A 64 year old male, (C.D.) with a past medical history of coronary artery disease, hypertension, hyperlipidemia, ischemic cardiomyopathy (s/p ICD), Type II diabetes mellitus, carotid artery stenosis (status post CEA), CVA, Lupus, chronic kidney disease stage III and peripheral vascular disease presented to the emergency department complaining of symptoms of shortness of breath and orthopnea. Two previous coronary artery bypass grafts in 2005 and 2009 and drug eluting stent to saphenous vein graft of the left anterior descending coronary artery in 2015 further complicated this patient’s medical history of CAD. After right heart catheterization the patient was found to have elevated right and left heart filling pressures and low cardiac output. The patient was started on medical management for ischemic cardiomyopathy with milrinone, torsemide, coreg, isosorbide dinitrate, and hydralazine. However, the patient was unable to be weaned of milrinone and eventually began to show signs of diffuse ischemia on ECG. The patient’s renal function was also worsening and the decision was made for IABP followed by LVAD placement once renal function improved. After IABP was placed and renal function improved the patient was stable enough to place an LVAD. LVADs are established therapy for end stage heart failure, as not only a bridge to transplant and recovery, but also as destination therapy. The patient’s history of two previous CABG surgeries raised surgical concerns for reopening the chest. LVAD insertion by minimally invasive procedures is feasible and safe. Minimally invasive techniques were developed primarily to reduce operative trauma, CPB time, perioperative blood loss and to protect cardiac structures from multiple re-entries. Small thoracic incisions may make direct access to the LV apex technically more challenging and may result in improper placement of the inflow cannula. Similarly, limited exposure to the ascending aorta may impede emergent CPB if needed. In our case the surgical team inserted the inflow cannula in the apex via the 5th intercostal space (single left thoracotomy incision), and tunneled the outflow cannula through the left pleural space and to the left axillary artery. Anesthetic management of this case was particularly challenging because the patient was placed in right lateral decubitus position and the left lung needed to be deflated for surgical exposure. One lung ventilation was achieved by placing a left sided 37 French double lumen tube after induction with etomidate, midazolam, fentanyl and rocuronium. Tube placement was confirmed with bronchoscopy. A left sided femoral arterial line was placed for invasive blood pressure monitoring. A left sided internal jugular central venous line and Swan-Ganz catheter were placed. Intra-operative TEE was also performed to monitor heart function.