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Case Report

Isolated IgG4-related sclerosing cholangitis mimicking hilar cholangiocarcinoma: a case report of a challenging disease

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ABSTRACT

IgG4-related disease (IgG4-RD) has recently attracted attention worldwide; however, its diagnosis still remains challenging. It is an immune-mediated multisystem disease affecting a wide range of organs in the human body. Even though it's uncommon, IgG4-sclerosing cholangitis, which is a biliary manifestation of IgG4-RD, can happen without pancreatic involvement. Here, we report a case of a patient with imaging features typical of hilar cholangiocarcinoma, which eventually turned out to be IgG4 sclerosing cholangitis.

Keywords: IgG4-related disease, Sclerosing cholangitis, Cholangiocarcinoma

INTRODUCTION

IgG4-related disease (IgG4-RD) is an emerging, unique disease entity. It is a progressive immune-mediated disease that creates tumour-like fibrotic masses in different organs of the human body.[1] IgG4-sclerosing cholangitis (IgG4-SC) is characterised by extensive fibrosis in the bile duct wall and dense infiltration of IgG4-positive plasma cells.[2] Its concomitant pancreatic involvement is the most common presentation, while isolated IgG4-SC is uncommon. We hereby report a case of a 44-year-old female patient who was preoperatively misdiagnosed as hilar cholangiocarcinoma and underwent right hepatectomy. The pathologic report finally clinched the diagnosis of IgG4-SC.

CASE REPORT

A 44-year-old female patient presented to our hospital with complaints of pruritus, yellowish discoloration of the skin, and significant weight loss for the past 3 months. Laboratory investigations revealed elevated serum bilirubin levels. The total bilirubin was 2.8 mg/dl, with a direct component of 2.5 mg/dl and an indirect component of 0.3 mg/dl, suggesting obstructive jaundice. The complete blood count, serum amylase, and lipase were all normal.

Ultrasound of the abdomen revealed bilobar central intrahepatic radical (IHBR) dilatation with no evidence of any calculus or mass. The pancreas and pancreatic duct were unremarkable. A triphasic CT of the abdomen and pelvis was performed, which showed the presence of a poorly defined, heterogeneously enhancing mass at the porta hepatis, extending to involve segments V and VI of the liver and associated with mild dilatation of the central IHBR. The mass was encasing the hepatic artery at the liver hilum and causing complete occlusion of the right branch of the portal vein. Although additional tumour markers and histological correlation were suggested to rule out the possibility of an underlying inflammatory condition such as sclerosing cholangitis, imaging findings were more strongly suggestive of a hilar

cholangiocarcinoma. On detailed serological evaluation, Serum CA-19.9, CEA, IgG4, ASMA (anti-smooth muscle antibody), ANA (antinuclear antibody), and anti-mitochondrial antibody titres were found to be negative. Based on these imaging results and the results of the serology, a clinical diagnosis of hilar cholangiocarcinoma was established, following which the patient underwent a right hepatectomy with portal vein reconstruction and a left hepaticojejunostomy with resection of the peri-portal and level 8 lymph nodes.

On post-operative gross pathological examination, a thickening was seen along the left, right, and common hepatic ducts, predominantly at the hilum, forming a 3.5×2.5 cm soft tissue mass, partly pushing into the liver parenchyma. It was also seen to extend along the intrahepatic biliary radicles. Microscopic examination showed no evidence of any malignant or dysplastic changes in the bile duct epithelium. The left, right, and common hepatic ducts were enclosed in a marked lymphoplasmacytic infiltrate, eroding the hepatic plate with areas of storiform fibrosis. There were no areas of bile duct sclerosis or dilatation, but the inflammatory changes described above were shown to extend transmurally along the intrahepatic ducts. These results pointed to IgG4-related cholangitis as opposed to primary sclerosing cholangitis. The immunohistochemistry revealed 50–60 IgG4-positive plasma cells/HPF; however, the ratio of IgG4 to IgG-positive plasma cells was 20%, falling short of the commonly accepted threshold of 40% to diagnose IgG4-related disease. However, a final pathological diagnosis of IgG4-SC was established.

