

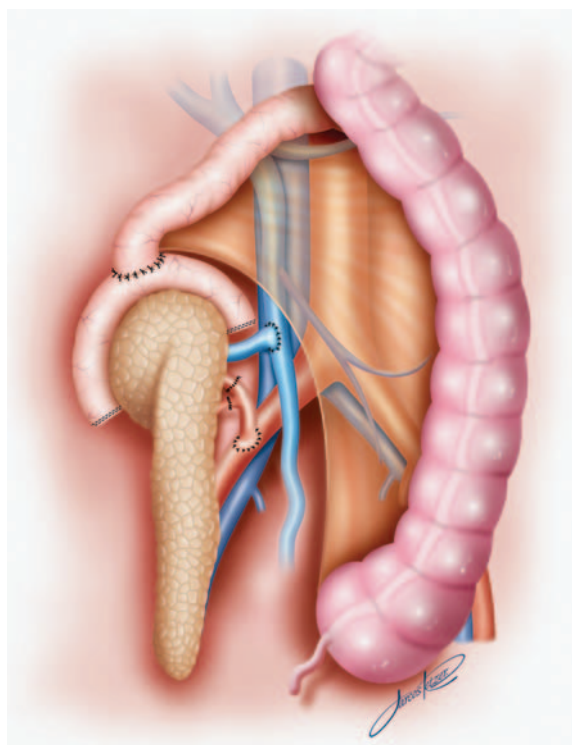
## Balloon Enteroscopy for Diagnosis and Treatment of Cytomegalovirus-Induced Small Bowel Gastrointestinal Bleeding After Whole-Organ Pancreas Transplantation

Adriana Costa Genzini, MD<sup>1,2</sup>,  
Ricardo Dib, MD<sup>1</sup>, Wagner Takahashi, MD<sup>2</sup>,  
Patrícia Souza de Almeida, MD<sup>3</sup>,  
Marcelo Perosa de Miranda, MD<sup>1,3</sup>,  
Tércio Genzini, MD<sup>1,3</sup> and  
Luiz Estevan Ianhez, MD<sup>1</sup>

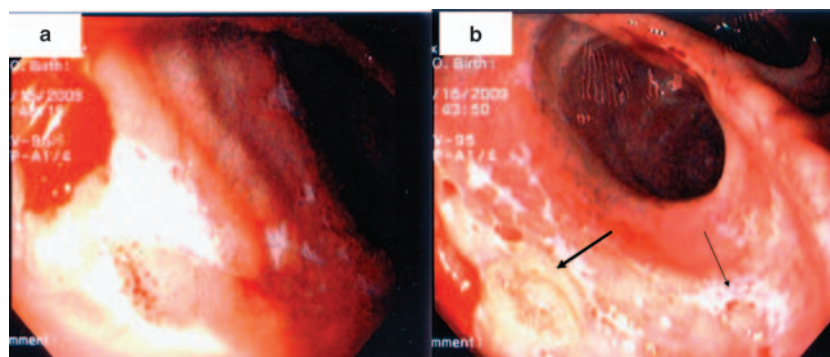
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**To the Editor:** Whole-organ pancreas transplantation is being increasingly performed worldwide in selected patients with type I diabetes mellitus (1). The donor duodenum and pancreas are anastomosed to the jejunum to allow exocrine drainage using either loop in transit or by creation of a Roux-en-Y jejunal loop (2). In the latter situation, the donor duodenum and pancreas are relatively inaccessible using standard endoscopes. To our knowledge, we report the first case in which balloon enteroscopy was used to diagnose and treat small intestinal bleeding in a pancreas transplant patient with a Roux-en-Y anastomosis, in which the source of bleeding was located in the Roux limb in and around the duodenojejunal anastomosis.

A 23-year-old woman with type I diabetes since 10 years underwent pancreas transplantation 4 months earlier. A duodenopancreatic anastomosis was performed with exocrine drainage achieved through an excluded Roux-en-Y loop (**Figure 1**). The entero-entero anastomosis was carried out 40 cm beyond the ligament of Treitz. The duodenal graft was then anastomosed 80 cm into the afferent limb. The patient initially did well but then developed melena and anemia over several weeks, which required hospital admission and transfusion of 5 Units of packed red blood cells. An evaluation to determine the site of gastrointestinal bleeding included



**Figure 1.** Illustration of the anatomy after duodenopancreatic transplantation with excluded Roux-en-Y.



**Figure 2.** Endoscopic photographs in the excluded afferent jejunal limb. (a) Ulcers and bleeding near the duodenojejunal anastomosis. (b) Major (large arrow) and minor papillae (small arrow) with surrounding ulcers as seen from inside the Roux limb.

standard upper endoscopy, colonoscopy, and angiography, all of which were normal. Cytomegalovirus (CMV) serologic studies were also negative. The patient's bleeding resolved spontaneously and she was discharged home. However, bleeding recurred and she was again hospitalized. Single-balloon enteroscopy was performed (SIF-Q180, Olympus Optical, Tokyo, Japan) under general anesthesia. The enteroscope was passed into the grafted duodenum, where serpiginous

ulcers and mucosal bleeding suggestive of CMV were identified (**Figure 2a**). The donor major and minor papillae were also identified (**Figure 2b**). Endoscopic biopsies were performed, and hemostasis was achieved using argon-plasma coagulation at 30 W and a flow rate of 1.5 l. The endoscopic biopsy results showed cytopathic changes suggestive of CMV. Repeat CMV serologic studies were obtained and confirmed CMV antigenemia 2 days later. Ganciclovir therapy

was initiated. Five days later, she developed hematochezia and a second enteroscopy confirmed the previous source of bleeding in the donated duodenum, near the donor duodenal papilla. Endoscopic hemostasis was again achieved using argon-plasma and epinephrine injection. Octreotide was administered for 5 days to assist in the control of bleeding, as has been described to control massive bleeding due to CMV colitis (3). Clinical bleeding ceased and the patient was discharged after 14 days of ganciclovir therapy. She remains well 60 days later.

