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Autoimmune hepatitis mimicking multiple liver infarctions

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Abstract

Autoimmune hepatitis (AIH) is a chronic inflammatory process occurring in the hepatocytes, predominantly affecting females. We report an unusual presentation of AIH in a 28-year-old woman who was admitted with upper abdominal pain, vomiting, and fever for two weeks duration. Her imaging studies revealed multiple lesions in the liver suggestive of liver infarctions. Laboratory investigations revealed anaemia, thrombocytopenia, elevated transaminases, strongly positive ANA titre, and elevated serum immunoglobulin G. Liver biopsy of these lesions demonstrated features of AIH and there was no evidence of infarction. By excluding other causes of hepatitis, a diagnosis of AIH was made. She had a dramatic response to treatment with steroids. This patient highlights the importance of liver biopsy in arriving at a definitive diagnosis.

Key words: autoimmune hepatitis, liver focal lesion, liver infarction, liver biopsy, radiological imaging studies of liver

Introduction

Autoimmune hepatitis (AIH) is a chronic inflammatory condition of the hepatocytes which is associated with specific autoantibodies and raised serum immunoglobulins. AIH can present at any age and in all ethnic groups, but it is more prevalent in women.[1,2] In a genetically predisposed individual, unknown environmental factors trigger the autoimmune process but the accurate interrelation between genes and autoimmunity remains unclear. AIH usually affects the whole liver parenchyma uniformly rather than isolated focal areas. Although AIH has a spectrum of clinical presentations, presentation with multiple liver lesions is very rare. With the widespread use of imaging modalities, finding the focal liver lesion is easy. However, radiological findings may not be accurate to specify the liver lesion in some patients. We describe a case of multiple liver lesions in a young woman suggestive of hepatic infarction on radiography and proved to be AIH on histology.

Case history

A previously healthy 28-year-old woman presented with upper abdominal pain, nausea, vomiting and intermittent fever for two weeks. One week ago, she had been admitted to a surgical ward and treated as acute cholecystitis. She didn't have altered bowel habits, urinary symptoms, respiratory symptoms, joint pain, skin rashes, or oral ulcers. There was no history of alcohol or illicit drug usage. On examination, she was alert, febrile, and not icteric. Other vital parameters were normal. She had right upper quadrant tenderness without guarding. The other system examination was unremarkable.

Her laboratory investigations revealed white cell count of 6.9 x 10^9/L (N-70%, L-21%), haemoglobin 8.0g/dl with hypochromic microcytic red cells and platelet count of 92 x10^9/L. Inflammatory markers were elevated (ESR 135mm 1st hr, CRP 175 mg/L). Her liver enzymes were deranged with elevated transaminases (ALT 120 U/l, AST 230 U/L). Total bilirubin was 20.5 µmol/l (<17.1 µmol/l) with a direct bilirubin of 8.6 µmol/l (<3 µmol/l), and an alkaline phosphatase of 231 U/L (46-116 U/L). There was hypoalbuminemia with hyperglobulinaemia (serum albumin 24g/l, globulin 63g/l) and abnormal coagulation profile; PT-14.0 sec (9-12 sec), INR 1.2 (0.8-1.1) and

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APTT 37.5 sec (27-36 sec). She had a high serum LDH of 409 U/L (120-246 U/L). Serum amylase, serum creatinine and serum electrolytes were normal. Blood and urine cultures were sterile. Ultrasonography of the abdomen revealed multiple hypoechoic areas in the right lobe of the liver and abdominal computed tomography showed multiple hypodense lesions in segments V and VI suggestive of hepatic infarctions (Figure 1).

