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Obstructive chronic pancreatitis with transient eosinophilia in a 13-year-old child

Onüç yaşındaki çocukta geçici eozinofiliyle birlikte obstrüktif kronik pankreatit

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Obstructive chronic pancreatitis in children occurs as a result of congenital or acquired stricture of the pancreatic duct. The prominent histologic changes are characterized by periductal fibrosis and subsequent ductal dilatation. Diagnosis is usually made by imaging studies such as endoscopic retrograde cholangiopancreaticography, ultrasonography, and pancreatic function testing. Eosinophilia is frequently associated with allergic rhinitis, asthma, parasitic infections, and drug reactions. It has been infrequently described with chronic obstructive pancreatic diseases. In this article, we present a patient with eosinophilia and abdominal pain with chronic obstructive pancreatitis. In our case, the symptoms of pancreatitis and eosinophilia improved with pancreatic stent placement.

Keywords: *Chronic pancreatitis, eosinophilia, child*

Çocuklarda pankreatik kanalın, doğumsal veya edinsel darlığının bir sonucu olarak obstrüktif kronik pankreatit ortaya çıkar. Belirgin histolojik değişiklikler periduktal fibrozis ve geri kalan duktal alanda genişlemelerle karakterizedir. Tanıda genellikle endoskopik retrograd kolanjiopankreatikografi, ultrasonografi ve pankreatik fonksiyon testleri gibi yöntemler kullanılmaktadır. Eozinofili sıklıkla alerjik rinit, astım, parazitik enfeksiyonlar ve ilaç reaksiyonu ile ilişkilidir. Seyrek olarak da kronik obstrüktif pankreatik hastalıklarda tarif edilmiştir. Bu makalede; karın ağrısı ile başvuran kronik obstrüktif pankreatitli bir olguyu sunuyoruz. Olgumuzda, pankreatit semptomları ve eozinofili pankreasa stent yerleştirilmesi ile düzelmiştir.

Anahtar kelimeler: *Kronik pankreatit, eozinofili, çocuk*

INTRODUCTION

Chronic pancreatitis is a chronic inflammatory disease of the pancreas characterized by irreversible morphological changes that are typically associated with pain and/or loss of function. In chronic obstructive pancreatitis, the prominent histologic changes are periductal fibrosis and subsequent ductal dilatation. A variety of factors are implicated in chronic obstructive pancreatitis, including ductal obstruction due to ampullary stenosis, inflammatory or neoplastic causes, surgical ductal ligation, and fibrosis due to a pseudocyst as a complication of an episode of acute pancreatitis. Endoscopic retrograde cholangiography (ERCP) is considered by most specialists to be the first-line treatment modality for management of obstructive chronic pancreatitis (1,2).

CASE REPORT

A 13-year-old girl was admitted to our clinic with the complaint of abdominal pain, which was described as occurring on an irregular basis. There was no fever, vomiting or diarrhea. From the patient history, it was noted that she experienced abdominal pain in 2009 of 4-5 days in duration. The patient's family was healthy apart from her mother's asthma. Height and weight percentiles of the patient were observed to be normal during the systemic check-up (50-75th percentile for both). No other abnormalities were found. Laboratory results (amylase 93 IU/L, lipase 55 IU/L, total cholesterol 129 mg/dl, triglyceride 72 mg/dl, calcium 10.2 mg/dl) and all biochemical parameters were within normal range. The complete blood count values of the patient were: hemoglobin: 12 g/dl, white blood cells: 8000/mm^3, neutrophils: 2360/mm^3, lymphocytes: 4000/mm^3, and eosinophils: 1.640/mm^3 (moderately high). Coagulation parameters were within normal range. Parasites, occult blood, fat, and reducing agent were negative in the stool sample. Sedimentation rate was 11 mm/hour, IgE: 27,9 IU/ml (0-200), and IgG4: 84,9 mg/dl (44-199), and Fasciola indirect fluorescence antibody test (IFAT) was negative. Cystic fibrosis transmembrane conductance regulator (CFTR) gene was negative. Using the imaging techniques, the most dilated abnormal diameter of the pancreatic duct was found to be 10 mm on ultrasonography (USG). Magnetic resonance cholangiopancreatography (MRCP) showed that the main pancreatic duct was dilated, and stenosis and dilatations were shown in the duct (Figure 1).

The applied ERCP indicated the biliary system had no abnormalities; however, the pancreatic duct was diffusely wide, and there were local saccular expansions and stenosis of the segment of the Wirsung duct (Figure 2).

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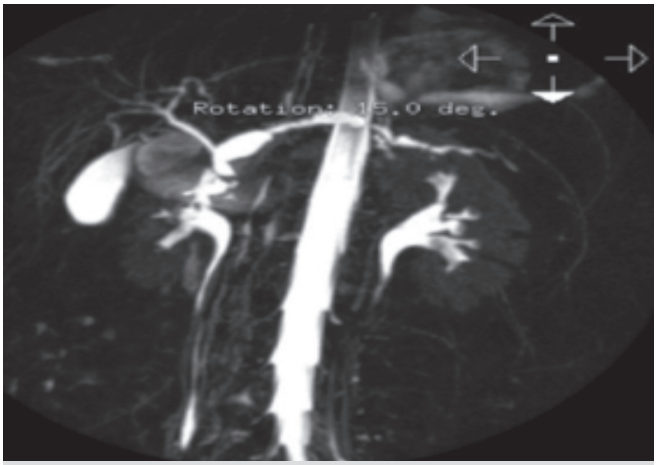

Figure 1. MRCP shows dilatation and relative stenosis of the pancreatic duct.

