AUTOIMMUNE PANCREATITIS ASSOCIATED WITH PANCREATIC PSEUDOCYST: A CASE REPORT

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ABSTRACT

Autoimmune pancreatitis is a sub-type of chronic pancreatitis. It has 2 further types; type I and II. Type I is associated with IgG4 disease. We describe a case of chronic pancreatitis that ultimately turned out to be IgG4 disease.

A 45-year-old female with no co-morbidities presented on 18th November 2022 with epigastric pain, left hypochondrium pain, vomiting, and fever for 5 days. She had previously been admitted twice to the hospital with similar complaints and was diagnosed with acute pancreatitis.

Examination revealed tenderness in the epigastrium and left hypochondrium; Laboratory investigations revealed serum Lipase 405 U/L, serum Amylase; 178 U/L, Lipid profile. cholesterol; 242 mg/dL triglycerides; 218 mg/dL HDL; 42 mg/dL LDL; 169 mg/dL. HbA1c; 9.53%. and IgG4 level; 1657mg/liter. CT abdomen with pancreatic protocol showed a cystic lesion in the body and tail of the pancreas suggestive of an infected pseudocyst or localized acute pancreatitis.

The patient was diagnosed with type 1 autoimmune pancreatitis and a multidisciplinary team (MDT) was taken on board for further management. The patient was not deemed appropriate for percutaneous or endoscopic drainage of the pseudocyst. She therefore underwent distal pancreatectomy and splenectomy. The biopsy showed features favoring mucinous cystic neoplasm of the pancreas with no evidence of malignancy. On immunohistochemical stains, the reactivity pattern was positive for ER, inhibin, and CD 10 which highlighted the ovarian stroma and cytokeratin. The patient was discharged on 25th November 2022 on supportive treatment.

Key Words: Autoimmune pancreatitis; IG G4 related disease; Pseudocyst

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INTRODUCTION

Autoimmune pancreatitis (AIP) is a characteristic form of chronic pancreatitis. It is further classified into two types based on histopathology. Type 1 AIP is identified as a pancreatic manifestation of the multiorgan syndrome, now called IgG4-associated disease, and is histopathologically associated with lymphoid plasma cell infiltration, storiform fibrosis, and abundant IgG4 cells.[1] Type 2 AIP, also known as idiopathic ductal centered chronic pancreatitis (IDCP), is histologically defined by the presence of granulocytic infiltrates of the ductal wall (granulocytic epithelial lesions - called GELs), but without IgG4-positive cells.[2] IDCP is a specific disease of the pancreas associated with inflammatory bowel disease, commonly ulcerative colitis. [3]

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Jaundice, weight loss, and new-onset diabetes are the most common symptoms in these patients. Both subtypes of AIP are characterized by diffuse and focal enlargement of the pancreas and are markedly responsive to steroids. [4] Poor response to glucocorticoids raises doubts about alternative diagnoses because the clinical and imaging features of AIP and pancreatic adenocarcinoma can be very similar and can present a significant diagnostic dilemma even for experienced radiologists. [5]

CASE REPORT

A 45-year-old female patient was admitted from the general medicine outpatient department (OPD) on 18th November 2022 with the chief complaints of epigastric pain, left hypochondrium pain, vomiting, and fever for 5 days. Detailed history revealed that her epigastric pain was radiating to the back associated with low-grade intermittent fever with no rigors or chills and had nonprojectile multiple episodes of vomiting associated with intake of food. Moreover, the patient had been admitted twice previously to the hospital with similar complaints and was diagnosed as acute pancreatitis but no cause could be identified during the previous admissions. She had no other comorbid conditions before this admission and had no history of weight loss.

General physical examination of the patient was unremarkable. On systemic examination, she was well-oriented with normal cardiovascular and respiratory examination. The abdomen was soft but there was tenderness in the epigastrium and left hypochondrium with audible bowel sounds. The patient's investigations are tabulated in Table 1.

An ultrasound of the abdomen and pelvis revealed a contracted gall bladder with normal wall thickness and no gallstones. The pancreas appeared bulky with a cystic lesion in the body and tail measuring 6.2x5.5cm. The cyst could not be separated from the pancreas; hence computerized tomography scan was advised for further clarification.