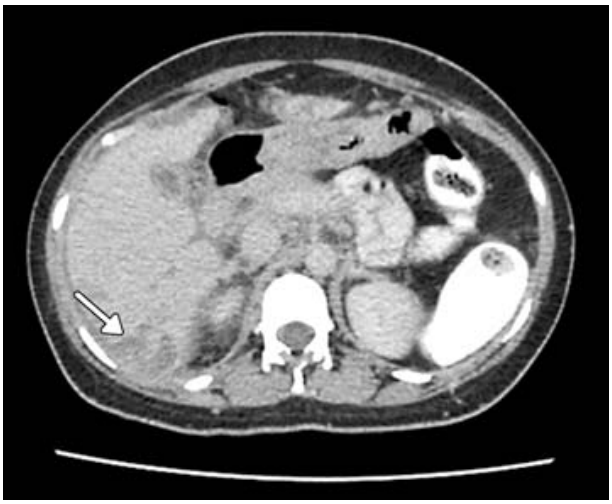

Figure 1. The multiple hypodense areas (arrow) of the liver in computed tomography.

For further details, MRI abdomen and mesenteric angiogram was carried out which revealed non-enhancing (both arterial and venous phase) peripheral lesions in right lobe of the liver favouring infarctions with no evidence of thrombosis in large vessels, arterial wall thickening or narrowing in hepatic arteries. These findings led to the diagnosis of multiple focal liver infarctions probably due to a microvascular disease such as vasculitis. Neither imaging modalities suggested hepatoma or haemangioma.

Initially, she was commenced on ceftriaxone and doxycycline for a possible bacterial infection, but her fever persisted. Serology for Hepatitis B, Hepatitis C, EBV, CMV, and HIV were negative. Antinuclear antibody (ANA) was positive with a titre of 1:2560. Anti dsDNA, Anti Smith (Sm), and Anti smooth muscle antibodies (ASMA) were negative. Serum immunoglobulin G (IgG) level was elevated (2492 mg/dl). Lupus anticoagulant was positive while anti-cardiolipin antibody was negative. Serum ferritin and transferrin saturation were 345ng/mL (6.24-137) and 28.5% (20-50%). Serum ceruloplasmin was 29mg/dL (20-36 mg/dL) and slit lamp examination for Kayser-Fleischer rings was negative.

An ultrasound-guided liver biopsy was performed, and samples were obtained from the lesions. Histology revealed portal lymphoplasmacytic infiltrate with occasional eosinophils and histiocytes. Portal tracts were mildly expanded and fibrosed. Granulomata or lymphoid follicles were not seen. There was mild interface hepatitis, lobular inflammation comprising lymphocytes, plasma cells, and histiocytes, and perivenular (zone 3) necrosis. Evidence of vasculitis or microvascular thrombosis was not present (Figure 2).

The above biopsy findings supported the diagnosis of AIH. The score was calculated using the simplified criteria for the diagnosis of AIH (Table 1)[3], and the AIH diagnosis was confirmed.

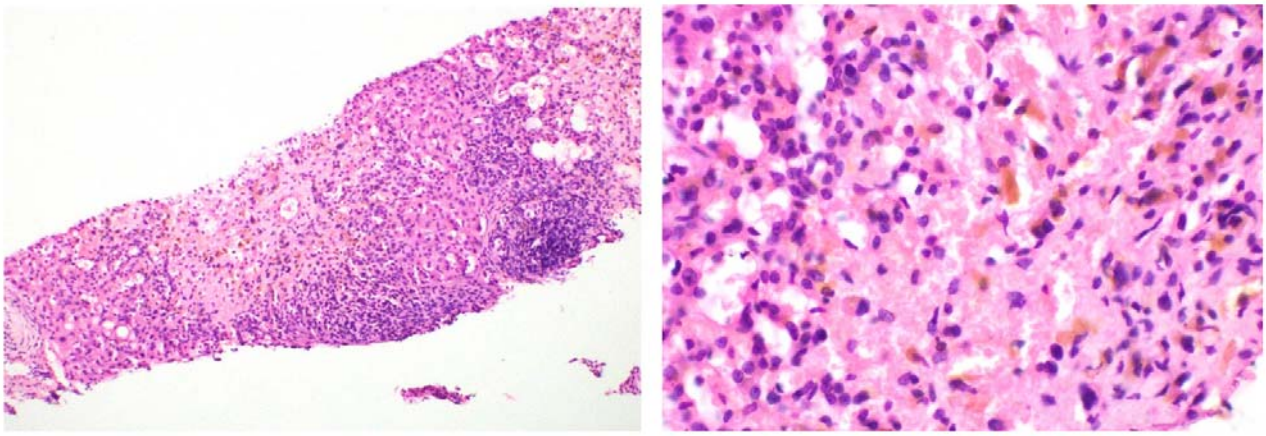

Figure 2. Histology of the suspicious area of the liver showing portal lymphoplasmacytic infiltrate with occasional eosinophils and histiocytes, and mild interface hepatitis.

