carcinoid tumour of the terminal ileum was found (figure 1) with widespread metastases including deposits in the lymph nodes of the porta hepatis, brain, liver, right atrial myocardium and left ventricular myocardium (figure 2). There were no valvular or endocardial lesions.

Discussion

Myocardial metastatic carcinoid tumour is a recently described finding. Pellikka *et al*¹ claim to have first reported its occurrence in their review of 74 patients with carcinoid heart disease. They found it in three cases (4%), but in two of these there was also classical carcinoid disease involving the right-sided heart valves. There has been one other case of carcinoid deposition within the left ventricular free wall.² As in our case, this was confirmed on histological examination, also

Types of carcinoid heart disease

- endocardial disease: right-sided valvular disease, commonly tricuspid regurgitation and pulmonary stenosis; left-sided valvular disease (aortic and/or mitral); restrictive cardiomyopathy
- metastatic myocardial disease: atrium or ventricle
- pericardial disease: pericardial effusion
- vascular involvement: eg, coronary sinus, aorta

with an absence of valvular or endocardial carcinoid plaques. It is likely that these three cases represent an aggressive variant of carcinoid tumour, as the classical endocardial lesions appear to represent chronic exposure to elevated levels of serotonin and other vasoactive substances.³

- 1 Pellikka PA, Tajik AJ, Khandheria BK, *et al*. Carcinoid heart disease, clinical and echocardiographic spectrum in 74 patients. *Circulation* 1993; 87: 1188–96.
- 2 Schiller VL, Fishbein MC, Siegel RJ. Unusual cardiac involvement in carcinoid syndrome. *Am Heart J* 1986; 112: 1322–3.

- 3 Trell E, Rausing A, Ripa J, Torp A, Waldenstrom J. Carcinoid heart disease. Clinicopathologic findings and follow-up in 11 cases. *Am J Med* 1973; 54: 43.

A patient with hepatitis B, antimicrosomal antibodies, and autoimmune hypothyroidism

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Summary

A 37-year-old man with chronic hepatitis B was diagnosed as having antimicrosomal antibodies and subclinical hypothyroidism. The association of autoimmune manifestations with hepatitis B has been less frequently reported than with hepatitis C virus. It is discussed whether this patient illustrates a case of spontaneous development of antimicrosomal antibodies, only casually associated with the presence of hepatitis B virus, or there is a real causative relationship between both conditions.

Keywords: hepatitis B virus, antimicrosomal antibodies, hypothyroidism

Hepatitis B virus (HBV) and hepatitis C virus (HCV) are among the main hepatotropic human viruses. Besides being aetiological agents of chronic liver damage, it has been speculated that they can act as triggers of autoimmune diseases. There are reports of the association of HCV with cryoglobulinaemia and thyroid autoantibodies^{1,2} and the development of an

autoimmune chronic active hepatitis after an acute infection with HBV.³ However, the coexistence of HBV and thyroid disease has rarely been reported. We describe the case of a young man with chronic hepatitis B who presented subclinical hypothyroidism and thyroid antimicrosomal antibodies.

Case report

A 37-year-old man was found to be HBsAG positive after a screening test for blood donation. He was totally asymptomatic when he presented for medical advice. His physical examination was normal. No risk factor related to HBV infection was identifiable. HBV serological markers were as follows: HBsAG positive, anti-HBsAG negative, anti-HBcAG positive, HBeAG-negative, anti-HBeAG positive. A needle liver biopsy showed chronic lobular hepatitis, with negative immunoperoxidase staining for HBsAG and HBcAG in the hepatic parenchyma. He had normal alkaline phosphatase, γ -glutamyl transferase and coagulation tests; aspartate transaminase and alanine transaminase were slightly elevated to the upper normal limit. A test for anti-HCV

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antibodies was negative. About five months later he started complaining of excessive fatigue. Serological HBV markers were unchanged and liver biochemical tests were unremarkable. He had normal blood gamma-globulin levels. Thyroid tests showed thyroid-stimulating hormone 10.9 µIU/ml (normal range 0.2 to 3.5), thyroxine 7.1 µg/dl (normal 5.3 to 11) and triiodothyronine 103 ng/dl (normal 85–162). Thyroid antimicrosomal antibodies 122 U/ml (normal less than 50). He started substitution treatment with thyroxine, achieving remission of symptoms and normalisation of thyroid-stimulating hormone levels.

