HETEROTOPIC PANCREAS IN THE STOMACH (TYPE II ACCORDING TO HEINRICH) – LITERATURE REVIEW AND CASE REPORT

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Heterotopic pancreas is a rare congenital disorder characterized by the presence of normal pancreatic tissue located outside the pancreas. The most common locations include the duodenum, stomach, and jejunum. Most cases of heterotopic pancreas are asymptomatic. However, the development of clinical symptoms depends on the size, location and pathological changes similar to those observed in case of the normal pancreas. The Authors presented a case of multiple stomach heterotopic pancreatic lesions in an adult male patient. The atypical clinical presentation including non-specific endoscopic and CT images were responsible for the misdiagnosis before surgery. The patient underwent surgery. The tumor located in the posterior wall of the body of the stomach was excised by wedge resection. The postoperative course proved uneventful. Proper diagnosis was established on the basis of the histopathological examination of the resected tumor: heterotopic pancreas-multiple lesions, type II, according to Heinrich. The presented case report demonstrated that heterotopic pancreas should always be considered in the differential diagnosis of gastric tumors.

Key words: heterotopic pancreas, multiple lesions, stomach

The condition when the pancreatic tissue is located outside its anatomical location and is devoid of vascular, neural and anatomical connections is referred to as heterotopic pancreas. Other terms, such as ectopic, accessory and aberrant pancreas are also eligible (1, 2, 3).

In 1859, Klob (4) presented the first histopathological description of a heterotopic pancreas. However, the first case report of a heterotopic pancreas mentioned by Jiang et al. was presented by Schultz in 1729 (1). Heterotopic pancreas is a congenital disorder. According to different authors presenting heterotopic pancreas cases the above-mentioned congenital disorder was diagnosed in 1 to 13.7% of autopsy cases (5, 6). Most often the heterotopic pancreas is located in the duodenum, antral part of the stomach, and jejunum, although other locations were also mentioned: the esophagus, lung, mesentery, spleen, gallbladder, biliary ducts, and Meckel’s diverticulum (7, 8). Barbosa et al. demonstrated the above-mentioned disorder in the duodenum (27.7%), stomach (25.5%) and jejunum (15.9%) (9).

In many cases the presence of heterotopic pancreas is asymptomatic or symptoms are non-characteristic. Thus, preoperative diagnosis is often difficult to establish. Preoperative diagnostic difficulties concern not only the rare localization of the heterotopic pancreas, but...
The patient underwent surgery. Intraoperatively, the patient was diagnosed with a solid intramural lesion (2.5-3 cm in diameter) located in the middle part of the body of the stomach, from the minor curvature and posterior wall, without infiltration of other organs. Regional lymph nodes presented no abnormalities. Wedge resection surgery was performed maintaining a proper margin. The postoperative course proved uneventful. Seven days after the operation the patient was discharged from the hospital in good general condition.

The histopathological examination was as follows: typical pancreatic exocrine secretion and presence of small pancreatic ducts. The lesion was of multifocal character located in the submucous and muscular layers. Pancreatic islets were not observed (fig. 2 A and B).

**DISCUSSION**

Heterotopic pancreas is a congenital disorder and consists in the splitting off a small fragment of the pancreas during embryonic development, which is then localized in surrounding organs and subject to ectopic development (1, 2, 7, 8, 10). Heterotopic pancreas is usually an isolated lesion, although multiple lesions have also been observed (11). The above-mentioned are diagnosed in all age groups, predominating in adult and male patients (3, 7, 10). The presence of heterotopic pancreas in most cases is asymptomatic. The occurrence of clinical symptoms depends on the size of the lesion, its location and development of pathological changes similar to that of the pancreas (10, 12, 13). Pain is the most common clinical symptom, being connected with the enzymatic function of the ectopic pancreas leading towards irritation of surrounding tissues (13). The heterotopic pancreas is subject to pathological transformation, similarly to the normal pancreas. Symptoms less often observed include ulceration, bleeding, occlusion and presence of neoplastic lesions (13, 14). Considering the presented case report pain was the dominating symptom.

Heterotopic pancreas is most often (85%) located in the antral part of the stomach, near the major curvature: 2/3 of cases are localized in the submucous membrane, while 1/3 in the muscular layer of the mucous and subserous membranes (15, 16, 17). In the presented case the lesion was multifocal, being located in the

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**Fig. 1.** The posterior wall of the body of the stomach is location to a hypodense, submucosal lesion- 2 cm in diameter. The tumor models the mucous membrane, intramural growth, within the stomach. No infiltration of surrounding adipose tissue. No enlargement of perigastric, cecal trunk, and superior mesenteric artery lymph nodes. The image suggests GIST.
Heterotopic pancreas in the stomach (type II according to Heinrich) – literature review and case report

Fig. 2 A. Heterotopic pancreas. Typical exocrine secretion of the pancreas. The lesion located submucosally and in the muscular layer of the gastric wall (arrows). No presence of pancreatic islets (HE staining, magnification 200x)

Fig. 2 B. Heterotopic pancreas. Amongst the typical exocrine secretion of the pancreas, visible pancreatic duct (arrow) (HE staining, magnification 200x)

The atypical endoscopic and CT examination results suggested the possibility of a gastric stromal tumor (GIST), and thus, further diagnostics was abandoned. The patient was qualified for surgery. Intraoperatively, the macroscopic picture also suggested suspicion of a stromal tumor. The postoperative histopathological examination enabled to establish proper diagnosis.

Opinions concerning management in case of ectopic pancreas are inconclusive. Some authors believe that surgery is required, while others believe that the lesion should be monitored, especially if asymptomatic, with surgical intervention only in case of complicated cases and neoplastic transformation (6, 7, 13, 14, 16). Based on the opinion of many authors and considering non-specific heterotopic pancreas imaging results, surgical intervention is recommended in patients manifesting clinical symptoms, as to exclude neoplastic lesions. Regional excision in benign cases is the method of choice. In case the lesion is accidentally diagnosed during the operation its excision is the method of choice, as to avoid eventual complications and reoperation. Minimally invasive surgical methods should also be considered when deciding whether to operate. In case of a definitive preoperative diagnosis one may await and monitor the lesion, since the risk of malignancy in a heterotopic pancreas is similar to that of a normal pancreas.

submucous and muscular layer of the mucous membrane in the middle part of the posterior wall of the body of the stomach.

Although modern medicine offers a variety of diagnostic methods, the diagnosis of heterotopic pancreas remains a significant challenge. In selected cases endoscopic examinations show the presence of an intramural lesion covered by unchanged mucous membrane, infiltrating towards the lumen of the stomach with a characteristic indentation at the apex (18). However, such an endoscopic image only concerns selected cases. Imaging examinations (CT, endo-usg) which are useful in the diagnosis of intramural gastric tumors, are unspecific when differentiating heterotopic pancreas from other pathologies including stromal tumors (2, 13, 19). Definitive heterotopic pancreas diagnosis may be established on the basis of the histopathological examination, which additionally enables to qualify the histological type of the heterotopic pancreas. Heinrich’s classification is commonly accepted, being as follows: type I (all elements of a normal pancreatic gland), type II (pancreatic gland devoid of pancreatic islet cells), and type III (only pancreatic ducts are present) (20). The presented case report was qualified as type II, according to Heinrich. Heterotopic pancreas tissue was visible in the submucous and muscular layers, showing typical texture of the exocrine pancreas and small pancreatic ducts. Pancreatic islets were not observed.
REFERENCES


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