

# Cardiac Manifestations of Ulcerative Colitis

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**U**lcerative colitis is known to be a severe disease with many extra-colonic manifestations, among them skin involvement, rheumatic problems, and ocular complications. We describe a young woman with newly diagnosed UC and rare cardiac complications that were resolved with corticosteroids.

## PATIENT DESCRIPTION

A 20 year old woman was admitted to the internal medicine department after 5 weeks of bloody diarrhea accompanied by abdominal colicky pain. She recalled that at age 13 years she had had

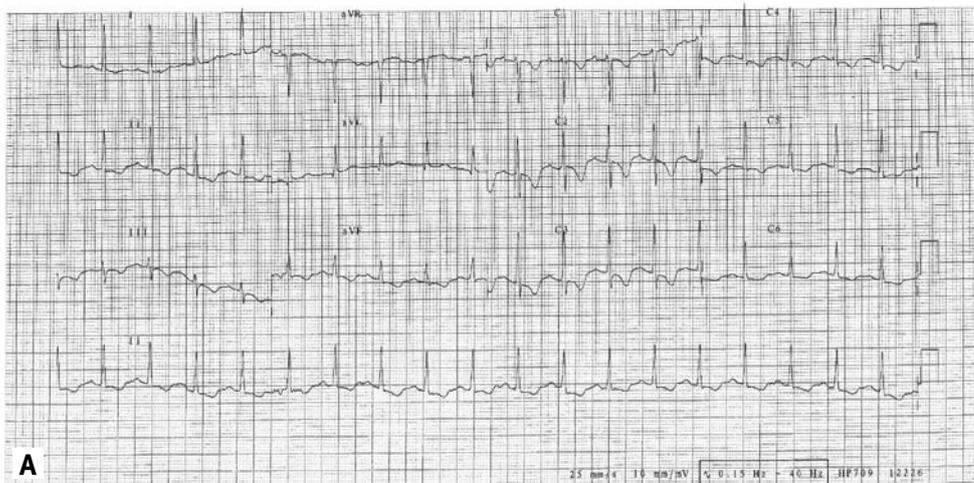
a similar event of bloody diarrhea that resolved spontaneously. In the week previous to admission she developed skin lesions – round wounds measuring 1–4 cm with a necrotic core – on the legs, hands, back and face.

On physical examination she looked pale, had painful ulcers on her lips and in the mouth (like aphthous stomatitis) and multiple skin lesions and eruptions all over her body that were in different stages of development, some of them with necrotic cores, others with a red halo and a pale core. She had a sore throat and a dry cough, but physical examination of the upper respiratory tract was unremarkable, with a tender abdomen but without rigidity and with normal peristaltic sounds. Also noted was migratory arthritis (painful swollen joints) in the right elbow and the right wrist, and painful non-swollen interphalangeal joints of both hands. She had a swollen abdomen with a peripheral pitting edema of +3. Ophthalmic examination found no signs of uveitis or iritis in both eyes.

Laboratory tests showed microcytic hypochromic anemia (hemoglobin 8 g/dl) without leukocytosis or leukopenia, no thrombocytosis and no thrombocytopenia. Biochemical analysis demonstrated albumin 2.2 g, cholesterol 85 mg/dl and an elevated prothrombin time (international normalized ratio 2.2). Troponin level was normal.

Chest X-ray and X-rays of the swollen joints (palms, wrists and elbows) were normal, but the abdominal X-ray showed an elongated left colon with disappearance of the haustra. Abdominal computed tomography demonstrated the same picture without the development of a toxic megacolon. Colonoscopy demonstrated severe inflammation in the descending colon with typical signs of ulcerative colitis. Skin biopsy that was taken from one of the lesions was positive for pyoderma gangrenosum.

The electrocardiogram that was done on the first day of admission demonstrated normal sinus rhythm with a rate of 110 beats per minute with deep inverted T waves in leads I, AVL, and in all the precordial leads with right axis deviation [Figure A]. An echocardiogram demonstrated good left ventricular function with no wall motion abnormalities; however, mild pericardial effusion was observed. After treatment with 5-ASA and corticosteroids was started, the ECG axis changed from a right axis with right bundle branch block to a normal axis of 60° without any electrical intraventricular block or defect, and all the inverted T waves returned to normal axis with positive T waves without ST-T changes or QT interval prolongation [Figure B].