CMV infection is estimated to occur in ~10% of patients who have undergone whole-pancreas transplantation with enteric anastomosis (4). However, isolated gastrointestinal bleeding in the Roux limb due to CMV has not been reported. In this case, standard endoscopic methods did not allow access to bowel lumen, in which the bleeding was located. We believe this area would also have been inaccessible using a colonoscope passed transorally because of the distance from the mouth. As major and minor papillae were identified, balloon enteroscopy could be used for pancreatography in such patients if indicated. This case demonstrates the utility of balloon enteroscopy for the evaluation of obscure gastrointestinal bleeding in Roux-en-Y limbs after whole-pancreas transplantation.

#### CONFLICT OF INTEREST

Adriana Costa Genzini is a speaker on behalf of Olympus Corporation but does not receive research support from Olympus.

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<sup>1</sup>Hospital Alemão Oswaldo Cruz São Paulo, São Paulo, Brazil; <sup>2</sup>Centro Avançado Endoscopia Diagnóstica e Terapêutica (CAEDT)—São Paulo, São Paulo, Brazil; <sup>3</sup>HEPATO, Transplants São Paulo, São Paulo, Brazil. Correspondence: Adriana Costa Genzini, MD, Hospital Alemão Oswaldo Cruz São Paulo, Rua Romilda Margarida Gabriel n. 99 Ap. 81, Itaim Bibi, Sao Paulo, SP 04530-090, Brazil. E-mail: adrianaacg@terra.com.br

## Lymphocytic Myopericarditis in a Patient With Previously Undiagnosed Crohn's Disease

E.C.M. Sikkens, MD<sup>1</sup>, T.C.M.A. Schreuder, MD<sup>1</sup>, J. Fronczek, MD<sup>2</sup>, C.J.J. Mulder, MD, PhD<sup>1</sup> and G. Bouma, MD, PhD<sup>1</sup>

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**To the Editor:** Inflammatory bowel disease (IBD) is associated with the occurrence of a wide spectrum of extraintestinal manifestations (EIMs) (1). Cardiac involvement, however, is rare and has been described in only a few case reports (2–5). When undiagnosed, myopericarditis can be lethal (3).

We present a patient with intermittent vomiting as the first presenting symptom in new-onset IBD-associated myocarditis resulting in a lethal cardiac arrest.

An otherwise healthy 46-year-old man was admitted because of intermittent nausea, vomiting, tachypnea, weight

loss (without changes in bowel habit), and fever (38.5°C) lasting a week. Years before, his sister had died at the age of 32 years from sudden cardiac arrest. Subsequent family screening for genetic cardiac diseases was negative in all siblings, including the patient.

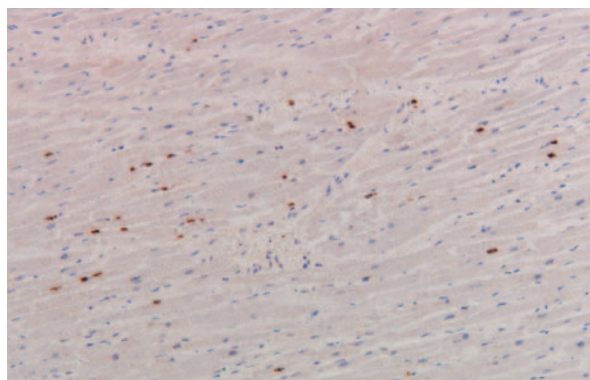
Apart from a slight tenderness in the lower left abdomen, physical examination revealed no abnormalities.

Blood tests revealed a slightly elevated leukocyte count of  $12.0 \times 10^9/l$  and an erythrocyte sedimentation rate (ESR) of 22 mm/h. The electrocardiogram was unremarkable, whereas an abdominal computed tomography scan showed features consistent with sigmoidal diverticulitis with regional lymphadenopathy.

The patient recovered after conservative treatment and was discharged within a week. Two days later he was readmitted because of recurring symptoms with similar laboratory tests. Medication given upon admission included metoclopramide and ondansetron. Repeated esophagogastroduodenoscopy showed no abnormalities. While preparing for colonoscopy, he developed cardiac arrest because of ventricular fibrillation. Subsequent cardiopulmonary resuscitation was unsuccessful.

Autopsy showed a lymphocytic infiltration of the epi- and myocardium with normal cardiomyocytes (**Figure 1**).

Histologically, the wall of the descending colon showed transmural inflammation with lymphocytes, crypt abscesses, and granulomata consistent with Crohn's disease (**Figure 2**).



**Figure 1.** CD45-stained slide (original magnification  $\times 100$ ) showing the presence of lymphocytes within the myocardium.