



Ectopic Pancreatic Tissue in Children

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Abstract

Introduction: Ectopic pancreatic tissue (EP) occurs in the gastrointestinal tract at a rate of 95%, usually detected incidentally. Pediatric cases have been reported rarely. Here, we present the patients who were detected during the endoscopic procedure.

Methods: Between 2015-2018, 485 patients who underwent esophagogastroduodenoscopy in two different centers were evaluated retrospectively in this study.

Results: During the procedure, the lesion was detected in 14 patients (eight boys and six girls), which could be macroscopically compatible with ectopic pancreatic tissue. The age range of the patients was 12.3 ± 4.1 years. Eleven of the lesions were localized in the pre-pyloric antrum and one of them was located in the distal esophagus. Histopathological examination revealed ectopic pancreatic tissue in the esophagus biopsy specimen and in six of the antrum biopsy specimens.

Discussion and Conclusion: EP is usually asymptomatic, commonly detected in the gastrointestinal tract (esophagus, stomach, duodenum, jejunum, ileum, omentum, gallbladder, Meckel's diverticulum) and can be seen in all age groups. The gold standard for diagnosis is histopathological evaluation. There are few case reports in the pediatric age group. In our series, we found the incidence of EP to be 1%.

Keywords: Children; ectopic pancreas; esophagogastroduodenoscopy.

Ectopic pancreas (EP) is defined as the presence of pancreatic tissue in other than its normal anatomical localization. EP is the result of a developmental anomaly. In the intrauterine period, the localization of the EP that occurs due to migration defect is frequently seen in the gastrointestinal system^[1, 2]. Usually, EP tissue is detected by chance and does not cause any symptoms. However, rarely, non-specific dyspeptic complaints, abdominal pain, upper or lower gastrointestinal bleeding, or even acute abdomen can be seen^[3]. EP tissue has no vascular or anatomical connection with normal pancreatic tissue^[4]. Its frequency has been reported as 0.5%-13% in adult autopsy series. There is limited information about the presence and frequency of EP in the pediatric group. In the literature, pediatric

cases have been reported rarely and in the form of case reports^[5-8]. Herein, patients who were randomly detected as EP during the upper gastrointestinal endoscopic procedure in the pediatric group are presented.

Materials and Methods

A total of 485 patients who underwent esophagogastroduodenoscopy at two different centers between 2015 and 2018 due to dyspeptic complaints and/or abdominal pain were evaluated retrospectively (Ethics Committee Approval: B.10.1.TKH.4.34.H.GP.01/182). Demographic features, complaints requiring endoscopy, endoscopic findings and histopathological evaluation results were recorded.

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Results

During the procedure, lesions that could be compatible with ectopic pancreatic tissue were detected in 14 patients (eight boys and six girls). The age range of the patients was 12.3 ± 4.1 years. Upper gastrointestinal endoscopy was performed to investigate dyspeptic complaints that did not resolve despite appropriate treatment in 291, abdominal pain related to undetermined causes in 112, and gastrointestinal causes in growth and development retardation in 82 patients. Thirteen lesions detected during the procedure were localized at pre-pyloric antrum and one lesion was in the distal esophagushistopathological examination, *H. Pylori* was detected in 179 (39.1%) of the patients. In the histopathological evaluation, ectopic pancreatic tissue was detected in the esophageal biopsy specimen and in six of the lesions detected in the prepyloric antrum. *H. Pylori* was seen in the antrum and/or corpus biopsy specimens of eight (57.1%) of 14 patients whose EP was detected macroscopically (Figs. 1, 2).

Discussion

As a rare occurrence, EP is known as the abnormal location of pancreatic tissue. This formation has no relation with normal pancreatic tissue anatomically or vascularly^[4, 9]. The gastrointestinal tract is the most common location, especially the stomach, duodenum and jejunum^[2, 9]. However, esophagus, ileum, omentum, gall bladder, Meckel's diverticulum, and even mediastinal location have been reported^[5, 8, 10–12]. In the literature, there are two case reports with an umbilical location in a 2-year-old patient and an intracranial location in an 11-year-old patient^[6, 7]. Patients with EP-induced intussusception detected during laparotomy performed with the indication of acute abdomen in childhood or adulthood have been reported^[13, 14]. It has been reported in the literature that though very rarely, EP tissue may undergo malignant transformation^[15]. There is a case of malignancy originating from an EP tissue located in the Meckel's diverticulum reported by Lai et al.^[16].

EP in the majority of patients is detected by chance during gastrointestinal endoscopy or laparotomy and does not cause any symptoms. However, EP may cause nonspecific abdominal pain, nausea, vomiting, and may also emerge as a cause of anemia^[11]. In our study, there was a significant difference between the frequency of ectopic pancreatic tissue detected in the endoscopic evaluation performed due to treatment-resistant dyspeptic complaints and the incidence of ectopic pancreatic tissue in patients who underwent endoscopy for abdominal pain of unknown etiology ($n=12$ and $n=2$, $p=0.038$, respectively).



Figure 1. Periopyloric ectopic pancreatic tissue.



Figure 2. Antral pancreatic tissue.

EP can be seen in all age groups and the incidence in men is slightly higher^[17]. In the upper gastrointestinal endoscopic examination, EP is generally observed as a localized lesion smaller than 3 cm, with a luminal crater bulging from subcutaneous to mucous layer, and then into lumen with a nidus in its middle portion^[18, 19]. In one case, Ertem et al. detected a prepyloric ectopic pancreatic tissue associated with *H. pylori* that caused pyloric stenosis, detected and stated that pyloric stenosis was secondary to inflammation caused by *H. pylori* infection^[19]. In our study, we did not find a significant difference between *H. pylori* positivity and negativity patients with EP tissue ($n=8$, $n=6$, $p=0.08$, respectively).

Computed tomography and magnetic resonance are used for diagnostic radiological evaluation. A biopsy can be taken with the aid of endoscopic ultrasonography. The gold standard for diagnosis in all conditions is histopathological evaluation. Histopathologically, pancreatic heterotopia is studied in four subgroups: Type 1: the presence of typical pancreatic tissue, including acini, ductus and islet cells similar to normal pancreatic tissue; Type 2: the presence of pancreatic ducts only; Type 3: presence of acinar tissue only, and Type 4: presence of pancreatic tissue containing only islet cells. This classification was first made by Heinrich in 1909 and was modified by Gasper-Fuentes in 1973^[20]. The biopsy material taken should contain the submucosa; otherwise PE may be overlooked.

Few case reports have been reported in the pediatric age group in the literature. We found EP incidence as 1% in our series. The rate we found was compatible with the literature. Although a rare lesion in pediatric patients, ectopic pancreatic tissue should be kept in mind in patients with unexplained dyspeptic complaints.

Ethics Committee Approval: The Ethics Committee of Health Sciences University Umraniye Training and Research Hospital provided the ethics committee approval for this study (B.10.1TKH.4.34.H.GP.0.01/182).

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