

Introduction

- Type 1 AIP, also known as lymphoplasmacytic sclerosing pancreatitis, is a rare form of idiopathic chronic pancreatitis associated with IgG4-related systemic disease.
- Predominantly affects male adults
- Multi-organ extra-pancreatic manifestations
 - sclerosing cholangitis, interstitial nephritis, sclerosing sialadenitis, mediastinal fibrosis, and thyroiditis
- To date there are no reports of vaccine-induced type 1 AIP
- Cause of AIP maybe multifactorial and that an inciting event in genetically predisposed individuals may trigger AIP
 - immunological, genetic, and/or environmental

Clinical Presentation

- 54-year-old, non-Hispanic white man
- History of chronic stable sarcoidosis and ulcerative colitis (remission)
- Decreased appetite, abdominal pain, fatigue, 25 pound weight loss
- Had received the second dose of Pfizer/BioNTech COVID-19 mRNA vaccine about 1 month prior to current presentation
- Jaundice and scleral icterus

Work-up

Laboratory test	Test Level	Reference Range
Total bilirubin	10.5 mg/dL	0.2-1.0 mg/dL
Direct bilirubin	7.9 mg/dL	0-0.2 mg/dL
AST	137 U/L	10-55 U/L
ALT	515 U/L	10-55 U/L
Alk phos	630 U/L	45-128 U/L
Lipase	240 U/L	13-60 U/L
IgG4	287 mg/dL	4-86 mg/dL

- Immunohistochemical tests showed IgG and IgG4 positive plasma cells
- There were 18 IgG4 positive plasma cells with a calculated IgG-IgG4 ratio of 0.7
- Suggestive of an IgG4-related chronic pancreatitis

