Diagnostic and Interventional Endoscopy

Case Report

Rare Pancreatic Anomaly: Annular Pancreas

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Abstract

Acute pancreatitis is defined as inflammation of the pancreas gland accompanied by abdominal pain and elevated levels of amylase and lipase. The reported annual incidence of acute pancreatitis varies between 4.9 and 35 per 100 000 people. Annular pancreas is a rare cause of acute pancreatitis. The incidence of annular pancreas varies between 5 and 15 per 100 000. It presents with different clinical symptoms and can cause nausea, vomiting, cholangitis, and pancreatitis. In this case report, we present one case showing that the etiology of acute pancreatitis is annular pancreas.

Keywords: Pancreatitis, annular pancreas, cholangitis, gastrointestinal system

INTRODUCTION

Acute pancreatitis is defined as an inflammatory process of the pancreatic gland.[1] Clinically, it usually presents with epigastric or back pain of a dull nature.[2] In patients with suspected acute pancreatitis, physical examination, laboratory tests, and imaging studies are used to establish the diagnosis. Except for some exceptions, a more than 3-fold increase in amylase and lipase values is usually expected.[3,4] Although various imaging methods are used, abdominal ultrasonography is frequently used to detect edema and peripancreatic fluid around the pancreas. In order to diagnose acute pancreatitis, at least 2 of the physical examination, laboratory tests, and imaging methods must be compatible with pancreatitis.[5] When looking at the causes of pancreatitis, choledocholithiasis, alcohol, hypertriglyceridemia, hypercalcemia, and drugs are frequently seen. Annular pancreas, which is seen in less than 1% of the population, is one of the rare causes of pancreatitis. In this case report, we will talk about a patient who presented with acute pancreatitis and was diagnosed with annular pancreas as the cause of pancreatitis.

CASE PRESENTATION

A 24-year-old male patient diagnosed with Down syndrome was admitted to us with belt-like abdominal pain. The patient's physical examination revealed splitting in the S2 heart sound and a systolic murmur. There was also tenderness in the epigastric region. In the examinations performed, the patient's amylase increased 2-fold and lipase increased 3-fold, whileaspartate aminotransferase (AST), alanine aminotransferase (ALT),alkaline phosphatase(ALP) gamma glutamyl transferase(GGT), and bilirubin values were found to be normal. Peripancreatic pollution and pancreatic head edema were detected in abdominal ultrasonography, and the patient was hospitalized with a preliminary diagnosis of acute pancreatitis. When the patient's anamnesis was examined, it was determined that he had a history of pancreatitis attacks 3 times before. The patient did not consume alcohol, and no hypercalcemia or hypertriglyceridemia was found in other examinations. The Immunoglobulin G4(IgG4) level was detected close to the upper limit. There was no clear interpretation in ultrasonography regarding pancreatitis, the patient underwent magnetic resonance imaging. Cholangiopancreatography was performed. Although the choledochus lumen could not be seen in magnetic resonance cholangiopancreatography(MRCP) due to suspicion of secondary compression, expansion of the bile ducts and main pancreatic duct was detected, and no stone or sludge was detected in the bile duct. In addition, it was stated in the same report that the patient had an appearance compatible with annular pancreas (Figure 1). After the diagnosis of annular pancreas was made and the patient's complaints decreased after treatment, he was discharged with the recommendation of follow-up. Informed consent was obtained from the patient who participated in the study and presented as a case.

DISCUSSION

Pancreatitis is a pancreatic inflammatory disease that presents with abdominal pain and elevated pancreatic enzymes.[6] The reported annual incidence of acute pancreatitis ranges from 4.9 to 35 per 100,000 individuals.[78] The most common causes of acute pancreatitis are gallstones, alcohol, hypertriglyceridemia, and ERCP procedure. Rare causes include drugs, toxins, and anatomical and physiological anomalies of the pancreas. Annular pancreas, pancreas divisum, and Oddi sphincter dysfunction can be considered.