Discussion

It is debatable whether our patient represents a case of spontaneous development of antimicrosomal antibodies, casually associated with a highly prevalent viral infection such as hepatitis B, or there is a real causative relationship between these conditions. We tend to believe that the latter is true. It is known that antimicrosomal antibodies can occur spontaneously in apparently healthy persons. A survey conducted in South Wales by Lazarus and co-workers showed a prevalence of 15.4% in asymptomatic elderly people, aged 70 years or more.⁴ Bjøro *et al* reported a prevalence of 7% in a population of blood donors, with a mean age of 39.6 years. The incidence was higher in females (10.8%) than in males (4.1%). Among these, it was higher in those people above 45 years (7.9%), than under this age (3.1%). Most of the positive patients had antimicrosomal antibodies in high titers.⁵ Also, Sawin *et al* reported a higher prevalence of antimicrosomal antibodies in women over 60 years of age, when this is associated with thyroid-stimulating hormone levels greater than 10 µIU/ml. However, these antibodies were also found in 11% of males aged 20 to 59 years, but showing normal levels of thyroxine and thyroid-stimulating hormone.⁶ Overall, most reports agree that the spontaneous occurrence of antimicrosomal antibodies in apparently healthy people is by far more common in older females. On the other hand, antimicrosomal antibodies can be associated with several autoimmune diseases, and also with HBV and HCV infections (box 1). Tran *et al* reported a high prevalence of antimicrosomal antibodies in female patients with chronic hepatitis C, whereas among 60 HBsAG posi-

Diseases associated with anti-microsomal antibodies

- Hashimoto's thyroiditis
- Graves' disease
- systemic lupus erythematosus
- rheumatoid arthritis
- Sjögren's syndrome
- Behcet's syndrome
- other connective tissue diseases

Box 1

Learning points

- antimicrosomal antibodies can be found in apparently healthy asymptomatic people (especially in older women), but also in autoimmune diseases
- HBV and HBC may have a role as triggers of autoimmune diseases; the prevalence of antimicrosomal antibodies is higher in association with HCV than with HBV
- patients with positive antimicrosomal antibodies and normal or borderline thyroid function tests must be followed up for the later onset of hypothyroidism

Box 2

tive patients, only one (a man) was positive, thus suggesting that the association between antimicrosomal antibodies and HBV is not common.² In the case presented, we consider the possibility that development of antimicrosomal antibodies was triggered by this virus. Although nothing more than a speculation, this hypothesis is supported by the fact that the typical pattern of spontaneously developing antimicrosomal antibodies (ie, female sex, older age), is not met by our young, male patient. Bjøro *et al* suggested that any person presenting with positive antimicrosomal antibodies but normal or borderline thyroid function tests should be followed up, because these patients frequently become hypothyroid later. Even so, they still can be asymptomatic for a long time without diagnosis, as the symptoms of hypothyroidism can take a long time to develop.⁵ Possibly, this was the case in our patient, who showed a subclinical pattern of disease and would have progressed to overt hypothyroidism if he had not been diagnosed and treated in a timely fashion.

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2 Tran A, Quaranta JF, Benzaken S, *et al*. High prevalence of thyroid autoantibodies in a prospective series of patients with chronic hepatitis C before interferon therapy. *Hepatology* 1993; 18: 253–7.

3 Laskus T, Slusarczyk J. Autoimmune chronic active hepatitis developing after acute type B hepatitis. *Dig Dis Sci* 1989; 34: 1294–7.

4 Lazarus JH, Burr ML, McGregor AM, *et al*. The prevalence and progression of autoimmune thyroid disease in the elderly. *Acta Endocrinol* 1984; 106: 199–202.

5 Bjøro T, Gaarder PI, Smeland EB, *et al*. Thyroid antibodies in blood donors: prevalence and clinical significance. *Acta Endocrinol* 1984; 105: 324–9.

6 Sawin CT, Bigos ST, Land S, *et al*. Relationship between elevated serum thyrotropin level and thyroid antibodies in elderly patients. *Am J Med* 1985; 79: 591–5.