

Campylobacter-Associated Myopericarditis with Ventricular Arrhythmia in a Young Hypothyroid Patient

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The literature includes only a few reports of myocarditis and myopericarditis associated with Campylobacter infection. The development of arrhythmia in patients with Campylobacter infection is a very rare but potentially life-threatening complication. We present a patient with a history of hypothyroidism with myopericarditis and non-sustained ventricular tachycardia as a complication of Campylobacter infection.

PATIENT DESCRIPTION

A 24 year old man was admitted to hospital because of bloody diarrhea and crampy abdominal pain during the previous week. Two weeks prior to admission he had a febrile disease. The patient had a history of hypothyroidism since age 13 and was receiving a stable daily dose of levothyroxine 300 µg.

On admission he was alert and awake. His temperature was 36.2°C, blood pressure 120/60 mmHg, heart rate 60 beats/min, respiratory rate 16/min, and oxygen saturation 97% on room air. Physical examination revealed only irregular heart beats without murmurs. The abdomen was soft without tenderness or rebound. There was no hepatosplenomegaly.

Laboratory studies showed a normal white blood cell count of 5700/µl. Serum

electrolyte levels, creatine kinase, blood urea nitrogen, creatinine and liver function tests were all normal. He had a high thyroid-stimulating hormone level of 52.2 IU/ml but free thyroxine level was normal at 1.0 ng/dL. TSH level 2 months before admission, 4.8 IU/ml, was within the normal range.

Electrocardiography showed sinus rhythm with a rate of 60/min and trigeminy. Echocardiography was performed on the second hospitalization day and revealed mild left ventricular dysfunction with global hypokinesis, mild mitral regurgitation, small pericardial effusion, and normal right ventricular size and function. Holter examination showed multiple ventricular premature beats, runs of bigeminy and trigeminy, 13 couplets and 9 runs of non-sustained ventricular tachycardia [Figure].

The patient did not complain of chest pain or shortness of breath and denied a history of syncope. Atenolol 25 mg twice a day was administered in addition to his usual dose of levothyroxine.

Serologic tests for coxsackie virus, adenovirus, parvovirus and Mycoplasma were negative. Cytomegalovirus mononucleosis and Epstein-Barr virus profiles were also negative. C-reactive protein

TSH = thyroid-stimulating hormone

and components of complement C3 and C4 levels were within the normal range; rheumatoid factor and anti-nuclear antibody were negative. Serology for transglutaminase was negative. Blood cultures were negative and a stool culture yielded Campylobacter species. No Salmonella or Shigella organisms were isolated.

During hospitalization the patient had no fever, and abdominal pain and diarrhea ceased. After isolation of Campylobacter species from the stool culture the patient was diagnosed with Campylobacter infection-associated myopericarditis and treated with a semi-synthetic macrolide antibiotic, roxithromycin, 150 mg twice a day for 5 days.

Ventricular premature beats, bigeminy and trigeminy ceased and the patient was discharged after 5 hospital days. Repeat echocardiography study one week after discharge showed normal left ventricular function and the pericardial effusion had almost disappeared.

COMMENT

The incidence of human Campylobacter infections in almost all developed countries has been steadily increasing for several years for unknown reasons. Cardiac complications of Campylobacter infections, including pericarditis, myocardi-

Premature ventricular contracture followed by normal complex and short ventricular tachycardia



tis, myopericarditis, endocarditis and arrhythmia, are rarely reported [1].

Isolated *Campylobacter*-associated pericarditis is rare; one of the reported cases was an immunocompromised patient with X-linked agammaglobulinemia and the other was a patient with beta-thalassemia and hypothyroidism. Endocarditis following *Campylobacter jejuni* infection is an extremely rare condition and was reported in a young patient with concurrent reactive polyarthritis [2].

Myopericarditis is the most frequently reported entity and usually occurs in young male adults. A few cases of *Campylobacter* myopericarditis were reported in patients with concomitant and usually chronic disease (polycystic kidneys, beta-thalassemia, hypothyroidism, lymphoma, diabetes mellitus with hypertension, rheumatic heart disease).

The pathogenesis of *Campylobacter* myopericarditis remains unknown. Suggested mechanisms include direct pericardial invasion due to *Campylobacter* fetus bacteremia and/or an immunologic reaction to *Campylobacter jejuni* causing myopericarditis [3]. The typical presentation involves chest pain with ECG changes and elevated heart enzymes following enteritis. The clinical course is usually benign. *Campylobacter*-associated

myopericarditis may cause left ventricular dysfunction, which usually resolves within a few weeks but may remain for several months. A rare pathologically documented case of *Campylobacter jejuni* bowel infection leading to rapidly fatal myocarditis in a young previously healthy patient has also been reported [4].

We present a case of *Campylobacter*-associated myopericarditis in a hypothyroid patient with ventricular arrhythmia, which may be a potentially life-threatening condition. Only a few cases of *Campylobacter* infection with arrhythmia have been reported. In the literature we found four cases of atrial fibrillation associated with *Campylobacter* infection and all these patients were over 50 years old [1]. No patient has been reported to have developed ventricular tachycardia. Our patient had hypothyroidism, which may be considered an alternative explanation for his cardiovascular symptoms. Well-known cardiovascular effects of hypothyroidism include an increase in systemic vascular resistance, bradycardia, and a decrease in cardiac contractility, blood volume and cardiac output. Hypothyroid patients may also have ventricular premature beats and, rarely, ventricular tachycardia with long QT interval (torsade de pointes) that differs from the ventricular tachycardia

described in our patient [5]. Our patient recovered rapidly after treatment with a macrolide.

In summary, cardiac complications should not be overlooked in *Campylobacter* infection. Patients with *Campylobacter* myopericarditis may develop ventricular tachycardia, a potentially life-threatening condition.

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