Imaging

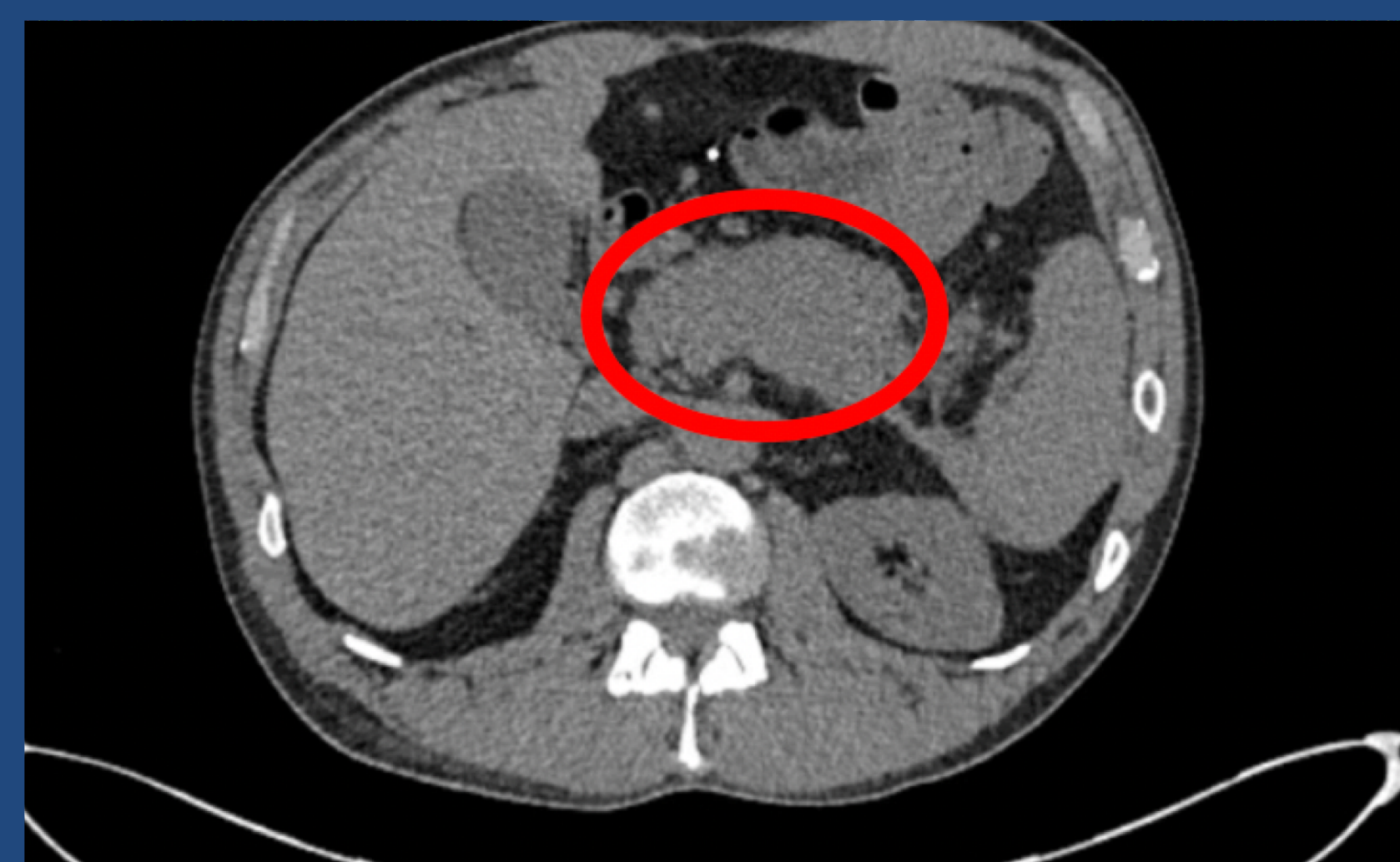


Figure 1: Distended pancreatic parenchyma with peri-pancreatic stranding with segments of biliary ductal dilation.



Figure 2: Hypoechoic gland with hyperechoic foci without shadowing.

