Present-day cannula designs can be susceptible to malalignment and postoperative dislocation. Malalignment may cause an obstruction of the inlet flow both at rest and during activity, leading to clinical symptoms and ventricular anatomy entrapment, flow reduction, premature ventricular suction, arrhythmia, thrombus formation, and/or endocardial distress (Figure 1). As seen in this case, a comprehensive evaluation by a team versed in diagnosing and managing this type of complex problem is required for a favorable result.

Case Presentation

A 65-year-old man with a long-standing history of ischemic cardiomyopathy and morbid obesity underwent the implantation of a HeartMate II left ventricular assist device (LVAD) in 2011. Initially, his post-operative course was uncomplicated. However, two years later he developed fatigue with exertion, which had worsened over the past several months. His work-up consisted of a comprehensive evaluation to determine pump malfunction.

Assessment

The patient underwent radiologic as well as invasive testing including blood work, right heart catheterization, and a 4D computed tomography (CT) scan interrogation of his pump. The patient’s lactate dehydrogenase (LDH) was slightly elevated but not enough to raise concerns for pump thrombosis, and the hemodynamics obtained at the time were normal. However, the 4D CT cardiac/LVAD reconstruction revealed complete obstruction of the inflow cannula with every systolic beat.

Therapeutic Management

Given this finding, coupled with a discernible deterioration in the patient’s overall condition, the case was presented to our institution’s Heart Transplant Selection Committee. The patient was deemed an appropriate candidate for heart transplantation. Shortly after his listing, a viable donor organ became available. The transplantation was successfully completed, and the patient was discharged 10 days later.
Advanced Heart Disease
Clinical Case Report

References

The Baylor University Medical Center Heart Transplant and Ventricular Assist Device Program provides comprehensive medical and surgical evaluation for LVAD patients experiencing LVAD-associated complications. Patients arriving at our center with LVAD-associated complications have a number of alternatives to treat their condition.

For people who have advanced heart disease, but do not live near Baylor Annette C. and Harold C. Simmons Transplant Institute, we bring 30 years of transplant experience to them. Teams of physicians, nurses and assistants travel to outreach clinics throughout Texas, delivering world-renowned transplantation medicine to an expanding network of communities. The clinics are an outreach service of Health Texas Provider Network and are located in Abilene, Amarillo, Lubbock, Odessa and Shreveport.

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