Dear Editor,

Campylobacter Jejuni (C. Jejuni) is the most common cause of infectious enterocolitis in the developed world, with an annual incidence as high as 1 in 1000 in the developed world and about 2.5 million cases per year in the United States with male gender predominance. Campylobacter-associated myocarditis (CAM) is a very rare and potentially life-threatening complication of Campylobacter enterocolitis (CEC). The majority of cases include a subtle history of abdominal pain and diarrhea that progressively worsens. Chest pain and shortness of breath follow in most cases of myocarditis. We present a case of CAM mimicking acute coronary syndrome (ACS) and treated successfully with antibiotic and supportive care. We hope to increase awareness of diastolic pressure and mild, global left ventricular dysfunction.

A 50-year-old Caucasian male presented to the emergency department one hour after developing an acute sharp chest pain associated with dyspnea while at rest at home. The patient also reported a progressively resolving diarrhea, mild abdominal pain, nausea, and vomiting over the past four days after eating a day-old unrefrigerated burrito. Vital signs were normal. Examination was unremarkable except for dry mucous membrane. Electrocardiogram (ECG) showed sinus rhythm with no ST segment changes and chest x-ray was unremarkable. The initial troponin I was markedly elevated at 14.6 ng/mL (0.015 – 0.045). Six hours later, the troponin I increased to 25.4 ng/mL and 84 U/L respectively. The patient was symptom free. A repeat echocardiogram after 10 weeks was normal with normal LVPWd (figure 2).

Blood cultures were negative. Stool cultures showed moderate white blood cells and grew C. Jejuni. Based on clinical picture and results a diagnosis of Campylobacter Jejuni associated myocarditis (CAM) was made. On day four of therapy with azithromycin, the troponin I and CPK decreased to 0.35 ng/mL and 84 U/L respectively. The patient was symptom free. A repeat echocardiogram after 10 weeks was normal with normal LVPWd.

This is a rare case of CAM mimicking ACS in a Caucasian male with no significant heart disease or risk factors for CAD. Acute myocarditis results from inflammation of the heart muscle mostly due to a viral infection or idiopathic cause. Commonly responsible viruses include adenovirus, coxsackievirus, HCV, HIV, and parvovirus B19. CAM is an extremely rare, but significant, complication of CEC with very small number of cases reported.

Presenting symptoms of myocarditis have a wide spectrum from non-specific ones like fever, exertional dyspnea, and palpitations to severe like acute heart failure and sudden cardiac death. Our patient presented with ACS-like symptoms after few days of diarrhea. One patient with CAM had severe left ventricular dysfunction for several months following infections. On admission our patient had global left ventricular dysfunction; which normalized on a repeat echocardiogram 10 weeks after treatment with azithromycin.

There have been eleven reported cases of CAM and eight cases of C. Jejuni-associated myopericarditis (CAMP). One case of atrial fibrillation was associated with CEC. Virtually all reported CAM cases occurred in males and in association with acute diarrhea. Only one case of CAM was reported in a female and another one was fatal.

The exact pathogenesis of CAM remains unclear. It may be mediated by a direct bacterial insult to cardiac tissue, toxin, or

A Case of Acute Myocarditis From Campylobacter Jejuni Enterocolitis

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cytotoxic T-cells. Although C. Jejuni produces several exotoxins with hemolytic, hepatotoxic, and cytotoxic effects, none are known to be toxic to the heart. Guillain-Barré syndrome (GBS) is a well established immunological process involving molecular mimicry between C. Jejuni polysaccharide and ganglia and maturing few weeks after infection\(^5,6,10\). In most reported cases of CAM, including ours, the gastrointestinal and cardiac symptoms overlapped, making an immunological etiology similar to GBS unlikely\(^3,4\).

C. Jejuni was identified on the basis of positive stool culture in most cases of CAM\(^3\), including this case as well. Serological analysis for detecting C. Jejuni is much less commonly available and used. Development of a more rapid method to identify C. Jejuni, such as PCR or EIA, may help identify and treat CAM earlier and possibly eliminate the need for cardiac catheterization. Inquiring about dietary history was important in this case as the source of C. Jejuni was likely from an unrefrigerated burrito the patient ate few days before onset of symptoms.

Endomyocardial biopsy (EMB) is sometimes performed to help diagnose myocarditis since the clinical exam and routine biochemical laboratory tests are usually not enough\(^3\). Reported histological findings of CAM differ from those of viral myocarditis in that the primary infiltrating cells are neutrophils, rather than lymphocytes. However, the low sensitivity of such an invasive procedure and unproven benefit of immunosuppressive therapy made EMB not as commonly performed. Contrast media-enhanced cardiac magnetic resonance (CMR) offers a useful non-invasive diagnostic alternative. Myocardial wall thickening may be present in some patients due to edema\(^5\). In our case, transthoracic echo cardiogram showed interseptal thickening of the heart and global left ventricular dysfunction.

In conclusion, it is important to suspect CAM in male patients with no cardiac disease history and presenting with ACS-like symptoms and diarrhea. Obtaining stool cultures is a critical step in identifying the causative agent and appropriate therapy\(^3,5\). CAM can be successfully treated with standardized doses of antibiotics like azithromycin and supportive care. This is presumably the first reported case of CAM in the Midwest. We hope to increase awareness in the medical community of this potentially life-threatening complication of CEC. Since C. Jejuni is the most common cause of infectious enterocolitis in the developed world, the potential to identify and see more cases of CAM is evolving.

Declarations of Interest
The Authors declare no conflicts of interest.

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