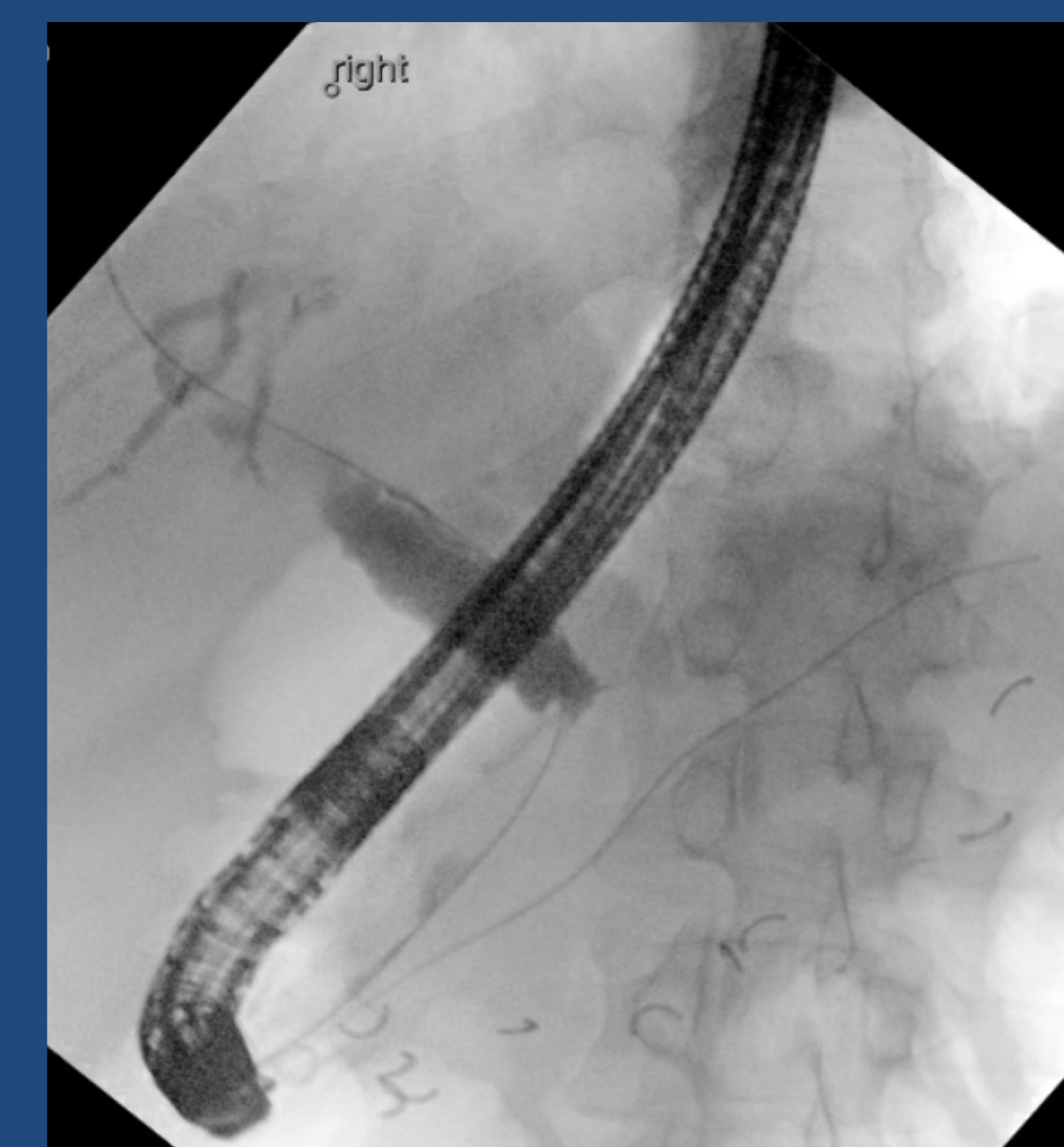


Figure 3: ERCP with length of stricture marked between the two arrows.

