The patient was recommended an easily digestible diet with frequent feedings of small amounts of food. She was instructed how to administer alendronate correctly. According to the presence of severe antral atrophy, the histological findings and occasional reports of dramatic improvement of dyspepsia after Helicobacter pylori eradication a trial of omeprazole, clarithromycin and amoxicillin for 7 days were recommended. The patient was relieved of symptoms within one month. After the 6-month follow-up, the gastroendoscopic examination showed improvement of the antral gastropathy. The test for Helicobacter pylori with fast urease reaction, as well as the serologic examination were negative. The finding of antral submucosal mass was unchanged. A repeated biopsy from the lesion confirmed the previous conclusion of heterotopic pancreas in gastric submucosa. The examination of amylase and lipase activities in gastric juice was tried, with no activity detected. As the data from the literature review had not indicated any increased risk for the patient, and she did not wish to be subdued to any further examinations, we abandoned other intended tests as endoscopic ultrasound examination and helical computed tomography. We intend to follow up the patient on an out-patient basis with planned visits once a year.

Discussion

Heterotopic pancreas is usually asymptomatic. Most frequently it is incidentally found during autopsies, operations and in the past decades also gastroendoscopies. In Czech and Slovak bibliographies, 6 cases have been documented so far (4, 5, 6) and especially the report by Mazuch et al (5) offers a comprehensive contempo-

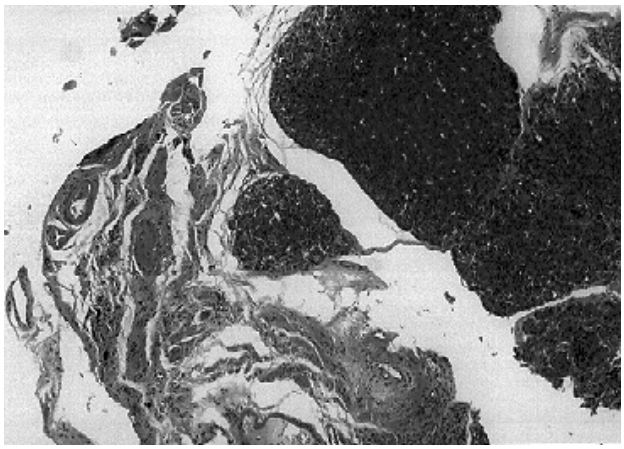

Fig. 3. Histological picture of heterotopic pancreas in the stomach.

rary review of the topic. Fernald (7) had found together 720 cases of pancreatic heterotopia in literature until 1969. Since then, the number of published cases increased, probably in consequence of the introduction of new diagnostic methods. Case reports, and occasionally also small series of heterotopic pancreas are not rare in literature. Largest series published were those by Dolan et al (1) including 212 cases, Pang et al (8) — 31 cases and recently Hsia et al (9) — 17 cases. Palmer et al (10) published 215 cases with gastric submucosal tumours including heterotopic pancreatic masses. The occurrence of heterotopic pancreas in autopsy series is estimated to be about 2 % (3) though different authors report 0.6 % to 15 % occurrence (1, 11) usually depending on how carefully duodenum is examined. Considering these numbers, heterotopic pancreas is the second most prevalent pancreatic anomaly exceeded only by pancreas divisum (12). Heterotopic pancreas is found once in every 500 abdominal explorations (13), usually incidentally.

Aetiology of pancreatic heterotopia is not clearly established. According to Scarpelli (3) the two most probable theories explaining pancreatic heterotopia are: 1) buds of embryonic tissue penetrate into the wall of rapidly growing intestine with a consequent separation from the main pancreas, and autonomous growth; 2) an inappropriate expression of pluripotent embryonic mesenchymal tissue of the gastrointestinal tract with the development of pancreatic tissue. During ontogenesis, pancreas develops from larger dorsal and smaller ventral segments. They fuse during the sixth week of gestation. Barnert et al (14) suggest that heterotopic pancreas in the area of stomach and duodenum is a derivative of the dorsal segment of embryonic pancreas, and heterotopic pancreas in ileum and jejunum originates from the ventral part. No association of pancreatic heterotopia with other congenital malformations has been reported.

