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CASE REPORT

Liver fibrosis in primary intestinal lymphangiectasia: An undervalued topic

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Abstract

The relationship between primary intestinal lymphangiectasia (PIL) and liver fibrosis is an emerging topic with many obscure aspects due to the rarity of the disorder. A recent paper reported that a six-month low-fat diet improved liver fibrosis. We report the case of a 17-year-old girl affected by PIL whose hepatic fibrosis progressively worsened within one year, despite dietetic support. This and the previous case report describe extraordinary events, which do not allow clear-cut clinical aspects to be established. Nevertheless, both cases suggest that in patients with PIL, it is necessary to closely monitor liver morphology with in-depth investigations including not only ultrasonography, but also elastography.

Key words: Hepatic transient elastography; Liver fibrosis; Low-fat diet; Primary intestinal lymphangiectasia

Core tip: The relationship between primary intestinal lymphangiectasia and liver fibrosis is an emerging topic with many obscure aspects due to the rarity of the disorder. The fibrosis outcome after a low-fat diet in the patient described in this report is in contrast with other literature reports. We emphasize the need for systematic monitoring of liver fibrosis in primary intestinal lymphangiectasia.

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INTRODUCTION

Primary intestinal lymphangiectasia (PIL), featuring a dilatation of intestinal lymphatic vessels and malabsorption, is a rare condition often requiring nutritional enteral/parenteral support[1]. Enteral nutrition is based on a hyperproteic, low-fat diet with vitamin and medium-chain triglyceride supplementation[2]. The association between PIL and primary liver fibrosis is uncommon[3], however, Milazzo *et al*[4] recently reported a case of associated PIL and liver fibrosis characterized by high stiffness at elastography. The authors reported that a six-month low-fat diet combined with medium-chain triglyceride supplementation improved liver alterations by reducing fibrosis. The authors attributed the fibrosis onset to lymphatic stasis, as occurs in cardiac congestive liver. However, since fibrosis reversibility has not been previously described in this condition, the hypothesis may be purely speculative. In this scenario, we believe our case of PIL featuring progressively worsening hepatic fibrosis, despite dietetic support, may be of interest.

CASE REPORT

A 17-year-old female patient was admitted to our unit for peripheral and facial edema, ascites and intestinal malab-

sorption (hypovitaminosis, low serum magnesium, severe hypoproteinemia with hypoalbuminemia, lymphocytopenia). The symptoms had developed four years before and progressively worsened. Her body mass index was 16.4.

Upper endoscopy and colonoscopy were performed, with biopsy samples showing only a microscopic dilatation of lymphatic vessels. Video-capsule endoscopy showed hyperemia, edema and several mucosal elevations, which was suggestive of PIL. Therefore, we evaluated intestinal protein loss by fecal alpha-1-antitrypsin clearance, which was found to be > 24 mL/d, confirming our clinical suspicion. The final diagnosis was made with technetium-labeled human serum albumin scintigraphy, which highlighted patchily distributed areas of protein dispersion in the small intestine at the level of the jejunum and ileum. During her hospital stay, ultrasonography revealed splenomegaly and hepatomegaly with inhomogeneous echogenicity, whilst transient elastography (FibroScan; Echosens, Paris, France) demonstrated hepatic fibrosis (10 kPa, interquartile range: 1.5 kPa; success rate, 100%; F3). Laboratory examinations displayed slightly increased amino transferase and gamma-glutamyl transferase (twice the normal upper limit), leading us to exclude all known causes of chronic liver disease: negative hepatitis B virus-DNA, hepatitis C virus-RNA (excluding chronic viral hepatitis); normal cupremia and ceruloplasmin (excluding Wilson's disease); normal serum iron, ferritin and transferrin saturation (excluding hemochromatosis and hemosiderosis); negative anti-nuclear, anti-smooth muscle, anti-mitochondria and anti-liver-kidney microsome antibodies (excluding autoimmune hepatitis, primary biliary cirrhosis). There was no history of alcohol or potential hepatotoxic drug use. Cardiac failure was ruled out by echocardiography.

At discharge, the patient began a hyperproteic diet (2.1 g/kg per day of amino acids), with low-fat intake and medium-chain triglycerides and vitamin supplementation[2]. Six months later, peripheral edema and ascites had improved, as well as nutritional parameters, with normalization of amino transferase and gamma-glutamyl transferase values. The decreased values were presumably due to improved nutritional conditions, and reducing the hepatic cytolysis and cholestasis that characterize malnutrition-induced liver steatosis. Indeed, these cannot be considered as markers of liver fibrosis. Paradoxically, this condition may decrease amino transferase values by reducing the hepatocyte mass.

Despite the clinical improvement, the liver stiffness value had doubled by one year later (20 kPa, interquartile range: 2.9 kPa; success rate, 100%; F4). Liver biopsy showed pericellular and periportal fibrosis. The framework was interpreted as "congenital liver fibrosis", excluding other possible causes of chronic liver diseases such as primary biliary cirrhosis and Caroli's disease.

DISCUSSION

The rarity of PIL and the extraordinary events surrounding its uncommon association with liver fibrosis are exhibited by the present case, thus preventing the establishment of clear-cut clinical characteristics. Indeed, this report demonstrates that liver fibrosis may not improve after nutritional therapy. Nevertheless, this and a previous case[4] suggest that in patients with PIL, it is necessary to closely monitor liver function, with in-depth investigations including not only ultrasonography, but also elastography[5]. Early detection of liver involvement in PIL is important in order to promote regression and prevent progression towards portal hypertension and recurrent cholangitis.

COMMENTS

Case characteristics

Main symptoms: facial edema, abdominal swelling, weight loss.

Clinical diagnosis

Physical examination: edema, ascites, reduced body mass index (16.4), hepatomegaly.

Differential diagnosis

Malabsorption syndrome causes and chronic liver disorders were investigated.

Laboratory diagnosis

Main findings: hypovitaminosis, low serum magnesium, severe hypoproteinemia with hypoalbuminemia, lymphocytopenia, increased amino transferase and gamma-glutamyl transferase (twice the normal upper limit), negative hepatitis B-DNA and hepatitis C-RNA, normal cupremia and ceruloplasmin, normal serum iron, ferritin and transferrin, negative anti-nuclear, anti-smooth muscle, anti-mitochondria and anti-liver-kidney microsome antibodies; alpha-1-antitrypsin clearance > 24 mL/d.

Imaging diagnosis

Video-capsule endoscopy showed hyperemia, edema and several mucosal elevations, suggestive of primary intestinal lymphangiectasia. Technetium-labeled human serum albumin scintigraphy highlighted patchily distributed areas of protein dispersion in the small intestine at the level of the jejunum and ileum. Ultrasonography revealed splenomegaly and hepatomegaly with inhomogeneous echogenicity, whilst transient elastography demonstrated hepatic fibrosis (10 kPa, interquartile range: 1.5 kPa; success rate 100%; F3).

Pathological diagnosis

Microscopic dilatation of lymphatic vessels in duodenal biopsy specimens.

Treatment

Hyper-proteic diet (2.1 g/kg per day of amino acids), with low-fat intake and medium-chain triglycerides and vitamin supplementation.

Related reports

A recent case report shows an association between primary intestinal lymphangiectasia and liver fibrosis, which was improved by a six-month low-fat diet combined with medium-chain triglyceride supplementation.

Experiences and lessons

In patients with primary intestinal lymphangiectasia, it is necessary to closely monitor liver function with in-depth investigations including not only ultrasonography, but also elastography.

Peer review

The case report is on a 17-year-old female who was diagnosed with primary intestinal lymphangiectasia.

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