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Autoimmune pancreatitis in a 13.5-year-old child – a case report

Autoimmunologiczne zapalenie trzustki u 13,5-letniego dziecka – opis przypadku

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S u m m a r y

Autoimmune pancreatitis (AIP) is a rare, newly recognized disease and there are only few reports of pediatric patients. It is a form of chronic pancreatitis that frequently presents as a mass which can be mistakenly diagnosed as a pancreatic cancer. Pancreatic neoplasms are generally treated by resection, while the management of autoimmune pancreatitis is mostly pharmacological, so it is very important to distinguish one from another. The presenting symptoms in AIP are variable although asymptomatic patients can occur as well. Autoimmune pancreatitis should be suspected when characteristic clinical signs and radiographic images are associated with a higher level of autoimmune antibodies and IgG4, but when serologic tests are not diagnostic, a biopsy may spare a child a pancreatic resection.

We report the case of a 13.5-year-old child who presented with a 4 cm mass in the head of the pancreas with a double duct sign who was finally diagnosed with autoimmune pancreatitis.

S t r e s z c z e n i e

Autoimmunologiczne zapalenie trzustki (AIP) jest rzadko rozpoznawaną jednostką chorobową, która może sprawiać trudności diagnostyczne. Dotychczas w literaturze opisano jedynie kilka przypadków pacjentów pediatrycznych. Jest to forma przewlekłego zapalenia trzustki (PZT), w której często pierwszą manifestacją jest guz w jamie brzusznej, który może być mylnie rozpoznany jako rak trzustki. Zmiany nowotworowe trzustki zazwyczaj są leczone operacyjnie, podczas gdy leczenie autoimmunologicznego zapalenia trzustki opiera się głównie na terapii farmakologicznej. Dlatego też różnicowanie tych dwóch jednostek chorobowych jest niezwykle istotne. Objawy autoimmunologicznego zapalenia trzustki mogą być zróżnicowane, jakkolwiek u niektórych pacjentów nie obserwujemy żadnych dolegliwości. AIP należy podejrzewać wtedy, gdy klinicznym i radiologicznym objawom guza towarzyszą odchylenia w badaniach laboratoryjnych, takie jak podwyższony poziom autoprzeciwciał oraz frakcji G4 immunoglobuliny G. Natomiast gdy badania serologiczne nie są wystarczające do postawienia rozpoznania, wykonanie biopsji guza może uchronić pacjenta od niepotrzebnego zabiegu operacyjnego.

W artykule przedstawiono przypadek 13,5-letniego chłopca z guzem głowy trzustki oraz zdwojeniem przewodu trzustkowego, u którego ostatecznie rozpoznano autoimmunologiczne zapalenie trzustki.

Konflikt interesów
Conflict of interest

Brak konfliktu interesów
None

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INTRODUCTION

Autoimmune pancreatitis (AIP) is a rare, usually an adult-onset inflammatory autoimmune disease, a form of chronic pancreatitis, extremely uncommon in children. AIP is usually associated with a mass in the pancreas, thus mimicking pancreatic neoplasia. Failure to consider this condition could lead to unnecessary medical procedures or pancreatic resection, whereas it often completely resolves with steroid treatment (1-3).

The first observations of pancreatitis to suggest the concept of AIP were reported about 50 years ago by Sarles et al. (4), however the term autoimmune pancreatitis was originally introduced by Yoshida et al. (5) in 1995. In 2002, the Japan Pancreas Society published the diagnostic criteria of AIP based on a combination of the findings of imaging, laboratory testing, and histological analysis (6). AIP likely accounts for a significant proportion of cases previously classified as idiopathic

pancreatitis (7). In 2011, the International Association of Pancreatology proposed International Consensus Diagnostic Criteria (ICDC), which composed of five cardinal features such as imaging, serology, other organ involvement, histology, and response to steroid therapy, categorized as type 1 or 2 AIP findings depending on the diagnostic reliability (8).

