

CASE STUDY

HIGH-RISK AORTIC VALVE REPLACEMENT AND CABG FOR MANAGEMENT OF CARADIOGENIC SHOCK AND HEART FAILURE

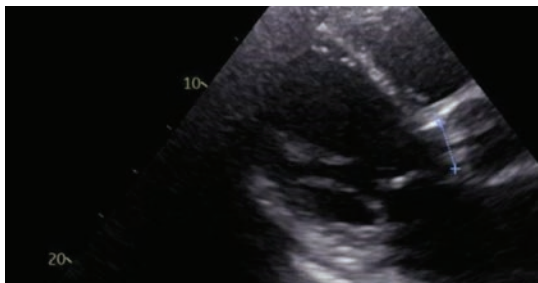
70-Year-Old Patient Benefits from Surgical and Critical Care Expertise of Temple Heart & Vascular Team

A 70-year-old man with a history of ischemic cardio myopathy, ventricular tachycardia status post ablation, and prior heart failure with biventricular ICD placement, presented to his community hospital in cardiogenic shock with an ejection fraction of 10%. Once stabilized, he was transferred to Temple for further management and high-acuity care.

Given the patient's critical status, specialists from the Temple Heart & Vascular Institute proceeded with bioprosthetic aortic valve replacement and six-vessel beating-heart CABG to offer the best option for a positive long-term outcome.



Left heart catheterization



Transthoracic echo

DIAGNOSTIC FINDINGS

- An echocardiogram revealed severe diffused hypokinesia with an ejection fraction of 10% and severe low-grade, low-flow, low-gradient aortic stenosis, with peak pressure gradient 45mmHg.
- LV stroke volume was significantly reduced (14 ml/m²; reduced is <35 ml/m²). There was severe diffuse hypokinesia.
- Catheterization revealed under-expanded prior stenting and severe multi-vessel coronary disease.

CLINICAL COURSE

- Decided to proceed with surgery despite patient's critically ill status.
- Patient was monitored with Swan Ganz catheter and transesophageal echocardiogram (TEE). TEE showed severe aortic stenosis and moderate mitral regurgitation at the start of procedures.
- Median sternotomy revealed a mass at the upper edge of the sternum, which was biopsied and sent for pathology.
- Right pleural space drained of 850mL of serous pleural effusions, left pleural space was opened and drained of 1.2 liters of serous pleural effusions.
- LIMA was harvested in skeletonized fashion.
- Underwent high-risk bioprosthetic aortic valve replacement and six-vessel beating-heart CABG.

OUTCOMES

- At close, TEE showed well-functioning prosthetic valve and preserved LV wall motion that was poor to start with. Cardiac output was adequate. Graft flows were excellent.
- The patient tolerated AVR and CABG x 6 well. He was transferred to CICU in stable condition.
- One week after surgery, echocardiogram showed an improved ejection fraction of 40%.
- One month after discharge, patient demonstrated a steady recovery.

KEY POINTS

- Patients with complex cardiovascular problems and at a high risk of mortality are often refused treatment and placed in palliative care.
- Temple offers more options for critically ill patients than any other cardiovascular surgery program in the region.
- Specialists at the Temple Heart & Vascular Institute are well known for their high degree of surgical and critical care expertise, providing options when none seemed available.

LEAD PHYSICIAN



Yoshiya Toyoda, MD, PhD

*Co-Surgical Director, Temple Heart & Vascular Institute
Chief, Cardiovascular Surgery, Temple University Hospital
Surgical Director of Thoracic Transplantation,
Temple University Hospital
Director, Mechanical Circulatory Support,
Temple University Hospital
Professor, Surgery and William Maul Measey
Chair, Surgery,
Lewis Katz School of Medicine at Temple University*

Heart & Vascular Institute