CT abdomen with pancreatic protocol showed a 7.5x6.2x6.0cm hypodense bilobed cystic lesion in the body and tail of the pancreas with internal mildly enhancing thin-walled septation with mild to moderate fat stranding seen in the peripancreatic and perilesional area with few subtle nodules in the surrounding mesentery. These findings were attributed to infected pseudocyst or localized acute pancreatitis. A comparison made with the previous scan showed no interval change in the disease process.

The patient was diagnosed with type 1 autoimmune pancreatitis based on raised IgG4 levels, chronic and recurring nature of pancreatitis, non-resolving pseudocyst, and good response to systemic steroids. A multidisciplinary team (MDT) including radiology, gastroenterology, and surgery departments was taken on board regarding the pancreatic pseudocyst.

The patient was not deemed appropriate for percutaneous or endoscopic drainage of the pseudocyst because of its large size and chronic nature. It was ultimately decided to operate on her; she underwent distal pancreatectomy and splenectomy because the pseudocyst involved both the body and tail of the pancreas. Since the splenic vein runs in the gastro-splenic ligament falling directly behind the pancreas, surgical resection of the body and tail of the pancreas would lead to resection of the splenic vein too; hence splenectomy was also performed. The biopsy showed features favoring Mucinous cystic neoplasm of the pancreas with no evidence of malignancy. On immunohistochemical stains, the reactivity pattern was positive for ER, inhibin, and CD 10 which highlighted the ovarian stroma and cytokeratin and WT1 was negative.

The patient was discharged on 25th November 2022 on supportive treatment and was counseled regarding the nature, course, and prognosis of the disease.

Table No 1: Laboratory investigations of patient

S. No	Investigation	Value
1.	White Cell Count (WBC)	10,600/cmm
2.	Hemoglobin (Hb)	14g/dl
3.	Mean Corpuscular Volume (MCV)	81fL
4.	Platelet count	376,000/cmm
5.	Random blood sugar (RBS)	346mg/dl
6.	Glycosylated hemoglobin (HbA1c)	9.53%
7.	Serum amylase	178 U/l
8.	Serum lipase	405 U/l
9.	Blood urea	14.3 mg/dl
10.	Serum creatinine	0.65 mg/dl
11.	Total bilirubin	0.22 mg/dl
12.	Alkaline phosphatase (ALP)	105 U/l
13.	Alanine aminotransferase (ALT)	43.7 U/l
14.	Serum calcium	9.51 mg/dl
15.	C-reactive protein (CRP)	7.5 mg/L
16.	Sodium (Na)	136 mmol/l
17.	Potassium (K)	5.3 mmol/l
18.	Chloride (Cl)	105 mmol/l
19.	Total cholesterol	242 mg/dl
20.	Triglycerides (TGs)	218 mg/dl
21.	High density lipoproteins (HDL)	42 mg/dl
22.	Low density lipoproteins (LDL)	169 mg/dl
23.	Lactate dehydrogenase (LDH)	190 U/l
24.	Serum uric acid	2.2 mg/dl
25.	IgG4 levels	1657 mg/L

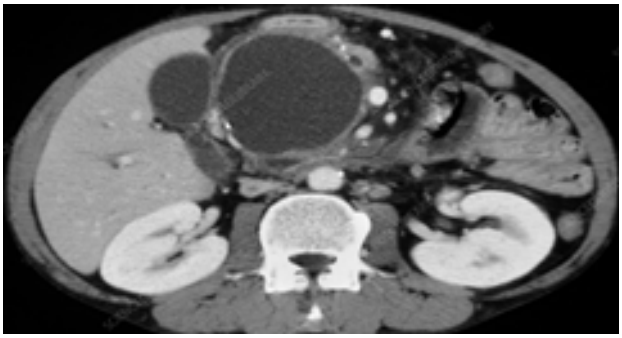

Figure 1: Contrast-enhanced CT scan abdomen revealing pancreatic pseudocyst

DISCUSSION

Before the establishment of the concept of autoimmune pancreatitis (AIP), this form of pancreatitis was recognized as lymphosclerosing pancreatitis or nonalcoholic ducto-destructive chronic pancreatitis due to its unique histologic features. The 2001 discovery that serum IgG4 concentrations were specifically elevated in AIP patients led to greater acceptance of this new entity. The classic form, called type 1 AIP, is associated with elevated serum IgG4 levels and tissue infiltration by IgG4+ plasma cells.[6] IgG4-independent type 2 AIP was identified by histologic features of neutrophilic infiltration into the epithelium of the pancreatic duct (granulocytic epithelial lesion - GEL). [7]