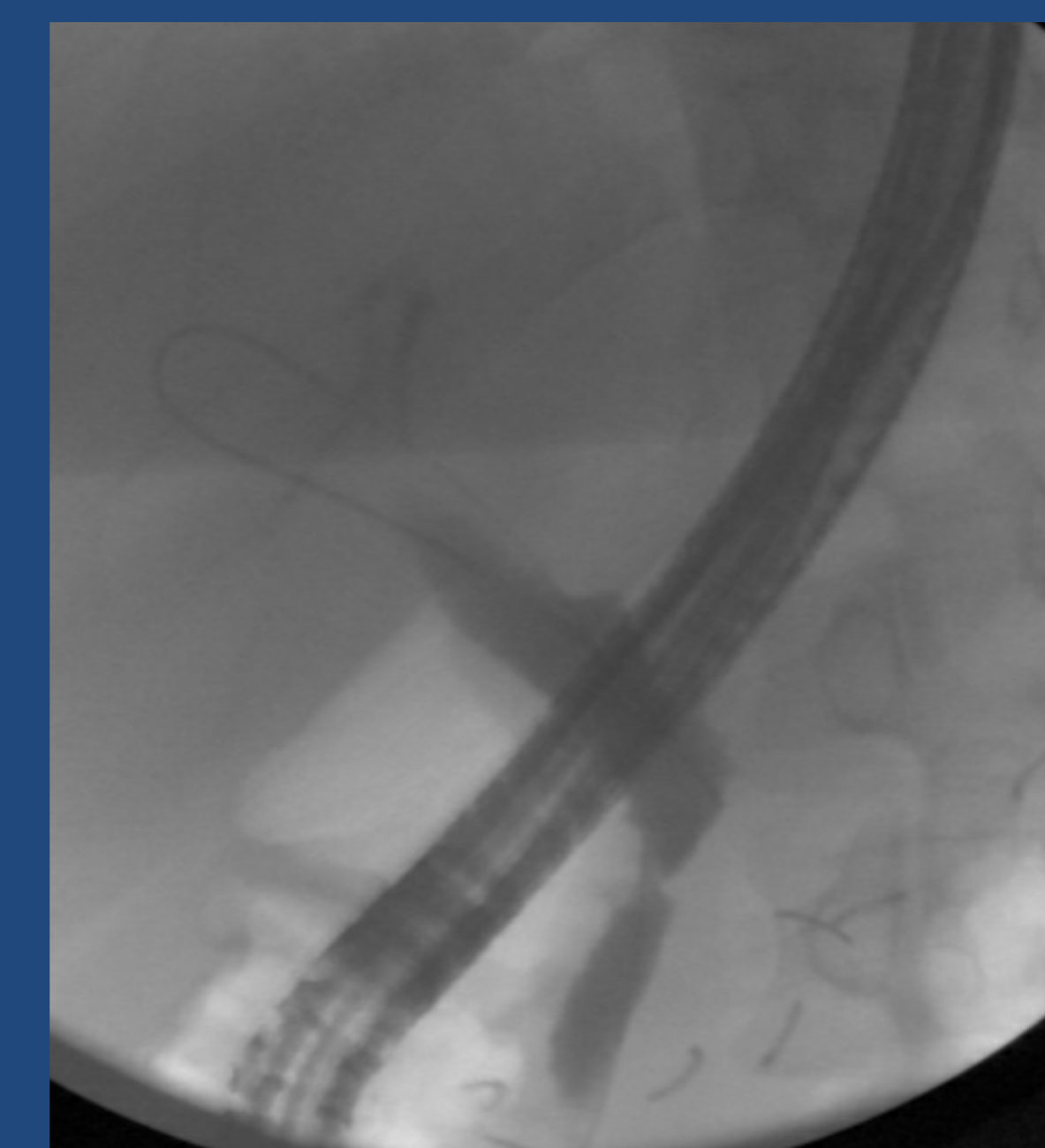


Figure 4: Repeat ERCP with improved stricture.

