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Liver abnormalities in bowel diseases



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Liver abnormalities are often seen in bowel diseases. Whether these represent aspects of two separate diseases, or if one is causing the other, is not always easy to decide. Extraintestinal manifestations of inflammatory bowel disease (IBD) or coeliac disease are frequently observed. Of these extraintestinal manifestations, hepatic disorders are among the most common. Primary sclerosing cholangitis (PSC) and primary biliary cirrhosis are the most frequent hepatic disorders in IBD and coeliac disease, respectively. Genetic studies have lately elucidated the associations between IBD and PSC, but there is still a long way until we have complete understanding of the molecular aetiology and pathophysiology of these conditions. There is no curative treatment available for PSC, besides liver transplantation. Steatosis and cholelithiasis are also common in IBD, as are signs of hepatic injury due to IBD treatment. Less common liver abnormalities include liver abscesses, hepatic thromboembolic events, granulomatous liver disease and hepatic amyloidosis.

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Introduction

It has been known for almost 150 years that bowel disease can be accompanied by abnormalities in other organs, in particular the liver [1]. Depending upon the population studied, as many as 40% of patients with inflammatory bowel disease (IBD) show signs of extraintestinal manifestations [2,3]. Hepatobiliary abnormalities have been described in 4.7%–29% of IBD patients [4,5]. A true estimate of the frequency of hepatobiliary disorders associated with IBD is, however, difficult to produce since studies of unselected patients with a complete workup, including liver biopsy and endoscopic retrograde cholangiography (ERC), cannot be justified due to ethical reasons.

Liver abnormalities are also often seen in coeliac disease. When the patients convert to a gluten free diet, most abnormal liver biochemistry tests normalize [6]. Kaukinen et al reported on four patients with end stage liver failure, of which three were referred for liver transplantation. All four patients subsequently proved to have coeliac disease, and they all recovered after starting gluten free diet [7]. This observation underscores the importance of having bowel diseases in mind when evaluating liver pathology.

In this review, we present the clinically most important hepatic manifestations and complications seen in patients with bowel disease, with main focus on ulcerative colitis (UC), Crohn's disease (CD) and coeliac disease (Table 1). Liver abnormalities seen in malignant bowel diseases and their treatment are beyond the scope of this review.

Primary sclerosing cholangitis

In UC, primary sclerosing cholangitis (PSC) is the most important associated hepatic disorder, affecting 2.9%–7.6% of patients [8–10]. The prevalence of PSC in CD patients is lower, with estimates varying between 0.7% and 3.4% [5,8,11]. Regarding patients with PSC, the association with IBD is striking. Up to 80% of PSC patients have concomitant IBD, although there is a considerable geographical variation [12]. PSC is also seen in coeliac disease, but the association is much weaker than with IBD [12–15]. There is a male predominance in PSC, with a male:female-ratio of 2:1. PSC patients often suffer from other autoimmune diseases, apart from IBD [16–18]. Patients are relatively young at diagnosis of PSC, with a mean age between 30 and 40 years [16,19].

Aetiology and pathogenesis

Although the aetiology and pathogenesis of PSC are not completely understood, advances in the elucidation of disease mechanisms have been made during recent years [18,20]. PSC is generally considered an immune-mediated, rather than an autoimmune disease, for several reasons. First, there is no proof of a disease-specific autoantibody like anti-transglutaminase 2 (anti-TG2) in coeliac disease

Table 1

Liver abnormalities associated with IBD and coeliac disease.

| Liver abnormality | Associated with | | |
|--------------------------------------|--------------------|-----------------|-----------------|
| | Ulcerative colitis | Crohn's disease | Coeliac disease |
| Primary sclerosing cholangitis (PSC) | ++ | + | (+) |
| Small-duct PSC | ++ | + | |
| IgG4-associated cholangitis | (+) | (+) | |
| Autoimmune hepatitis | + | | + |
| Primary biliary cirrhosis | (+) | | ++ |
| Fatty liver | + | + | + |
| Cholelithiasis | | + | |
| Less common abnormalities | | | |
| Thromboembolic complications | + | + | |
| Liver abscess | | + | |
| Hepatic amyloidosis | | + | |
| Granulomatous liver disease | | + | |

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