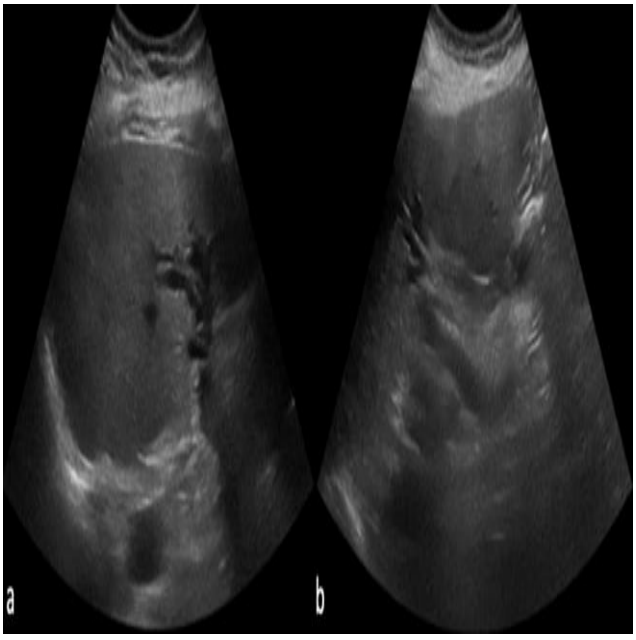

Figure 1 (A and B): Transverse ultrasound image shows bilobar intrahepatic biliary radical dilatation. Longitudinal ultrasound image shows normal echotexture of the visible head of the pancreas.

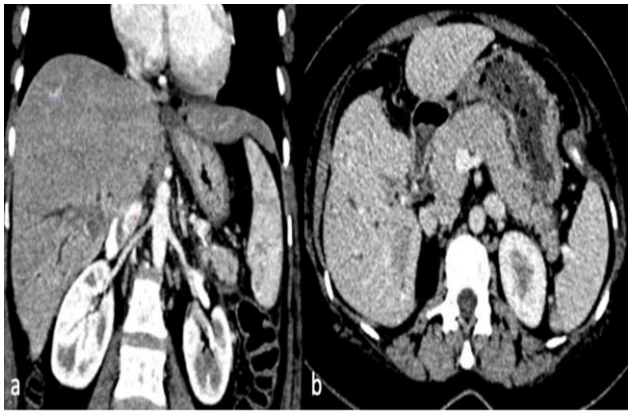

Figure 2 (A and B): Coronal and axial sections of contrast enhanced CT of the abdomen in the portal venous phase show intrahepatic extension of the mass involving segment VI of the right lobe. Note normal pancreatic attenuation and enhancement and the absence of pancreatic duct dilatation.

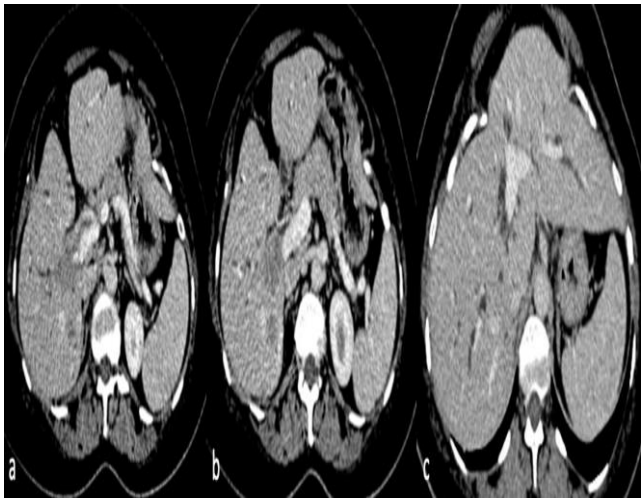

Figure 3 (A-C): Axial section of Contrast enhanced CT of the abdomen in the portal vonous phase shows an ill-defined, poorly enhancing mass at the porta hepatis seen to the enacse hepatic artery with complete occlusion of the right branch of the portal vein and causing upstream bilobar intrahepatic biliary radical dilatation.

DISCUSSION

Initially linked to autoimmune pancreatitis (AIP), immunoglobulin G subclass 4 (IgG4)-related disease (IgG4-RD) has now been reported in all organ systems, including the biliary tree, salivary glands, periorbital tissues, kidneys, lungs, lymph nodes, meninges, aorta, breast, prostate, thyroid, pericardium, and skin.[3]

IgG4-related sclerosing cholangitis is the biliary manifestation of IgG4-RD, which typically manifests as strictures and mass lesions but infrequently as cholecystitis.[4] The patients usually present with obstructive jaundice, weight loss, and abdominal pain.

Our case also had a similar presentation. Since there are so few case reports of IgG4-SC without pancreatic involvement, the diagnosis can be a little tricky.

