Left Atrial Mass Causing Obstruction After Retransplantation: Case Report and Surgical Technique

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ABSTRACT

Background. We describe the case of a 57-year-old woman who developed right heart failure after a second orthotopic bicaval cardiac transplant.

Case Report. Perioperative transesophageal echocardiogram showed a left atrial mass consisting of redundant tissue at the atrial suture line in the left atrium that did not have a significant hemodynamic effect under general anesthesia.

Conclusions. After discharge from the intensive care unit, she developed right heart failure that required excision and left atrial patch augmentation.

With the advance in immunosuppressive therapy and operative techniques, patients survive longer after heart transplantation. Retransplantation represents 3\% of all heart transplantation worldwide. Above and beyond the usual pitfalls associated with sternal re-entry, retransplantation is associated with unique complications that require special attention. We have described a rare complication after retransplantation, namely, an obstructing left atrial mass causing right heart failure that was treated with excision and a left atrial patch augmentation. A similar case was reported previously; this patient developed multisystem failure and no operative intervention was attempted [1]. Another similar case was reported in a pediatric patient [2]. There have been multiple diagnostic reports of this complication in the literature, but very few discuss operative management [3,4].

CASE REPORT

A 57-year-old woman underwent a first heart transplant 20 years prior for familial dilated cardiomyopathy. She presented with multiple episodes of heart failure after her initial transplant and had a tricuspid valve replacement 3 years after transplantation, followed by a tricuspid valve balloon dilatation 15 years later.

Two years after tricuspid valve balloon dilatation, the patient was in New York Heart Association functional class 3 and transthoracic echocardiogram (TTE) showed severe type 3b mitral regurgitation with a left ventricular ejection fraction of 50\%. A decision was made to go ahead with retransplantation. Orthotopic bicaval heart transplantation procedure was carried out successfully and the patient was transferred to the intensive care unit. On postoperative day 1, routine TTE showed a mild mid-atrial obstruction causing a peak gradient of 9 mmHg, mean gradient of 4 mmHg, and a moderately dilated left atrium (39 mL/m\(^2\)).

The patient was transferred to the ward on postoperative day 9. On postoperative day 11, she developed respiratory failure, bilateral pleural collections, and atrial fibrillation. She was transferred to the intensive care unit for further care and was intubated. Magnetic resonance imaging showed an intracavitary mass, measuring 22 \times 7 mm, causing obstruction in the left atrium immediately in front of the left inferior pulmonary vein (Fig 1). Transesophageal echocardiogram (TEE) confirmed the postoperative TTE findings.

The patient was re-operated 18 days after retransplantation to correct the left atrial obstruction. Intraoperative TEE confirmed the presence of a bulging mass causing obstruction in the left atrium (Fig 2). Through median sternotomy, the left atrium was opened and a bulging mass, consisting of interstitial fibrosis from the first transplant, was excised and a left atrium patch augmentation with bovine pericardium was performed.

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adjacent to the initial atrial suture line. This bulging mass had been noted at the time of retransplantation, but had minimal hemodynamic effect and was left in place to minimize bleeding. Postoperative TEE showed no residual obstruction. The patient was easily weaned off inotropes and the evolution was favorable.

DISCUSSION

Evaluating efficiently the amount of tissue to resect at the time of retransplantation is of paramount importance; failure to do so can result in large vessel kinking or anastomosis tension and residual tissue can result in intra-cavitary obstruction. Left atrium obstruction can remain hemodynamically compensated in the early postoperative period; pulmonary hypertension and right ventricular dysfunction are routinely treated with pulmonary resistance–lowering agents and inotropes. Much attention is given to ensure adequate large vessels length, but this rare case highlights the importance of left atrial debulking, because left atrial obstruction can remain unrecognized in the early postoperative period and cause great harm to the thriving right ventricle.

REFERENCES