Table 1. Simplified AIH score. (LKM-1: type-1 liver-kidney microsomal antibodies. SLA: soluble liver antigen antibodies. ULN-upper limit of normal. ASMA-anti smooth muscle antibody)

Autoantibody	ASMA or ANA titre ≥1:40 ASMA or ANA titre ≥1:80 LKM-1 titre ≥1:40 Positivity of SLA	- 2 - -
IgG level	ULN >1.1 times ULN	- 2
Histology	Compatible with AIH Typical of AIH	- 2
Viral Hepatitis	Positive Negative	- 2
Interpretation of total score	Probable diagnosis ≥6 Definite diagnosis ≥7	8

She was started on prednisolone 40 mg daily with a tapering regimen and azathioprine was added later. After two weeks of steroid treatment, there was an improvement in her symptoms, the liver profile and platelet count returned to normal. She was reviewed regularly and the follow up ultrasound scan of the liver at 2 months showed considerable improvement of the lesions.

Discussion

AIH is characterized by hypergammaglobulinemia, specific autoantibodies, and inflammation of liver tissues.[4] AIH should be considered in cases of altered liver function, acute hepatitis, liver failure, or cirrhosis.[5]

Focal lesions in the liver are usually detected during the radiological imaging studies. Despite huge advancements in medical radiography, the radiological diagnosis could be equivocal. In such circumstances, liver biopsy is a crucial investigation to arrive at a diagnosis. In our patient, the focal liver lesions seen in the liver on radiological imaging were suggestive of infarctions. However, this was later proven to be AIH on liver biopsy. The degree of elevation of transaminases in our case was also not supportive of hepatic infarction where the transaminases were more than 1000 U/L. Even though lupus anticoagulant was positive, there was no evidence of large-vessel thrombosis in MRI angiogram. Further, the absence of microvascular thrombosis in biopsy does not favour the diagnosis of antiphospholipid syndrome (APLS). A meta-analysis done by Ambrosino et al stated that AIH can be significantly associated with anti-phospholipid antibody positivity.[6]

According to the available literature, there were two AIH cases presented with focal liver lesions as in our patient. Masoodi et al reported a case of AIH mimicking metastatic liver disease.[7] A 39-year-old woman presented with progressive painless jaundice and her radiological studies showed lesions suggestive of metastatic liver disease. The liver biopsy was compatible with AIH.[8] Gharibpoor et al reported a young man with icterus and radiological imaging suggestive of numerous liver masses. Investigations revealed high IgG, positive ANA, abnormal cholangiogram, and histology suggestive of AIH. He was diagnosed as AIH-Primary sclerosing cholangitis overlap syndrome.[7]

AIH has a significant mortality if not diagnosed and treated early.[9] The diagnosis of AIH is made by the presence of specific autoantibodies, biopsy findings, and exclusion of other causes of hepatitis. The typical histological features of AIH are interface hepatitis, plasma cell predominance in the portal infiltrate, regenerative rosettes, and emperipolesis. Compatible features of AIH are the only presence of interface hepatitis.[10] Czaja et al reported that the negativity of ANA and ASMA in AIH can be up to 28% and 56% respectively.[11] Using the simplified AIH score, the sensitivity and specificity of diagnosing a probable AIH (scores ≥ 6) were 96% and 97%, respectively. For detecting a definite AIH (scores ≥7), the sensitivity and specificity were 43% and 100%, respectively.[12]

Conclusion

This case highlights that AIH can rarely mimic focal lesions and liver biopsy is essential in suspicious liver lesions when radiological findings are not compatible with the clinical picture. Histological confirmation of AIH is mandatory before initiating treatment.

Conflicts of Interest

All authors declare that they have no conflicts of interest.

Consent

Written consent was obtained from the patient for publication of this study.

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