A case of dilated cardiomyopathy associated with coeliac disease

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Abstract

Dilated cardiomyopathy in association with coeliac disease has been rarely reported in the past. We describe a case of dilated cardiomyopathy in a young patient in which all other causes were excluded. The patient was found to have previously undiagnosed coeliac disease and had a good improvement in symptoms as well as left ventricular function and dimensions as a result of a gluten free diet. It may be worthwhile considering checking a coeliac serology in patients who present with a dilated cardiomyopathy as it is a simple investigation and has considerable implications on overall management and perhaps prognosis.

Key words: coeliac disease, diagnosis, dilated cardiomyopathy.

Introduction

Coeliac disease is an autoimmune enteropathy caused by the ingestion of gluten by individuals with the DQ2/DQ8 haplotype [1]. Although there are several well known associations; dilated cardiomyopathy has been rarely reported. We report a case of a dilated cardiomyopathy in association with previously undiagnosed coeliac disease, in which the left ventricular function, dimensions and symptoms improved significantly with a gluten free diet.

Case report

A 36-year-old male attended hospital with a 6 month history of worsening dyspnoea (New York Heart Association (NYHA) Class IV). He had no significant past medical history, no gastrointestinal symptoms and no significant family history. He was a non-smoker, consumed minimal alcohol and was on no regular medication. There was no recent history of any viral illness. On examination he was tachypnoeic and hypoxic on room air. There was a pansystolic murmur audible throughout the praecordium and the jugular venous pressure was significantly elevated. Admission bloods revealed an iron deficiency anaemia and left bundle branch block was present on the electrocardiogram. A transthoracic echocardiogram revealed a dilated cardiomyopathy with an ejection fraction of 15% and a left ventricular end diastolic dimension of 64 mm.

The patient was initially treated with diuretics and subsequently commenced on an angiotensin converting enzyme and beta-adrenoceptor

blockade. A coronary angiogram revealed normal coronary arteries.

The patient underwent further investigations for his anaemia. A coeliac screen revealed a positive IgA anti-endomysial antibody with elevated IgA anti-transglutaminse levels. A duodenal biopsy was performed which revealed atrophy of the villi and crypt hyperplasia was noted (Figure 1). Cardiac antibodies were negative and a micronutient screen was normal. The patient was subsequently commenced on a gluten free diet. At 12 month follow up the patient's symptoms had improved (NYHA IV to NYHA II) and an echocardiogram showed a marked improvement in both the left ventricular ejection fraction (25%) as well as a significant reduction in left ventricular dimensions (left ventricular end diastolic diameter of 52 mm).

Discussion

The incidence of coeliac disease in patients with a dilated cardiomyopathy has been reported as 2.2% [2]. Like this case the majority of patients in previous reports had no prior history of gastrointestinal symptoms and the most commonly reported symptoms were dyspnoea related to the cardiomyopathy.

There have been several proposed mechanisms regarding the association between coeliac disease and dilated cardiomyopathy. A reduction in serum carnitine, a co-factor for the metabolism of fatty acids, has been reported in coeliac disease [3]. Low carnitine levels have also been reported in patients with idiopathic dilated cardiomyopathy compared with controls [4]. Carnitine levels return to normal after a gluten free diet.

There may also be an immune mediated reaction related to abnormalities of intestinal permeability resulting in an increased absorption of antigens or possibly infectious agents which may result in myocarditis through immune-mediated mechanisms which then develops into a cardiomyopathy [5]. In this case both cardiac antibodies and micronutrient screen were normal.

Although the number of cases described is small it appears that where a gluten free diet is strictly adhered to, there is a significant improvement in left ventricular ejection fraction and symptoms. Other important causes such as excess alcohol consumption [6] need to be excluded. This case demonstrates a dramatic improvement in left ventricular function with an improvement in symptoms. Although the medication (Angiotensin Converting Enzyme inhibitor and Beta adrenoceptor Blockage) may have also had an effect on these parameters it is still fundamental that this diagnosis be made and the association highlighted.

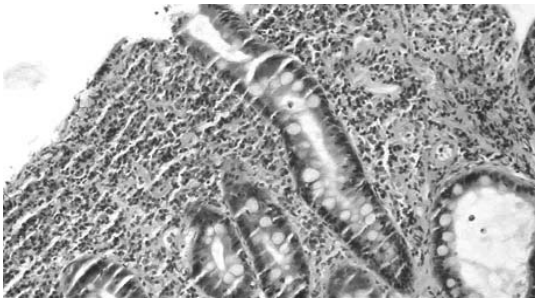

Figure 1. Duodenal biopsy showing atrophy of the villi and crypt hyperplasia

Conclusions

Although a dilated cardiomyopathy as a result of coeliac disease is rare it is an important finding as the patient's left ventricular function, dimensions and symptoms may respond well to a gluten free diet resulting in an improved prognosis. The non-specific nature of this condition and often lack of symptoms would suggest that the association between these two conditions may be more common than previously reported. In patients with a dilated cardiomyopathy of uncertain cause and in particular in patients with anaemia screening for coeliac disease may be a useful investigation which could have significant implications on patient management.

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