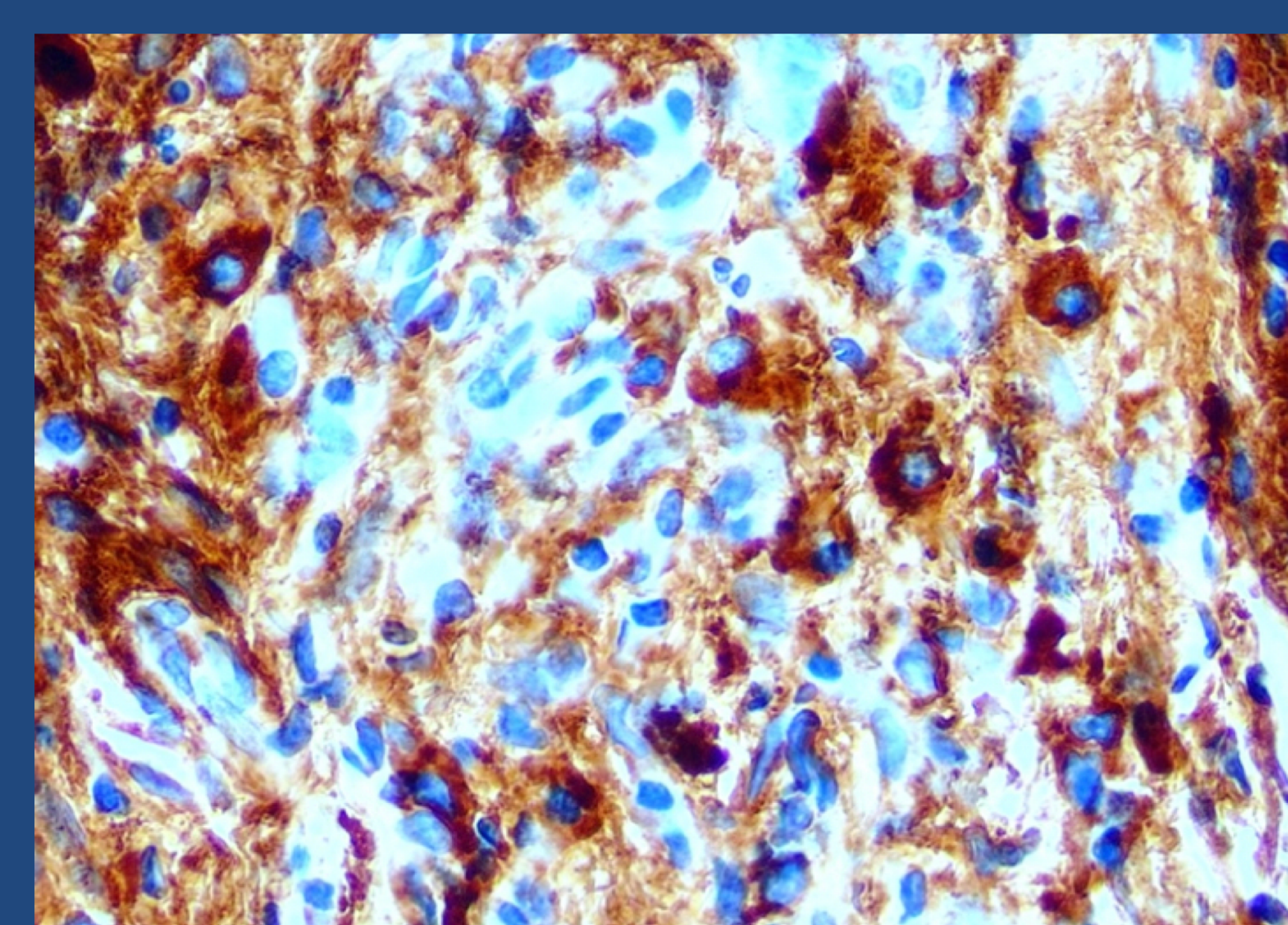


Figure 5: Pancreatic parenchyma with duct centric lymphoplasmacytic infiltrate.