IgG4-SC can be classified into four types based on the location of biliary strictures on cholangiograms. It's important to distinguish type 3 and type 4 IgG4-SC from cholangiocarcinoma, especially with hilar lesions.[5] The index case had a mass-like lesion at the porta hepatis as in type 4 IgG4-SC but was seen encasing vascular structures and extending into liver parenchyma. Therefore, based solely on imaging findings, the likelihood of hilar cholangiocarcinoma could not be eliminated.

The HISORt criteria were originally developed for the diagnosis of AIP and later adapted for the diagnosis of IgG4-SC. It combines histopathological (H), imaging (I), and serological (S) features, other organ manifestations (O) of IgG4-related disease, and response to treatment (Rt).[6] Given that the blood IgG4 levels were normal in our instance, it was challenging to accept IgG4-SC as the first differential diagnosis. IgG4 serology is positive in most cases, but a few previous studies have reported that lower serum IgG4 levels were observed in patients, particularly those with isolated IgG4-SC.[5]

Infiltration of >10 IgG4-positive plasma cells/high-power field (HPF) is one of the histopathological findings of IgG4-SC. In resected specimens, more than 50 IgG4-positive plasma cells/HPF are typically seen, and an IgG4/IgG-positive cell ratio >40% is a distinctive histological finding in IgG4-SC.[5] In our case, immunohistochemistry revealed 50-60 IgG4-positive plasma cells/HPF in the liver specimen; however, the ratio of IgG4 to IgG-positive plasma cells was 20%. A slight increase in the number of IgG4-positive plasma cells and a ratio of IgG4 to IgG less than 40% have been reported as features of the late sclerotic stage, where IgG4-positive cells may be sparse.[7]

The differential diagnosis of IgG4-SC is primarily primary sclerosing cholangitis, pancreatic cancer, chronic pancreatitis, and cholangiocarcinoma. PSC was excluded because the patient's ASMA and ANA serology results were negative and it has a distinctive beaded appearance of bile ducts on imaging. This was subsequently confirmed on histopathology as well. In our case, the presence of a hilar mass with vascular invasion, hepatic parenchymal extension, and absence of pancreatic involvement with a normal IgG4 serology misled us to a diagnosis of hilar cholangiocarcinoma. However, classical histopathological findings of the resected specimen aided in the diagnosis of IgG4-SC. The most crucial takeaway from our study is that a careful correlation of clinical features with radiological and serological findings and a preoperative liver biopsy is required for an accurate diagnosis of isolated IgG4-SC.

The main treatment for IgG4-SC is corticosteroids, which leads to rapid remission in most cases; however, relapses are seen in 50-70% of cases. Hence, patients are kept on long-term follow-up.[6]

CONCLUSION

Although IgG4-RD is an uncommon disease condition, one should be aware that the clinical and radiological features of isolated IgG4-SC might mimic cholangiocarcinoma. This disease entity is challenging to diagnose, particularly when there is no pancreatic involvement and normal serum IgG4 levels. Therefore, a liver biopsy should be performed prior to surgery to avoid the need for unnecessary surgery.

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REFERENCES

1. Perugino CA, Stone JH. IgG4-related disease: an update on pathophysiology and implications for clinical care. Nat Rev Rheumatol. 2020;16(12):702-14.
2. Zen Y, Kawakami H, Kim JH. IgG4-related sclerosing cholangitis: all we need to know. J Gastroenterol. 2016;51:295-312.
3. Hamano H, Kawa S, Horiuchi A. High serum IgG4 concentrations in patients with sclerosing pancreatitis. N Engl J Med. 2001;344(10):732-8.
4. Huggett MT, Culver EL, Kumar M. Type 1 autoimmune pancreatitis and IgG4-related sclerosing cholangitis is associated with extrapancreatic organ failure, malignancy, and mortality in a prospective UK cohort. Am J Gastroenterol. 2014;109:1675-83.
5. Nakazawa T, Naitoh I, Hayashi K, Okumura F, Miyabe K, Yoshida M et al. Diagnostic criteria for IgG4-related sclerosing cholangitis based on cholangiographic classification. J Gastroenterol. 2012;47:79-87.
6. Shu Y, Cheng J, Ye J, Pan X. Isolated IgG4-related sclerosing cholangitis with normal serum IgG4 levels-A case report. Clin Case Rep. 2020;8:2186-90.
7. Zen Y, Kawakami H, Kim JH. IgG4-related sclerosing cholangitis: all we need to know. J Gastroenterol. 2016;51:295-312.

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