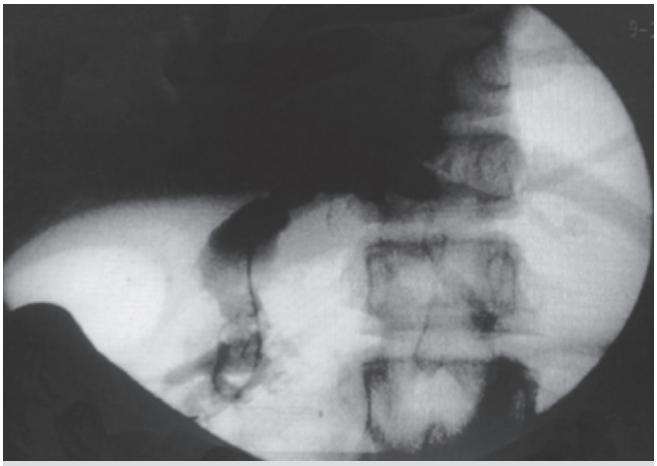

Figure 2. ERCP image of the case showing the dilated main pancreatic duct.

Pancreatic and biliary sphincterotomy was applied. The pancreatic duct was swept by a balloon, and a 5F-7 cm plastic stent was implanted (Figure 2). The patient was observed to have fewer complaints. She was scheduled for a follow-up visit in the following month. On the follow-up USG, the widest diameter of the pancreatic duct was 5 mm, and on the complete blood count, eosinophils were reduced (170/mm3). After three weeks, the temporary stent was removed, and the patient's pancreatic duct enlargement was seen to be reduced. On the next follow-up USG, the pancreatic duct was observed to be normal.

DISCUSSION

Chronic pancreatitis is commonly defined as a continuous, inflammatory process of the pancreas, characterized by irreversible morphologic changes. This chronic inflammation can lead to chronic abdominal pain and/or impairment of endocrine and exocrine functions of the pancreas. In children, chronic pancreatitis generally originates from genetic mutations and congenital abnormalities of pancreatic and bile ducts (3).

Prevalence of chronic pancreatitis is difficult to detect and varies between 0.04% and 5% of the adult population (4,5). There are only limited data concerning the frequency of eosinophilia with chronic pancreatitis (6,7). Chronic pancreatitis is characterized by parenchymal fibrosis, reduction in the number and size of asinuses, and varying sized dilatations of the pancreatic duct following triggers such as ductal obstructions, oxidative stress, genetic tendency, and metabolic abnormalities. Langerhans cells relatively reduce, and acinar loss is a stable indicator (8). Genetic, metabolic, obstructive, autoimmune, and idiopathic causes are related to chronic pancreatitis (9). Obstructive chronic pancreatitis is a process that develops under conditions such as ductal stones in the main pancreatic channel, duodenal wall cyst, and scarring or stenosis of the major/minor papilla. It is reported that the removal of the obstruction leads to the disappearance of the damage to the pancreatic tissue (10).

Diagnosis of chronic pancreatitis is possible by clinical findings, tests and imaging processes that indicate exocrine function. An early diagnosis of chronic pancreatitis may prevent any further damage to the gland. Findings after the imaging of the gland and exocrine function tests may or may not be compatible (11,12). In our case, exocrine function tests, serum amylase and lipase values were within normal range, and fat and reductants in the stool were negative; however, ERCP detected a diffusely dilated pancreatic duct with local saccular expansions as well as a proximal stenotic segment. ERCP findings supported the diagnosis of chronic obstructive pancreatitis. Although there is no specific laboratory test for chronic obstructive pancreatitis, it is possible to observe some increase in amylase and lipase during the acute inflammatory attacks of the disease. After the atrophy and fibrosis of the pancreatic parenchyma, serum amylase and lipase values tend to be normal and even low. It is possible to observe moderate eosinophilia pancreatitis and autoimmune pancreatitis (6,13,14). Macrophage-derived cytokines in pancreatic duct obstruction are thought to be caused by an increase in the number of blood eosinophils (15). It is important to note that there was a moderate eosinophilia during the first visit of our patient. For the differential diagnosis of eosinophilia, it is important to rule out parasitic, allergic, and autoimmune causes. In our patient, stool parasite and serum Fasciola IFAT levels were negative, and serum IgE and IgG4 levels were within normal range.

During the treatment, pain reduction is the primary goal. During this process, endoscopic and/or surgical interventions are done in order to prevent possible pancreatic deficiency. If the obstruction causes pancreatic damage, removal of the

obstruction may lead to the full recovery of the pancreas (6). As indicated in the ERCP, our case had diffuse enlargement and saccular expansions, and therefore, pancreatic and biliary sphincterotomy was applied, and a 5F plastic pancreatic stent was implanted. Three weeks later, the follow-up USG indicated that the diameter of the pancreatic duct was normal, and the stent was removed. The follow-up blood count revealed that the eosinophil number had reduced to within normal range. In our case, the decrease in eosinophilia following the removal of the pancreatic duct obstruction is noteworthy.

In this article, we present the case of a child, who first had the complaint of abdominal pain, and was eventually diagnosed with chronic obstructive pancreatitis accompanied by eosinophilia based on clinical, biochemical and imaging tests. The case is especially noteworthy as there are no similar cases reported in the literature.

In conclusion, transient eosinophilia with chronic obstructive pancreatitis in children is rare. Chronic obstructive pancreatitis is probably an organic cause of abdominal pain and eosinophilia in children.

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