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CLINICAL CASE

Hypertransaminasemia in celiac disease: *Celiac* or autoimmune hepatitis?

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Abstract The authors report the case of a young woman presenting with asymptomatic hypertransaminasemia whose etiologic investigation led to the diagnosis of celiac disease. The concomitant existence of antinuclear and anti-smooth muscle antibodies and of elevated serum immunoglobulin G concentrations raised the hypothesis of autoimmune hepatitis, reason for performing a liver biopsy. The final diagnosis was *celiac hepatitis*, resolved with dietary treatment alone. Celiac disease is a systemic disorder primarily affecting the small bowel. A variety of liver manifestations have been described and there is an established association with autoimmune hepatic disorders. Isolated elevation of aminotransferases is the most common hepatic presentation, usually reversible with gluten avoidance. Although rarely necessary, liver biopsy may be crucial in selected cases.

PALAVRAS-CHAVE
Doença celíaca;
Doenças hepáticas;
Hepatite;
Hepatite autoimune

Elevação das aminotransferases na doença celíaca: hepatite *celíaca* ou autoimune?

Resumo Os autores relatam o caso de uma jovem, assintomática, com elevação das aminotransferases, cuja investigação etiológica conduziu ao diagnóstico de doença celíaca. A existência concomitante de anticorpos antinucleares e antimúsculo liso e de elevação dos níveis de imunoglobulina G deu origem à hipótese diagnóstica de hepatite autoimune, tendo-se realizado uma biópsia hepática. O diagnóstico final foi de *hepatite celíaca*, com resolução completa em resposta à terapêutica nutricional. A doença celíaca é uma patologia sistémica com envolvimento primário do intestino delgado. Estão descritas várias manifestações hepáticas, existindo uma associação com as doenças hepáticas autoimunes. A elevação isolada das aminotransferases é a forma de apresentação mais comum, sendo geralmente reversível com

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a eliminação do glúten da dieta. Apesar de raramente necessária, a biópsia hepática pode ser determinante em casos selecionados.

Introduction

Celiac disease (CD) is an autoimmune disorder induced by dietary gluten. It is characterized by a chronic inflammatory state of the small intestinal mucosa, resulting in villous atrophy that resolves with a gluten free diet. There is a wide spectrum of presentations, varying from a clinically silent form to the classical malabsorption syndrome.[1] Although primarily affecting the small bowel, CD is a multisystem illness. The potential target organs include the liver, pancreas, heart, kidney, thyroid gland, bone, skin and nervous system, giving rise to a variety of extraintestinal manifestations.[1,2]

A number of hepatobiliary disorders have been documented in patients with CD. The most common pattern of liver damage is a gluten sensitive form of hepatitis (*celiac hepatitis*). The usual manifestation consists of an isolated elevation of aminotransferases. In this context, liver biopsy is usually of limited value, since the histological findings are nonspecific and there is a complete response to dietary treatment.[2] More rarely, CD is associated with a group of liver disorders sharing common genetic factors and immunopathogenesis, such as autoimmune hepatitis (AIH), primary biliary cirrhosis (PBC) and primary sclerosing cholangitis (PSC). If this is the case, gluten withdrawal is usually insufficient to normalize liver tests and to prevent progressive liver damage and a specific management is required.[3,4]

Case report

A 21-year-old woman was referred to evaluation because of an unclear elevation of liver enzymes. The patient was asymptomatic and routine laboratory tests made six months earlier incidentally detected a 1.5 to 2-fold elevation of both aspartate aminotransferase (AST) and alanine aminotransferase (ALT). She denied any history of alcohol or illicit drugs use and she was not taking any medications, including nonprescription ones. There was no evidence of risk factors for viral hepatitis. Her past medical history was unremarkable and no family history of liver or gastrointestinal disorders could be identified. The physical examination was normal, with a body mass index (BMI) of 19 kg/m^2 and no signs of liver disease. The initial laboratory study evidenced AST 40 U/L (upper limit of reference, 31 U/L) and ALT 64 U/L (upper limit of reference, 34 U/L), with normal alkaline fosfatase, γ-glutamyl transferase, bilirubin and normal hemogram. Abdominal ultrasound examination was normal. A complete screen for the possible etiology of abnormal liver tests was performed. Serologic markers for viral hepatitis were negative. Transferrin saturation, ferritin, ceruloplasmin, α1-antitrypsin and thyroid function tests were normal. The serum protein electrophoresis and immunoglobulin study disclosed an elevation of serum immunoglobulin (Ig) G concentrations (19.7 g/L; normal 7–16 g/L) and low serum IgA (0.24 g/L; normal 0.7–4 g/L). The autoantibody profile was characterized by positive antinuclear (+++), anti-double-strand DNA (6.1 U/mL; normal < 4.2 U/mL) and anti-smooth muscle antibodies (++++, actin pattern), plus a positivity to IgG anti-transglutaminase (528 U/mL; positive, >10 U/mL) and anti-gliadin antibodies (600 U/mL; positive > 10 U/mL); anti-endomysial antibodies were negative. The patient underwent an upper gastrointestinal endoscopy, which showed a slight loss of folds in the second portion of the duodenum. Multiple biopsies were obtained in this location, revealing a complete villous atrophy, crypt lengthening and markedly increased number of intraepithelial lymphocytes (Fig. 1), histopathological findings typical of celiac disease (with a destructive pattern, 3c type according to the Marsh–Oberhuber classification). Since the differential diagnosis of AIH versus *celiac hepatitis* was unclear, it was decided to perform a liver biopsy. The biopsy revealed minimal macrovesicular steatosis and hepatocellular reactive changes, with no evidence of interface hepatitis (Fig. 2), all nonspecific findings, not consistent with AIH. At this point, the simplified AIH score was 6, indicating a probable diagnosis of AIH. According to the overall clinicopathological data, the liver abnormalities were primarily attributed to celiac disease. The patient received dietary counseling and started on a gluten-free diet alone. After 6 months the laboratory reassessment evidenced a complete normalization of aminotransferases (AST 25 U/L, ALT 22 U/L) and decreasing IgG anti-transglutaminase levels (342 U/mL); antinuclear and anti-smooth muscle antibodies remained positive. Her BMI was 21 kg/m^2.

Discussion

Hepatic abnormalities are common extraintestinal manifestations of CD. They may arise in patients with the classical malabsorption syndrome or may be the sole presentation in some cases.[2] Approximately 27% of adult patients with untreated classic CD have elevated transaminases. Conversely, CD is the potential cause for cryptogenic hypertransaminasemia in 3–4% of cases.[5]

CD not only may itself injure the liver but it may also coexist with other chronic liver diseases and modify their clinical impact.[2] Two main forms of liver damage are recognized: the nonspecific *celiac hepatitis* and the autoimmune mediated. It is not clearly defined if these two forms are distinct entities or only different ends of a continuous spectrum of liver injury.[6,7] Fatty liver disease, viral hepatitis and iron overload liver disease have also been described in patients with CD.[3,6]

A nonspecific form of liver disease, the so-called *celiac hepatitis*, is the most common form of hepatic involvement