



Case report

Perioperative management of a patient with Chagas disease having mitral valve surgery

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Abstract A patient with advanced Chagas disease presented with symptoms attributable to dilated cardiomyopathy and mitral regurgitation. Although esophageal involvement is part of the constellation of findings in Chagas, transesophageal echocardiography was safely used to guide the mitral valve surgery.

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1. Introduction

Chagas disease, also called American Trypanosomiasis, traditionally has been considered a disease of the tropics, rarely presenting in the northern hemisphere. However, today it is not uncommon to find early or advanced-stage tropical diseases in countries where they were once considered unusual. Chagas disease is endemic to Central and South America, as well as to the southern United States. It presents the anesthesiologist with a challenging constellation of pathophysiology and management issues. Infection by the protozoan parasite, *Trypanosoma cruzi* [1], causes degeneration of autonomic nerve plexi, leading to severely

dilated cardiomyopathy with ventricular ectopy [2], mega-esophagus, and mega-colon. This disease has a high degree of morbidity and mortality, and of the 16 million people currently infected, 50,000 die annually [3]. In light of increasing travel into these regions and immigration from them, more patients with this condition will present with this condition.

2. Case report

The patient was a 56 year-old man presenting with progressive shortness of breath and decreased functional residual capacity. A few years before presentation, he regularly exercised (ie, long-distance running), but was now bed ridden due to severe dyspnea. He had traveled

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Table 1 Intraoperative hemodynamics

	Pre-CPB	Post-CPB #1	Post-CPB #2
HR (bpm)	80	95	85
BP (mmHg)	110/60	80/40	100/55
CVP (mmHg)	12	18	14
PAP (mmHg)	70/30	80/40	55/20
CO (L/min)	3.5	2.0	4.0

CPB = cardiopulmonary bypass, HR = heart rate, BP = blood pressure, CVP = central venous pressure, PAP = pulmonary artery pressure, CO = cardiac output.

extensively in rural Colombia, where he had become infected with *Trypanosoma Cruzi* about 15 years earlier. He had been intermittently followed by a primary care physician. His condition had progressively deteriorated over the last 5 years, and recently he had also started having high-grade ventricular ectopy, for which he was being managed medically.

Cardiac catheterization showed no significant coronary artery disease, but transthoracic echocardiography (TTE) showed severely depressed systolic function. His ejection fraction (EF) was 10%, with severe left ventricular (LV) dilatation and severe mitral regurgitation. An automatic implantable cardioverter defibrillator (AICD) was placed during cardiac catheterization. Considering the terminal nature of his cardiomyopathy and progressive nature of the disease, cardiac transplantation was considered. However, the patient refused. In the meantime, he became even more symptomatic despite maximal medical therapy including diuretics, antiarrhythmics, and supplemental oxygen. It was decided that a reduction in the extent of his mitral regurgitation by mitral annuloplasty could bring him some symptomatic relief. His medications included amiodarone,

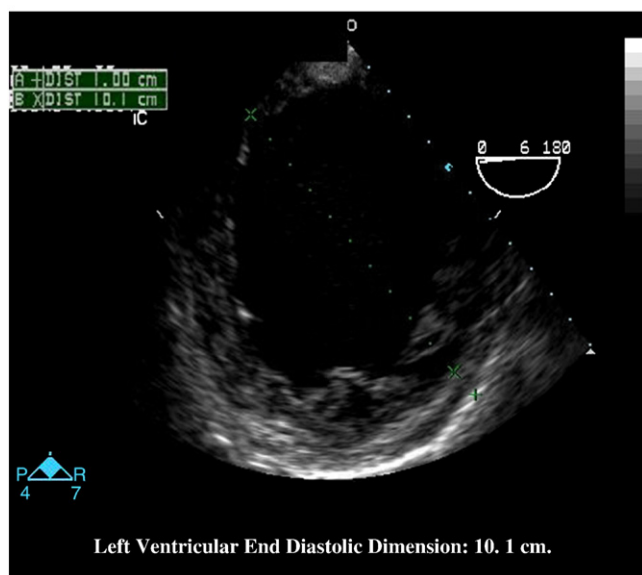


Fig. 1 Transesophageal echocardiographic view of the patient's left ventricular dilatation.

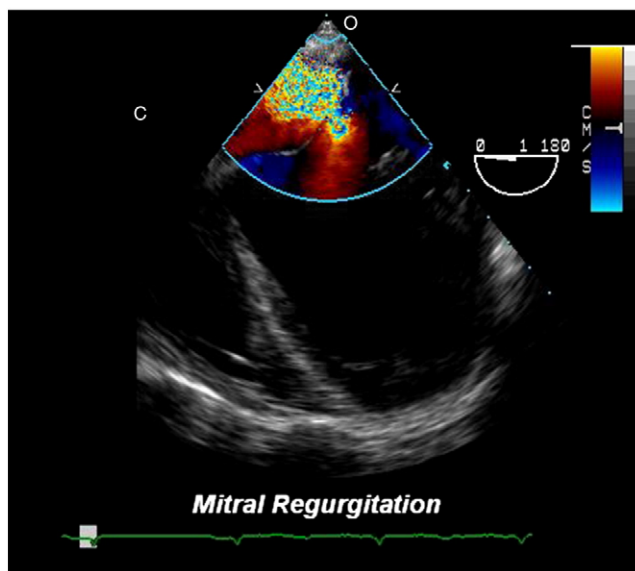


Fig. 2 Transesophageal echocardiographic view of severe central mitral regurgitation.

furosemide, and an angiotensin-converting enzyme (ACE) inhibitor for afterload reduction.

He was brought to the operating room, where a radial arterial catheter and large-bore intravenous cannula were placed. General anesthesia was induced with 10 mcg/kg of fentanyl and 0.5 mg/kg propofol. After induction, he was maintained on 100% oxygen with 1% isoflurane. A transesophageal echocardiographic (TEE) probe was very gently passed. If any resistance had been met, the attempt would have been abandoned. A continuous cardiac output/mixed venous saturation (CCO/svO₂) pulmonary artery catheter (PAC; Ref: 780HF75; Edwards Life Sciences, Irvine, CA) was then inserted through the right internal jugular vein with TEE guidance. Initial pulmonary artery (PA) pressures were 70/30 mmHg, with systemic pressures of 100/60 mmHg (Table 1). Pre-cardiopulmonary bypass

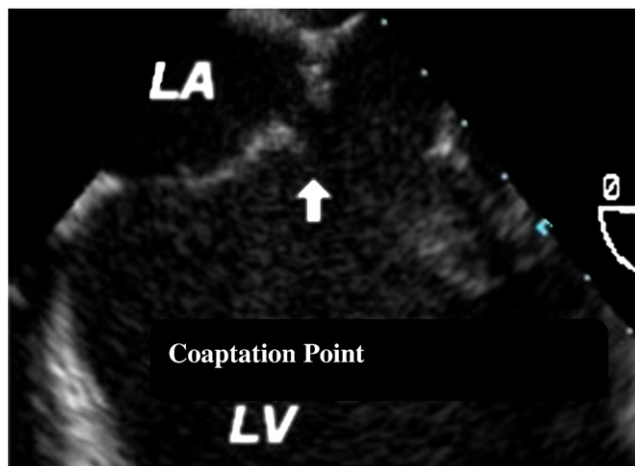


Fig. 3 Transesophageal echocardiographic view of inadequate coaptation due to annular dilatation and leaflet tethering. LA = left atrium, LV = left ventricle.

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