UC = ulcerative colitis

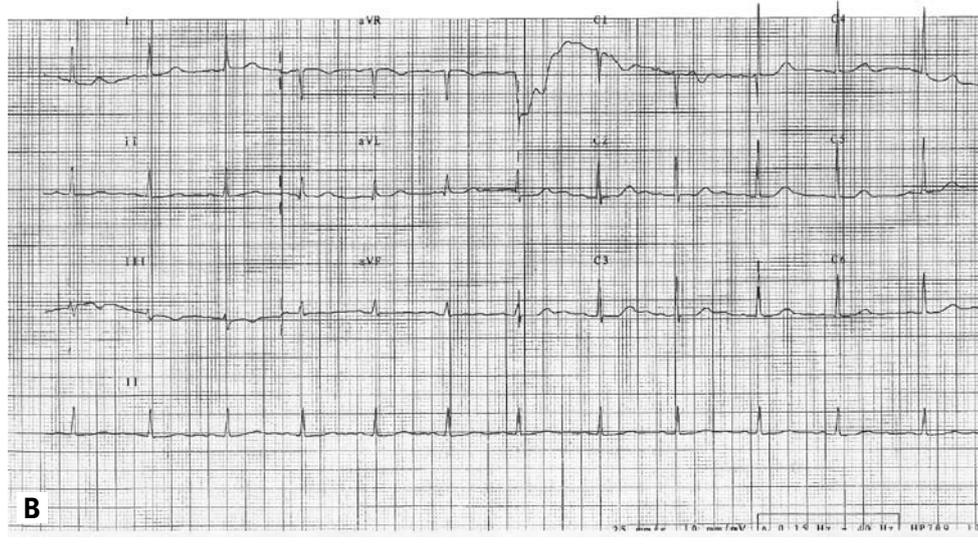
**COMMENT**

Crohn's disease and ulcerative colitis are the main entities of chronic inflammatory bowel diseases. Although in most cases the gastrointestinal tract is mainly affected, both UC and Crohn's disease are systemic disorders that often involve other organs. These non-intestinal manifestations are termed "extra-intestinal symptoms" and may not always coincide with the underlying bowel disease. The organs most commonly involved are the skin, eyes, joints, biliary tract and lungs. Some symptoms – like oral lesions, gallstones, pancreatitis, nephrolithiasis and amyloidosis – are more associated with Crohn's disease than with UC. Other symptoms, like skin and eye manifestations, are equally seen in Crohn's and UC [1].

In a population-based University of Manitoba Inflammatory Bowel Disease database there were 8072 cases of IBD from 1984 to 2003, including UC (3879 patients) and Crohn's disease (4193 patients). Both IBD states had a significantly greater likelihood of having arthritis, asthma, bronchitis, psoriasis and pericarditis than population controls. The most common non-intestinal co-morbidities were arthritis and asthma [2].

Only two cases with IBD accompanied by ECG abnormalities were reported. In both cases the ECG changes returned to normal (with clinical improvement) after corticosteroid treatment [3].

Myocarditis or perimyocarditis in IBD is reported as an autoimmune phenomenon during bowel disease exacerbations or as a side effect of 5-ASA formulations. Ulcerative colitis patients seem to be at a higher risk for this complication compared with Crohn's disease patients. Drugs for UC seem to play an important role in myocardial involvement in UC patients. Reversible



hypertrophic cardiomyopathy complicating prolonged corticosteroid therapy and acute myocarditis and perimyocarditis due to mesalamine use have been reported. Acute myocardial infarction in a young patient has been reported. There is a possible association of giant cell myocarditis during UC, but that issue needs further investigation [4]. In UC patients several ECG abnormalities have been observed, including Wenckebach or complete atrioventricular block, atrial fibrillation with supra-ventricular tachycardia and ST elevations in all leads, ventricular tachyarrhythmia and mesalamine-related sinus bradycardia and chest pain with ECG abnormalities [4]. In fact, in patients with active IBD, elevation in platelet levels, factor V, factor VII and fibrinogen has been demonstrated. However, none of these studies was able to prove a specific role for any of these disorders in IBD patients [5].

Our patient had an acute attack of ulcerative colitis with ECG changes without chest pain or any ECG classical sign of pericarditis. The troponin level was normal and the only echocardiographic finding was mild pericardial effusion.

In conclusion, electrocardiographic changes during acute ulcerative coli-

tis should be recognized and cardiac involvement should be noticed in acute cases – especially nowadays that immunological mechanisms are known to be responsible for atherosclerosis and coronary artery disease. Physicians should be aware of looking more frequently for ECG changes in IBD patients with exacerbation of their bowel disease, irrespective of age.

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IBD = inflammatory bowel disease