Heterotopic pancreas is usually located in the upper gastrointestinal tract. According to the analysis of 431 published cases, Barbosa deCastro (2) determined the following percentile distribution of pancreatic heterotopia: 30.5 % in the duodenum, 26.5 % in the stomach, 16.5 % in the jejunum, 5.8 % in the ileum, 5.3 % in the Meckel's diverticulum. The rest of them were located in other, rather rare locations. Heterotopic pancreata are predominantly intramural masses. 75 % are submucosal, and the other are intramuscular or subserosal. The macroscopic appearance of heterotopic pancreas is a benign-appearing firm submucosal mass on a broad basis, sharply circumscribed from the surrounding tissue. The distinguishing feature of heterotopic pancreas is the central umbilication representing probably a rudimentary excretory duct. However, it is present in less than 50 % of cases (15). 95 % of heterotopic pancreatic lesions found in the stomach, are located in the pylorus or in the antrum within 5 to 6 cm from the pylorus especially from the side of the greater curvature. The aberrant pancreas occurs, and has been described also in rare locations such as the oesophagus, cystic duplicates of ileum, mesentery, omentum, colon, gall bladder, cystic duct and choledochus, spleen, liver, lymph nodes, urinary bladder, lungs and Fallopian tubes.

The size of heterotopic pancreas may vary from microscopic to few centimetres. Voboril (4) reported a case of heterotopic pancreas in the stomach measuring 9x9x8 cm causing pyloric obstruction. Nevertheless, the lesions are usually small, mostly less than 3 cm in diameter.

Heterotopic pancreas may manifest at any age beginning with neonates (16), most often it becomes symptomatic in fifth and sixth decades (17). It is estimated that approximately 40 % of lesions cause symptoms. Armstrong et al (18) suggest that only lesions larger than 1.5 cm become symptomatic especially those located in the stomach. Patients mostly complain of epigastric pain (77 %), abdominal fullness (30 %), tarry stools (24 %), nausea and vomiting (18 %) (9). Gastric lesions present as pyloric obstructions especially with larger masses are rare (4). Rare manifestations and complications of heterotopic pancreas include acute pancreatitis (2), chronic pancreatitis (19), invagination with pancreas located in ileum (20), hyperinsulinism (2), Zollinger—Ellison syndrome (21), cystic dystrophy (22) and malignant degeneration (23).

Despite marked advances in new diagnostic tools and methods of the past decades, the preoperative diagnosis of heterotopic pancreas remains difficult (9, 24). The detections in locations other than stomach are most often incidental. CT findings are non-specific. Endoscopic and upper GI barium X-ray series reveal gastric or duodenal submucosal masses. Endoscopic ultrasonography is able to localise the extent of the submucosal mass. If there is no central umbilication, it is difficult, if not impossible, to distinguish heterotopic pancreas from other pathological lesions of similar appearance such as leiomyoma, lymphoma, adenomatous polyp, gastrointestinal stromal tumour or sometimes even a polypoid form of gastric carcinoma. When umbilication is large in proportion to the size of the mass it can imitate a healing gastric ulcer or an ulcerating tumour. Biopsy from the lesion can not always provide a representative tissue specimen (9, 25) and the definite diagnosis is often made only from surgical excision. Recently it has been suggested that endoscopic resection based on EUS is an effective and reliable method for the collection of biopsy specimens (26).

The histologic pattern varies from the typical finding of pancreatic acini, ducts and Langerhans islets to the finding of isolated pancreatic acini and ducts with muscular stroma. The finding of isolated ducts and muscular stroma only, without the

presence of acini is referred to as adenomyoma, which is an extremely rare histological diagnosis. Babal et al (27) suggests that adenomyoma in the gastrointestinal tract wall is a histologic variant of heterotopic pancreas.

The therapy is indicated in symptomatic patients only. Simple surgical resection is recommended, although endoscopic mucosal resection has been proposed as a newer approach (28). There is no need for a more radical resection such as partial gastrectomy except for cases of larger lesions causing e.g. pyloric obstruction. After the therapy, patients are relieved of symptoms (9, 16). There are no reports of recurrence. In asymptomatic patients, the risk of complications is very low, however long-term surveillance may be appropriate.

After the evaluation of the clinical picture of this patient, we concluded that symptoms in this case had been probably attributable to either functional dyspepsia or the side effect of alendronate. The finding of heterotopic pancreas in the stomach was according to our opinion incidental. Especially the fact that patient was symptom-free after complex therapy despite the fact that the heterotopic pancreas was still present, supports this assumption. Our case represents the most often described form of heterotopic pancreas. It was located in the gastric antrum on the side of the greater curvature, close to the pylorus, there was no central umbilication and it did not cause any symptoms.

We report a case of heterotopic pancreas in the gastric antrum presenting as a polypoid mass. Heterotopic pancreas is to be considered in the differential diagnosis of submucosal masses in the stomach. The number of upper GIT diagnostic procedures especially that of endoscopic examinations increases, and according to the occurrence of this lesion in autopsy series, it can be assumed that the number of heterotopic pancreata will rise as well. The most important factor for proper diagnosis is to obtain a representative biopsy specimen. According to several authors, the therapy is indicated only in case of consistent symptomatology and should be limited to simple resection or endoscopic mucosal resection where available.

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