The presenting symptoms are variable and most commonly include painless jaundice, weight loss and abdominal pain. Patients rarely present with acute attacks of pain, more typical of acute pancreatitis, some of patient with AIP have diabetes mellitus (7). Although asymptomatic patients can occur as well.

CASE REPORT

13.5-year-old previously healthy girl was admitted to Department of Gastroenterology, Hepatology, Feeding Disorders and Pediatrics, The Children's Memorial Health Institute with suspicion of pancreatic tumor.

The mass was accidentally found while the physical examination on periodic health evaluation. An abdominal ultrasound (US scan) examination and computer tomography (CT) were performed and revealed enlarged head of pancreas with the mass measuring 40 x 33 x 38 mm. Laboratory tests were within normal limits. Immunoglobulin levels including IgG 4 subclass were normal as well as CEA and CA19-9 levels.

The patient was transferred to our hospital for further investigation. On physical examination no abnormalities except for the mass in the left upper quadrant of abdomen were found. Laboratory tests revealed slightly elevated serum amylase (102 U/l) and lipase (210 U/l) activity. US scan similarly to previous examinations showed 33 x 22 mm heterogeneous solid mass in the enlarged pancreatic head and mild dilation of the pancreatic duct (2.5 mm).

In order to better visualization of the change – magnetic resonance imaging (MRI) of the abdomen was performed. It showed difficult to distinguishable change of size 30 x 25 mm. The pancreatic duct was widened (as in the US scan) and in the distal part of the pancreas doubled (pancreas divisum was suspect) (fig. 1).

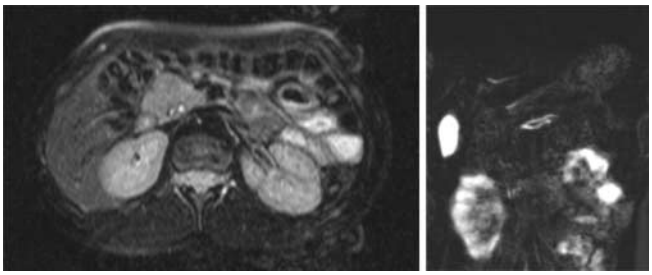

Fig. 1. MRI image. Focal mass in the head of the pancreas. Widened pancreatic duct, doubled in the distal part. Material of the Department of Diagnostic Imaging, The Children's Memorial Health Institute, Warsaw, Poland

On suspicion of pancreatic neuroendocrine tumor the oncological consultation was performed and the following tests were recommended: Alpha-fetoprotein (AFP), quantitative human chorionic gonadotropin (Beta-hCG), IgG4, 24-hour urine collection for catecholamines and metabolites and insulin level. The tests were performed and all the results were normal. Also the chest X-ray showed with no abnormalities. Furthermore we performed somatostatin receptor scintigraphy (SRS) with the use of ^{99m}Tc-labeled somatostatin analogues, however, no pathological accumulation of tracer was observed.

After the surgical and the oncology reconsultation an endoscopic ultrasound examination (EUS) with biopsy for histopathological examination was indicated. In the EUS enlarged head of the pancreas and atrophic body and tail were found, the mass was indistinguishable, which raised the suspicion of chronic pancreatitis. The pancreatic duct course suggested the pancreas divisum. In the histopathological samples no malignant cells were found.

The results of laboratory tests were positive for Antinuclear Antibodies (ANA) (1:80) and Anti-Smooth Muscle Antibodies (ASMA) (1:80). Other antibodies: Liver-Kidney Microsomal (LKM), Antimitochondrial (AMA), Anti-Parietal Cell (APCA) were negative.

Because of the suspicion of the autoimmune pancreatitis steroids therapy was initiated – prednisone (Encorton) at an initial dose of 40 mg (0.8 mg/kg). Patient was discharged home in good general condition with the recommendation of gradual dose reduction.

After 5 weeks the girl in good condition, without any symptoms was admitted for control CT. No abnormalities in the physical examination or in the laboratory tests were noticed. In the performed CT at the head of the pancreas similarly to previous examinations showed the mass (36 x 26 x 34 mm). Current treatment was maintained.