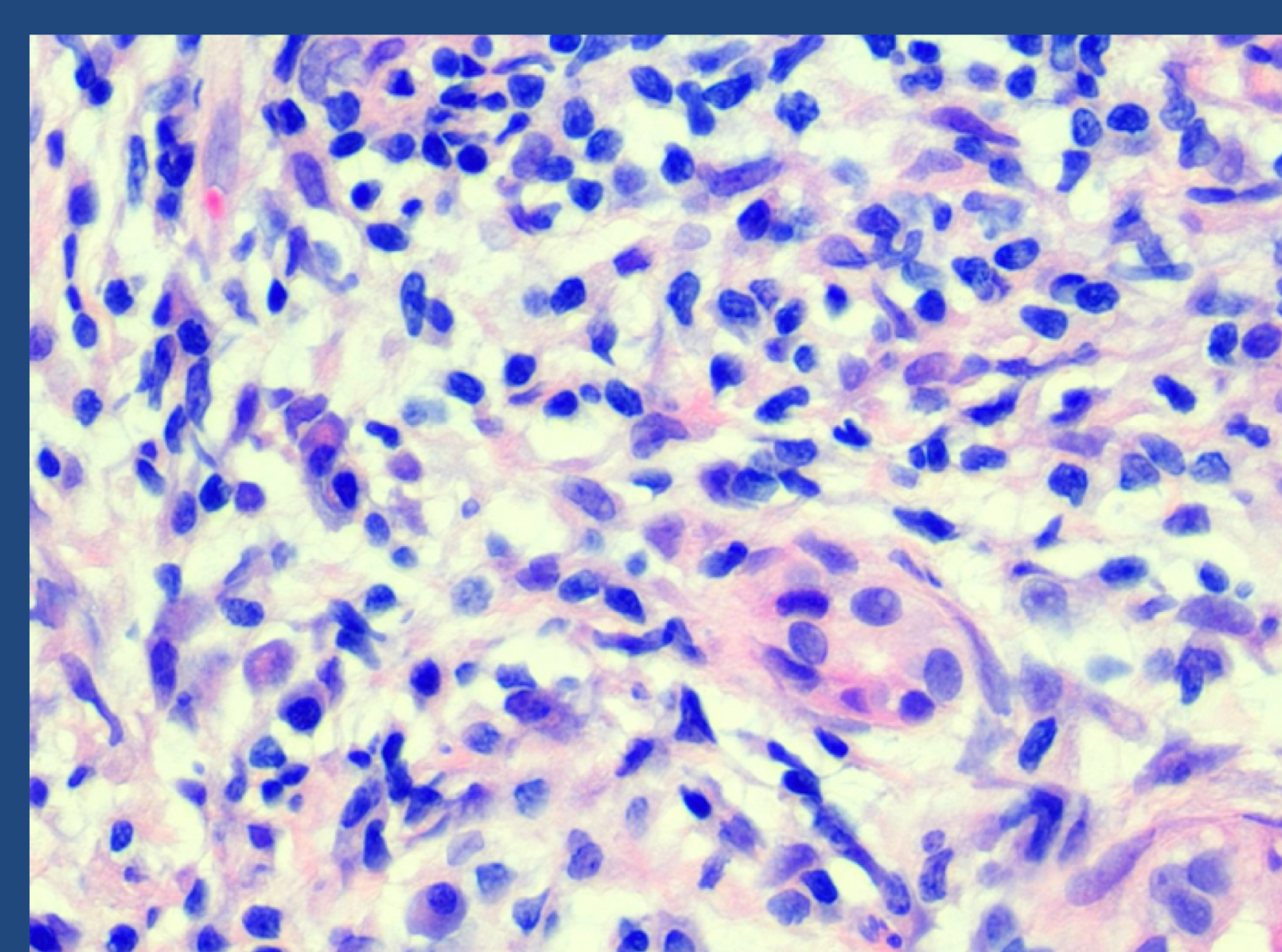


Figure 6: IgG4 positivity on plasma cells.

Table 1. Review of autoimmune hepatitis and autoimmune pancreatitis cases in patients with recent COVID-19 vaccination.

Reference	Diagnosis	Sex/Age	Vaccine
Bril et al. 2021	Autoimmune hepatitis	F/35	Pfizer/BioNTech mRNA
McShane et al. 2021	Autoimmune hepatitis	F/71	Moderna mRNA
Rocco et al. 2021	Autoimmune hepatitis	F/80	Pfizer/BioNTech mRNA
Becker et al. 2022	Autoimmune pancreatitis	M/54	Pfizer/BioNTech mRNA

Follow-up

- He was started on a three week prednisone taper starting with 40 mg
- Repeat laboratory work showed normalization of liver enzymes and IgG4
- Repeat MRCP showed strictures in the distal CBD with interval improvement
- Repeat ERCP showed improvement of the lower third of the main bile duct with a focal area of stenosis at 8 mm in length
- Two biliary stents were placed for serial dilation
- On 9 month follow-up he had gained his weight back and reported complete resolution of abdominal pain and fatigue

Discussion

- Both vaccine-induced acute hepatitis and pancreatitis have been reported occurring after receiving Pfizer/BioNTech COVID-19 mRNA vaccine
- Immune system activation and of autoreactive lymphocytes leading to development of autoimmune disease
- Previous cases reported patients improved with a steroid taper
- Our patient was the appropriate age and had ulcerative colitis; thus, the correct demographic for developing AIP
- He may have been genetically predisposed and the vaccination triggered the immune system
- No other confounding risk factors were identified

Conclusions

- It is important to consider that the COVID-19 vaccine could be the inciting factor for Type 1 AIP in patients with genetic predisposition
- Furthermore, it is unclear at this time whether patients should obtain additional doses of the vaccination once diagnosed with AIP
- Due to the risks of COVID-19 infection and ongoing mandates physicians should continue to discuss benefits and risks of vaccination with patients and to monitor for symptoms if vaccination is pursued

Bril F, Difalva S, Dean M, and Fetti D. Autoimmune hepatitis developing after coronavirus disease 2019 (COVID-19) vaccine: causality or casualty? *Journal of Hepatology*. 2021; 75(1):222-224.
 McShane C, Kiat C, Rigby J, and Crosbie O. The mRNA COVID-19 vaccine-a rare trigger of autoimmune hepatitis. *J Hepatol*. 2021; 75(5):1252-1254.
 Rocco A, Sgamato C, Compare D, and Nardone G. Autoimmune hepatitis following SARS-CoV-2 vaccine: May not be a causality. *Journal of Hepatology*. 2021; 75(3):728-729.