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# A Case of Type 1 Autoimmune Pancreatitis (AIP), a Form of IgG4-Related Disease (IgG4-RD)

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Statistical Analysis C
Data Interpretation D
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**Conflict of interest:** None declared

**Patient:** Male, 70
**Final Diagnosis:** IgG4 RD
**Symptoms:** Jaundice
**Medication:** —
**Clinical Procedure:** —
**Specialty:** Gastroenterology and Hepatology

**Objective:** Rare disease

**Background:** Type 1 autoimmune pancreatitis (AIP), also known as lymphoplasmacytic sclerosing pancreatitis (LPSP), is a rare cause of chronic pancreatitis, characterized by a fibro-inflammatory process. However, patients with AIP may have a good response to corticosteroid therapy. We describe a Tunisian patient with AIP that was confirmed to be an IgG4-related disease (IgG4-RD).

**Case Report:** We describe a case of a 70-year-old man who was admitted to hospital for obstructive jaundice and abdominal pain. Serum liver function tests were abnormal and upper abdominal computed tomography (CT) imaging showed diffuse pancreatic swelling and strictures of the main pancreatic duct without any focal lesion. Pancreatico-biliary magnetic resonance imaging (MRI) showed a thickened rim surrounding the pancreatic duct Serum IgG4 levels were elevated, resulting in a diagnosis of IgG4-related AIP. The patient showed a good clinical, biochemical, and radiological response following steroid therapy in combination with azathioprine.

**Conclusions:** The diagnostic workup of IgG4-RD is complex and usually requires a combination of clinical examination, imaging, and serological analysis. As this case report has demonstrated, IgG4-RD should be considered in patients who present with pancreatitis or AIP, because of the favorable response to steroid therapy, particularly when treatment is initiated early.

**MeSH Keywords:** Glucocorticoids • Immunoglobulin G • Pancreatic Diseases

**Full-text PDF:** http://www.amjcaserep.com/abstract/index/idArt/904263

## Background

Type 1 autoimmune pancreatitis (AIP), also known as is known as lymphoplasmacytic sclerosing pancreatitis (LPSP), is a rare cause of chronic pancreatitis, characterized by a fibro-inflammatory process and increased IgG4-positive plasma cells [1]. Patients who are affected by AIP frequently have a good response to corticosteroid therapy. For this reason, it is important to exclude other differential diagnoses and to prescribe adequate treatment. We describe a Tunisian patient who presented with AIP and who is, to our knowledge, the first Tunisian case of AIP as an IgG4-related disease (IgG4-RD).

## Case Report

A 70-year-old man was admitted to our hospital with symptoms and signs of obstructive jaundice and with abdominal pain. His medical history revealed anorexia and weight loss in the previous month before admission. Physical examination showed jaundice without lymphadenopathy or hepatosplenomegaly.

Blood chemistry showed a gamma-glutamyl transpeptidase (GGT) of 1,165 U/L (N: 0–45 U/L), bilirubin 125 µmol/L (N: 2–20 µmol/L), alkaline phosphatase (ALP) 2,235 IU/L (N: 44–147 IU/L), alanine transaminase (ALT) 200 IU/L (N: 20–60 IU/L), and aspartate aminotransferase (AST) 160 U/L (N: 10–40 IU/L). Serum protein electrophoresis showed a polyclonal hypergammaglobulinemia of 18 g/L (N: 6.6–18.5 g/L). Serum amylase, lipase, and glucose were within normal limits. Serology for hepatitis B and C and autoimmune serology for antinuclear antibody (ANA) and anti-neutrophil cytoplasmic antibody (ANCA) were negative.

Upper abdominal computed tomography CT showed a diffuse pancreatic swelling and stricture of the main pancreatic duct without any focal lesion (Figure 1). Biliary magnetic resonance imaging (MRI) was performed and showed a capsule-like rim surrounding the pancreatic duct (Figure 2).

A diagnosis of autoimmune pancreatitis (AIP) and IgG4-related disease (IgG4-RD) was suspected, and a request for IgG4 serum levels was made. Serum IgG4 was elevated at 9.6 g/L (N: 0.08–1.4 g/L). The diagnosis of IgG4-related type 1 autoimmune pancreatitis (AIP) was made.