The pathological synonym for type 1 AIP is lymphosclerosing pancreatitis (LPSP), which is associated with predominantly lobular 'storiform' fibrosis, phlebitis obliterans, and infiltration by numerous IgG4+ plasma cells.[8] A diagnostic feature of AIP type 2 is GEL with or without lobular neutrophil infiltration.[9]

AIP type 1 mainly affects adult males and accounts for >90% of patients over 40 years of age. Males are predominant, with a male-to-female ratio of 3-4:1. [10] The main initial symptom is obstructive jaundice due to enlargement of the pancreatic head or thickening of the walls of the bile ducts. [11] These findings are similar to those found in pancreatic cancer and indeed 2–3% of pancreatic head lesions surgically excised for suspected malignancy were found to be type 1 AIP on histological examination. [12] Unlike pancreatic cancer, jaundice in patients with type 1 AIP improves rapidly with steroid therapy or sometimes resolves spontaneously.

In more than half of cases, pancreatic enzyme levels are slightly or moderately elevated. [13] Diabetes mellitus is a common complication, occurring in about half of patients, most of whom have type 2 diabetes. Steroid therapy may improve glucose intolerance in some patients with improvement in pancreatitis but may worsen diabetes in others, particularly in older patients.[14]

Elevated serum IgG4 (> 135 mg/dL) occurs in more than 90% of patients. It is the most sensitive and specific diagnostic test for AIP type 1 with a sensitivity of 95%, specificity of 97%, and accuracy of 97% for pancreatic cancer diagnosis.[15]

An important radiologic finding is uneven narrowing of the pancreatic duct, which can be detected using endoscopic retrograde cholangiopancreatography (ERCP) or magnetic resonance cholangiopancreatography (MRCP). [16] The former is more sensitive, while the latter is more widely used for diagnosis because of its less invasive nature. Complete obstruction of the main pancreatic duct with distal duct dilatation, which is common in patients with pancreatic cancer, is uncommon with type 1 AIP.

Characteristics of ultrasound, computed tomography (CT), and magnetic resonance imaging (MRI) include diffuse or focal pancreatic enlargement, peripancreatic capsular border, late phase enhancement of contrast-enhanced images, and abnormal signals intensity of MRI. Diffuse expansion of the pancreas, along with loss of cobblestone structure on the pancreatic surface, is a common feature of type 1 AIP in all imaging modalities. [17]

To date, many diagnostic criteria for AIP type 1 have been proposed in Japan, Korea, and the United States (based on the Mayo Clinic HISORt).[18] Oral steroid administration is the standard treatment for type 1 AIP. Typically, patients are started on prednisolone at 30-40 mg or 0.6 mg/kg daily for 2-4 weeks, and clinical signs, serology, and imaging data are closely monitored.[19]

Relapse can be defined as the recurrence of symptomatic or radiographically detectable disease in the pancreas as well as in extrapancreatic organs. A biochemical or serological relapse is not considered a relapse in itself.

Treatment by excision is not recommended for type 1 AIP. However, a surgical approach is unavoidable in small cases where malignancy cannot be completely ruled out even in large pancreatic centers. Surgery may also be considered for large pseudocysts that are rarely associated with type 1 AIP.[20] Benign mucinous cystic neoplasms of the pancreas have the potential to develop into aggressive cancers, surgical resection is recommended in younger patients. [21]

CONCLUSION

AIP type 1 is a pancreatic manifestation of a disease involving IgG4. Serological, imaging, and histological examinations are required to make a diagnosis. Distinguishing AIP from pancreatic neoplasm presents diagnostic difficulties as there is clinical and radiographic overlap, and it should always be remembered that biopsy is the gold standard for diagnosis.

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