Mitral valve endocarditis caused by ulcerative colitis followed by septic embolic occlusion of the superior mesenteric artery

Philipp Eickhoff1,2*, Tamás Fazekas1, Andishe Attarbaschi1, and Thomas Binder2

1St Anna Children’s Hospital, Kinderspitalgasse 6, 1090 Vienna, Austria; and 2Department of Cardiology, Medical University of Vienna, Vienna, Austria

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CASE REPORT

Acute endocarditis is a rare complication of ulcerative colitis. We report on a young woman, who initially presented with fever, elevated inflammatory markers, and symptoms of ulcerative pancolitis but without any cardiac co-morbidity. A few days after total colectomy, the patient complained of acute abdominal pain which led to the suspected diagnosis of mesenteric ischaemia caused by a septic embolus. Transthoracic and transoesophageal echocardiography showed a large vegetation on the anterior leaflet of the mitral valve. The patient was successfully treated by an operative approach including mitral valve replacement.

Four days after operation, the patient experienced sudden severe abdominal pain with low grade fever. Acute abdominal CT-scan detected a thrombus occluding the superior mesenteric artery (Figure 1). Laboratory findings showed elevated inflammatory markers (CRP 12 mg/dL). Consecutive transthoracic echocardiography yielded signs of acute endocarditis with a round, compact, and nearly immobile vegetation attached to the anterior leaflet of the mitral valve measuring 20 mm in diameter extending into the left ventricle (LV) and reaching the papillary muscle (Figure 2A; see Supplementary data Video S1). Moderate mitral regurgitation was present and LV function was normal.

After changing the antibiotic regimen (piperacillin, tazobactam, fosfomycin, and teicoplanin) and starting with continuous high-dose heparin therapy (800–1000 I.E./h), the septic embolus diminished significantly and could not be detected by CT-scan 3 weeks later. Based on the large extension of the vegetation, the surgeons primarily decided for a non-invasive approach. The broad antibiotic therapy in combination with high-dose heparin was expected to diminish the vegetation with the chance of subsequent reconstruction of the mitral valve. However, the patient experienced multiple embolizations to other vascular territories of the abdomen, which led to abscess formations in the spleen, gall-bladder, and rectum associated with low grade fever and elevated inflammatory parameters (CRP 20 mg/dL). These required an operative revision in order to remove the...
abscess formations. During surgery, cultures of smears were taken from the spleen, gallbladder, and peritoneum, which showed growth of *Enterococcus faecium*, *S. epidermidis*, and *Candida albicans*.

Despite the antibiotic treatment transoesophageal echocardiography showed the valvular vegetation unchanged in size (Figure 2B). Hence, surgery for valve reconstruction was attempted but only replacement could be performed with a mechanical bi-leaflet mitral valve (Edward Lifesciences Mira® 27 mm). The endocarditic vegetation was examined microbiologically and showed growth of *S. epidermidis*. The patient recovered quickly and was discharged 5 weeks after operation in a good state of health.

**Discussion**

Ulcerative colitis is a rare cause for secondary acute endocarditis.1,2 As a potential mechanism chronic inflammatory bowel diseases might increase transmucosal permeability and hereby promote bacterial invasion to the bloodstream leading to endocarditis.2 Kreuzpainter et al.1 detected that in three of six patients with ulcerative colitis and Morbus Crohn, no other risk factor for the development of acute endocarditis was found. Inflammatory bowel disease was treated by immunosuppressive drugs and therapeutic suppression of cellular and humoral immunity is an accepted cofactor in the pathogenesis of bacterial endocarditis.3 However, the patient presented herein had not received any immunosuppressive medication. The six patients reported by Kreuzpainter et al.1 also complained of recurrent episodes of abdominal pain and diarrhoea with low grade fever. In four of these patients endocarditis was complicated by peripheral septic embolisms. To our knowledge, this is the first report describing an embolism of the superior mesenteric artery as a complication of acute endocarditis caused by ulcerative colitis. However, this is consistent with the fact that most mesenteric emboli originate from a cardiac source (e.g. endocarditis) and preferentially lodge in the superior mesenteric artery because the latter originates from the aorta at an oblique angle.4 This case shows that acute endocarditis of the mitral valve can be caused by ulcerative colitis. Embolization of the mesenteric artery can occur as a complication which leads to symptoms and findings that are difficult to distinguish from the initially present colitis. Diagnosis and treatment of endocarditis and septic embolizations in such a setting is a challenge to the attending physician. In this case the young woman could be successfully treated with colectomy, high-dose heparin therapy, surgical removal of abscess formations, and mitral valve replacement.

**Supplementary data**

Supplementary data are available at European Journal of Echocardiography online.

**Conflict of interest:** none declared.

**References**


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**Figure 1** Abdominal computed tomographic (CT)-scan showing a round hollow within the superior mesenteric artery (thin arrow) causing symptoms of mesenteric ischaemia.

**Figure 2** The vegetation (thin arrow) is placed on the anterior leaflet of the mitral valve extending into the left ventricle. (A) Parasternal long-axis view (transthoracic echocardiography). (B) Transoesophageal echocardiography.