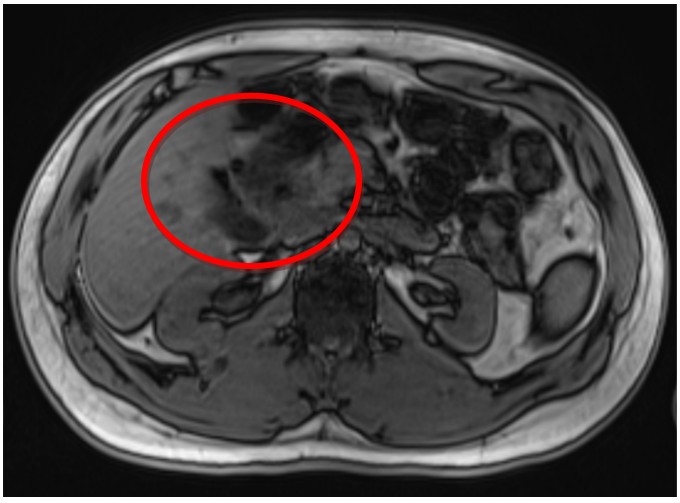

Figure 1. MRCP image of pancreatic tissue surrounding the duodenum.

Annular pancreas is rare, and its incidence varies between 5 and 15 per 100 000.[9-11] It is thought to be caused by incomplete rotation of the ventral pancreatic bud. Multiple theories have been produced to explain annular pancreas, such as the Lecco theory and the Baldwin theory.[12,13] It is divided into 2 groups, complete and incomplete, according to its location around the duodenum.[14] While the diagnosis is usually made in childhood, it can also be made in adults between the ages of 20 and 50. While two-thirds of patients are asymptomatic, other symptoms include vomiting, abdominal pain, and postprandial bloating. Rarely, patients may also present with pancreatitis and cholangitis.[15] In our case, our patient presented with pancreatitis. Imaging methods such as radiography, computed tomography, and MRCP can be used to make the diagnosis. Prognosis is related to the age of onset of symptoms. Although the prognosis is generally good in adults, the main cause of mortality and morbidity is complications of bypass surgery performed in symptomatic patients. Experienced radiologists are needed to report radiological examinations. Annular pancreas is a rare cause of pancreatitis and should not be ignored in cases where the cause is unknown.

Informed Consent: Written informed consent was obtained from the patient who participated in this study.

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REFERENCES

1. *Clinical Manifestations,diagnosis and natural history of acute pancreatitis,Santhi Swaroop Vege , Update*.
2. Banks PA, Freeman ML, Practice Parameters Committee of the American College of Gastroenterology. Practice guidelines in acute pancreatitis. *Am J Gastroenterol*. 2006;101(10):2379-2400. [CrossRef]
3. Mookadam F, Cikes M. Cullen's and Turner's signs. *N Engl J Med*. 2005;353(13):1386. [CrossRef]
4. Yadav D, Agarwal N, Pitchumoni CS. A critical laboratory evaluation tests in acute pancreatitis. *Am J Gastroenterol*. 2002;97(6):1309-1318. [CrossRef]
5. Banks PA, Bollen TL, Dervenis C, et al. Classification of acute pancreatitis --2012: revision of the Atlanta classification and definitions by international consensus. *Gut*. 2013;62(1):102-111. [CrossRef]
6. Peery AF, Crockett SD, Murphy CC, et al. Burden and cost of gastrointestinal, liver, and pancreatic diseases in the United States: Update 2018. *Gastroenterology*. 2019;156: (1):254-272.e11.
7. Vege SS, Yadav D, Chari ST. Pancreatitis. In: Talley NJ, Locke GR, Saito YA, eds. *GI Epidemiology*. 1st ed. Blackwell Publishing , Malden , MA; 2007.
8. Boxhoorn L, Voermans RP, Bouwense SA, et al. Acute pancreatitis. *Lancet*. 2020;396(10252):726-734. [CrossRef]
9. Ravitch MM. The pancreas in infants and children. *Surg Clin North Am*. 1975;55(2):377-385. [CrossRef]
10. Theodorides T. [Annular pancreas]. *J Chir (Paris)*. 1964;87:445-462.
11. Ravitch MM, Woods AC, JR. Annular pancreas. *Ann Surg*. 1950;132(6):1116-1127. [CrossRef]
12. Laughlin EH, Keown ME, Jackson JE. heterotopic pancreas obstructing the ampulla of Vater. *Arch Surg*. 1983;118(8):979-980. [CrossRef]
13. Baldwin WM. A specimen of annular pancreas. *Anat Rec*. 1910;4(8):299-304. [CrossRef]
14. Sandrasegaran K, Patel A, Fogel EL, Zyromski NJ, Pitt HA. Annular pancreas in adults. *AJR Am J Roentgenol*. 2009;193(2):455-460. [CrossRef]
15. Urayama S, Kozarek R, Ball T, et al. Presentation and treatment of annular pancreas in an adult population. *Am J Gastroenterol*. 1995;90:995.