

Case Study: Autoimmune Myocarditis

Patient Data

Indication for Use: Autoimmune Myocarditis
Type of Support: RVAD BVS support, LVAD AB support
Age: 37 **Sex:** Female
Weight: 68kg **BSA:** 1.77

Surgical Data

04/25/05 Bi-VAD support initiated
12/23/05 Bi-VAD BVS Support explanted
IABP prior to support: Yes
RVAD: 42 FR right atrium/Hemashield® graft to PA
LVAD: 42 FR intra-atrial groove/Hemashield® graft to ascending aorta

Patient Hemodynamics

	Pre-implant	On-Support	Explant
CI:	<2.0	2.3-2.8	2.2
EF:	<10%	N/A	>45%
CVP:	>20	12-14	N/A

Organ Function: Liver (bilirubin, ALT): Normal
Kidney (BUN, creatinine): Normal
Pulmonary: Normal
Extubated On-Support: No

Inotropic Support

Pre-Support: Levophed® @ 18 mcg/kg/min
Dobutamine @ 4 mcg/kg/min
On-Support: Nipride @ 0.5 mcg/min

Anticoagulation Post-OP

Full anticoagulation per CPB protocol followed by full reversal with Protamine.
Aprotinin used in OR; returned to OR for bleeding.
Continued bleeding issues lead to additional doses of Protamine and Aprotinin.
Heparin therapy started within 72 hours due to continued bleeding complications; once stabilized ACT's were maintained between 60-80 seconds.

Implanting Surgeons: Dr. Daniel Raess, Dr. Greg Dedinsky
Indiana Heart Hospital, Indianapolis, IN
Clinical Consultant: Kim Byrum Chappel, RN, CCRN

History

A 37-year-old female, wife and mother of two daughters and a busy TV producer, was admitted on April 21, 2005 to Indiana Heart Hospital for complaints of chest pain. A cardiac catheterization revealed that she had normal coronaries and an ejection fraction (EF) of 45%. However, her complaints worsened over the next 24 hours and a bedside echocardiogram revealed that her EF had fallen to 10%.

After two days in the Coronary Care Unit, the patient decompensated with multiple end-organ failure, requiring intubation and insertion of an intra-aortic balloon pump (IABP).

Viral Myocarditis was the suspected diagnosis and the patient was taken emergently to The Operating Room (OR) for BVS Blood Pump Insertion to support both sides of her heart.

Operative Summary

The patient was taken to the OR by Dr. Raess and Dr. Dedinsky and placed emergently on Bi-VAD support with cardiopulmonary bypass (CPB) time only 126 minutes.

A 42 French malleable cannula was implanted in the right atrium and a 10 mm Hemashield® graft was end-to-side anastomosed to the pulmonary artery for right side support with BVS Blood Pump.

A 42 French malleable cannula was placed in the intra-atrial groove with a 10 mm Hemashield® sewn to the ascending aorta for left side support with an AB5000 Ventricle.

Transesophageal echo (TEE) was used to confirm cannula placement and initial flows were between 4.3 and 5.0 L/min on both sides. Minimal inotropic support required after implant. IABP discontinued in OR. Multiple blood products given due to intraoperative coagulopathy.



Post-Operative

Post-Operative (PO) course involved continued bleeding requiring additional doses of Aprotinin and protamine. Once bleeding was under control, ACTs were maintained between 180–200 seconds with heparin. Hemodynamically stable with mean arterial pressure (MAP) > 80.

Rheumatology consults found elevated ANA titers and steroid therapy was initiated.

PO day #6:

Heparin was changed to Argatroban[®] due to possibility of HIT and the patient was maintained on this therapy.

PO day #7:

The patient's PTT was 60.

PO day #8:

Native ejections noted via electrocardiogram (EKG).

PO day #11:

The patient was taken to the cath-lab lab for tissue biopsy; which ruled out viral myocarditis.

PO day #14:

The patient was successfully explanted.

PO day #25:

The patient was discharged. The final diagnosis was Autoimmune Myocarditis.

The patient says she, "Thank(s) God for that machine," the care she received at the hospital and the support of her family.

“Thank God for that machine”