A 35 year old male with significant mitral regurgitation due to ischemic cardiomyopathy presented for consideration for heart transplant. Despite optimal medical management, he developed atrial fibrillation with increased mitral regurgitation, impaired contractility, and dyssynchrony. His bundle pacing (HBP) has further benefit in a transplanted heart with pulmonary hypertension.

HBP has further benefit in transplanted hearts by leaving the septum available for biopsy.

Conclusion

- A dual chamber His bundle pacemaker was safely implanted in an OHT patient.
- Dual chamber HBP with RBBB recruitment is possible and potentially beneficial in a transplanted heart with low EF, underlying RBBB, and pulmonary hypertension.
- HBP has further benefit in transplanted hearts by leaving the septum available for biopsy.

Figure 1: Electrogram showing selective His bundle pacing with and without correction of underlying right bundle branch block with decreasing pacing thresholds.

Case Report

- Standard RV pacing results in ventricular dysynchrony, impaired contractility, increased mitral regurgitation, decline in ejection fraction, and increased burden of atrial fibrillation. [1-3]
- His bundle pacing (HBP) can result in the activation of the heart through the intrinsic conduction system. When achieved, this avoids the harmful consequences of single ventricular pacing.
- Mapping of the His bundle was done through unipolar hook up of the pacing lead and electrograms before and after fixation are shown in figures 1A and B. The implanted lead values were threshold 0.75 Volts at 1 millisecond, R wave of 2.8 millivolts, and an impedance of 663 Ohms.
- Pacing from this sight led to beneficial recruit of the right bundle as shown in figure 1C. Atrial lead was subsequently placed.
- Electrocardiograms (ECGs) before and after HBP placement are shown in figure 2. Patient had baseline right bundle branch block (RBBB) (figure 2A) that narrowed by HBP (figure 2B).

He continued to undergo RV ventricular pacing.

- He continued to undergo RV endomyocardial biopsies as part of allograft rejection surveillance program without complications, as shown in the fluoroscopic picture in figure 3.

Figure 2: Baseline ECG with RBBB with QRS duration of 152 msec.

Figure 3: Image at time of Myocardial Biopsy.