2 months later in the ultrasound examination the mass reduced to 20 x 17 mm.

In the next 5 months patient was admitted for control tests – Encorton is continued until present (dose 10 mg/24 h), no symptoms were noticed. Clinical and laboratory tests were normal (autoantibodies, IgG4 level, fecal fat test). In abdominal US scan were features of chronic pancreatitis, but no mass was noticed. Molecular test for mutations in *SPINK1*, *CFTR*, *CTRC* and *PRSS1* genes was performed but no genetic background of chronic pancreatitis was detected.

DISCUSSION

Autoimmune pancreatitis is a well described disease in adults, whereas most of the information about AIP in children comprises case reports or small series of patients (9-14). One of the first reports of AIP in a child was diagnosed after pancreaticoduodenectomy (15). Only 16 children with AIP have been reported in the literature till 2014 and their key clinical finding was a diffuse steroid-responsive pancreatic enlargement (16).

The cardinal clinical features of AIP in the ICDC are based on pancreatic parenchymal and ductal imaging, other organ involvement, pancreatic histology, serum

IgG4 level and response to steroid treatment (8). Pancreatic findings on abdominal CT or MRI often are the first clues that raise the suspicion of pancreatic cancer or AIP and a combination of typical imaging and pancreatographic findings is highly suspicious for AIP. Autoimmune pancreatitis is recognized as the pancreatic manifestation of a multi-organ syndrome called IgG4-Related Disease (IgG4-RD). As a result, the presence of other organs commonly associated with IgG4-RD (e.g., proximal bile duct stricture, retroperitoneal fibrosis or salivary gland enlargement) are supportive findings for AIP, and referred to as other organ involvement. Pancreatic histology obtained by core tissue biopsy (or a resected pancreatic specimen) is uniquely recognized as the "gold standard" for AIP diagnosis, however, usually not available in children. Finally, response to steroid treatment (prednisone 0.6 to 1 mg/kg) evidenced by resolution or marked improvement in radiographic features is recognized as an important criterion (8). The serum IgG4 level is recommended as a serological marker. Because the upper limits of normal IgG4 vary between laboratories, 2-fold elevation above normal rather than absolute value is recommended to use. Its level is appreciated as a more sensitive and specific disease marker than previously used serologies, which included total IgG, γ-globulin, and auto-antibody (ANA and RF) levels. Oracz et al. performed serological tests for anti-tissue antibodies and IgG4 on 129 children with pancreatitis. The presence of anti-tissue antibodies, suggesting the autoimmune character of pancreatitis, was detected in 75 but finally AIP was suspected in 6 patients (17). El-Matary et al. described successful treatment of fibrosing pancreatitis with steroids in three children. Biopsy of one showed lymphocytic and plasma cell infiltration (18). The response of many patients with fibrosing pancreatitis to steroids raises the possibility these children were actually suffering from AIP. Blejter et al. described an adolescent case of AIP diagnosed at laparotomy performed because of a mass in the head of the pancreas. The patient's IgG4 level was normal and autoimmune serologies were negative. Pathology revealed periductal lymphoplasmacytic infiltration. The patient finally improved when steroids were introduced (9). Zen et al. described two pediatric patients with the diagnosis of AIP based on histological confirmation of the specific inflammation in the pancreas, whereas radiological features were not specific (16).

Although AIP is a rare cause of chronic pancreatitis in children, it is generally underdiagnosed and requires a high index of clinical suspicion especially in patients with unexplained pancreatic disease presenting with obstructive jaundice, pancreatic mass/enlargement, pancreatic atrophy or exocrine insufficiency. The performance of a biopsy should be considered in any patient presenting with a pancreatic mass, especially in association with pancreatitis which can distinguish a neoplastic process from an inflammatory one. The histopathological examination is important in confirming the diagnosis of AIP especially in the absence of serological markers, otherwise the diagnosis of AIP may be delayed or overlooked.

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