Treatment commenced with 0.6 mg/kg/day prednisolone. The patient showed a good clinical, biochemical, and radiological response (Figure 3). Subsequently, azathioprine 50 mg was started, and prednisolone treatment was tapered slowly. Repeated liver tests demonstrated rapid normalization, and IgG4 levels decreased after one year of follow-up, but without normalization. At the time of presenting this case report,

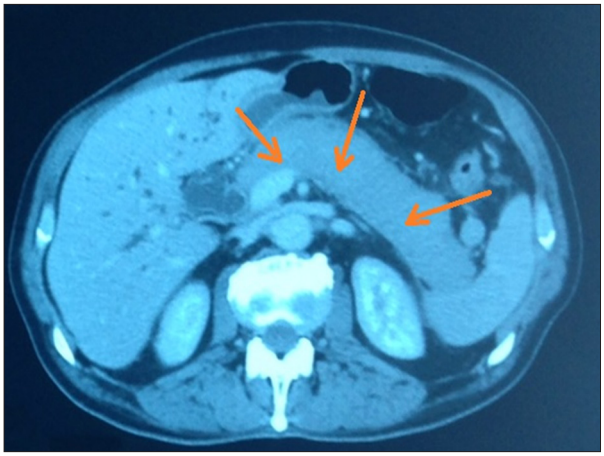

**Figure 1.** Computed tomography (CT) scan of the abdomen shows diffuse pancreatic swelling and strictures of the main pancreatic duct without a focal lesion (indicated by the arrows).

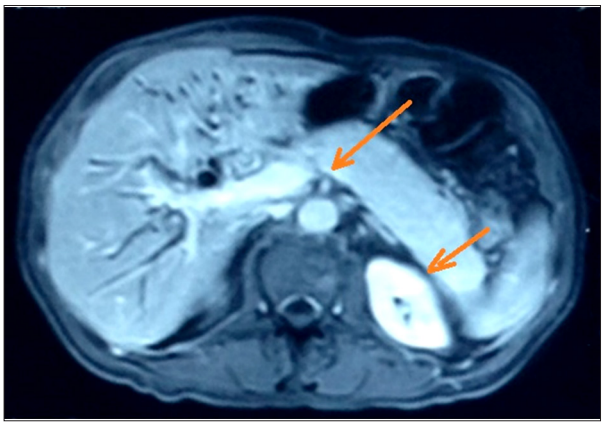

**Figure 2.** Magnetic resonance imaging (MRI) of the abdomen shows a 'capsule-like' rim surrounding the pancreatic duct (indicated by the arrows).

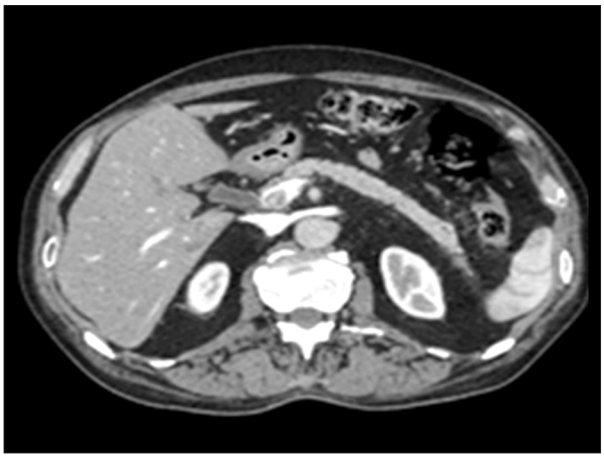

**Figure 3.** Computed tomography (CT) scan of the abdomen showing resolution of pancreatic swelling after steroid and azathioprine treatment.

the patient remains in clinical remission, with low-dose prednisolone of 5 mg per day in combination with azathioprine.

## Discussion

Although type 1 autoimmune pancreatitis (AIP) is a rare condition, there is a growing incidence in Eastern countries, possibly due to an improved rate of detection [2]. The first description of IgG4-related disease (IgG4-RD) was in an autoimmune-mediated, steroid-responsive form of AIP [3]. Since IgG4-RD is a multisystem disease characterized by the development of fibro-inflammatory lesions infiltrated by abundant IgG4-positive plasma cells in multiple organs, it can have a variety of clinical presentations [4,5].

The pathogenesis of IgG4-RD remains unknown. However, recent studies have shown a fibro-inflammatory response to a possible auto-antigenic trigger that initiates and perpetuates the disease [6,7]. However, IgG1 and IgG4 from patients with IgG4-RD can bind to major organs causing tissue damage [8,9].

The diagnosis of IgG4-RD is made between the ages of 50 years and 70 years, but IgG4-RD has also been diagnosed in children [10]. IgG4-RD can involve any tissue but it frequently affects the pancreas, salivary glands, and lymph nodes [11,12]. Other common extra-pancreatic manifestations are tubulointerstitial nephritis, dacryoadenitis, and periaortitis [13].

The symptoms presented by the patient presented in this case report were limited to the pancreas, which is the most common presentation in many studies. Previous studies have also found that a high proportion of cases of IgG4-RD present with abdominal pain (65%), jaundice (62%), and weight loss (42%) [14]. Although these clinical features may suggest a diagnosis of IgG4-RD, the diagnosis requires radiological and serological confirmation [15].

In this case, we made the diagnoses of type 1 AIP and IgG4-RD using both the guidelines of the International Association of Pancreatology (IAP) and the HISORt criteria from the Mayo Clinic [16]. However, clinicians must be aware that serum IgG4 levels can be elevated in multiple non-IgG4-RD inflammatory and malignant conditions, and a serum IgG4 ≥2.8 g/L is useful in distinguishing between a diagnosis of IgG4-RD and non-IgG4-RD [17]. It is also important to monitor patients serologically during follow-up to predict the risk of relapse. Also, the characteristic imaging features described by the pancreatic MRI in this case, as a 'capsule-like rim' surrounding the pancreatic duct is highly specific to type 1 AIP was an important diagnostic finding in our patient [18]. The combined presentation and liver function tests, elevated serum IgG4 level, and radiological findings support the diagnosis of IgG4-RD in this case. Although the definitive diagnosis of AIP requires biopsy and histology for definitive diagnosis, we found it unnecessary to perform a biopsy since the diagnosis was strongly suspected.

It is very important for clinicians to distinguish between AIP and pancreatic cancer because the treatments and prognosis are different [19]. For this reason, it is essential to exclude pancreatic carcinoma, cholangiocarcinoma, lymphoma, or other auto-immune disorders, which could lead to unnecessary surgical resection [20]. Generally, AIP has a benign clinical course and is highly responsive to steroids, which may be used as a confirmatory diagnostic tool [21].

This patient showed resolution of jaundice, pancreatic mass, liver tests, and IgG4 levels within two weeks following initiation of corticosteroid therapy, which are first-line therapies [10]. Remission induction is commonly initiated with prednisolone 0.6 mg/kg per day with a quick response within days or weeks, and remission can be achieved within months. Slow tapering of the steroids dose should begin 2–4 weeks after induction of therapy [22]. However, clinical relapse is common and additional immunosuppression may be required, including azathioprine, and rituximab [23]. Even after clinical improvement, patients with IgG4-RD require follow-up, due to an increased relative risk of developing cancer, including stomach, lung, prostate, colon, bile duct and thyroid cancer and non-Hodgkin's lymphoma, in the year following diagnosis of type 1 AIP [24].

## Conclusions

A case of type 1 AIP and IgG4-RD is presented that responded well to treatment with a combination of steroids and azathioprine. The diagnostic work up of IgG4-RD is complex and usually requires a combination of clinical examination, imaging, and serological analysis. Type 1 AIP is associated with a rapid response to steroid therapy, and for this reason, it is important to make the diagnosis, as well as to exclude a broad variety of differential diagnoses, especially pancreatic cancer. The involvement of other organs with IgG4-RD should raise awareness of a requirement for patient follow-up.

### Conflicts of interest

None declared.

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