Abstract: P1200

Endocardial left ventricular pacing and AV node ablation in a patient with ebstein’s anomaly and mechanical tricuspid valve replacement with an inaccessible coronary sinus

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Topic(s):
Antibradycardia Pacing

Citation:

Introduction
Ebstein’s anomaly is characterised by apical displacement of the tricuspid valve (TV), an "atrialised" portion of the right ventricle (RV) and dilatation of the true tricuspid annulus. Permanent pacing is infrequently required but due to RV anatomical abnormalities and high rates of TV intervention, endocardial RV pacing is rarely performed and surgically implanted epicardial leads are often used. Other options include implantation of pace-sense leads via the coronary sinus (CS).

Clinical Presentation
A 52-year-old was referred to our centre with difficult to control atrial flutter. He had Ebstein’s anomaly and underwent a mechanical TV replacement aged 12-yrs. He had undergone 2 previous ablations as well as several cardioversions, which failed to maintain sinus rhythm. Echocardiography (TTE) had shown evidence of cardiomyopathy, presumed tachycardia induced. In view of this unsuccessful rhythm control strategy and poor ventricular rate control, we were asked if we could perform cardiac pacing and AVN ablation.

Cardiac computed tomography showed that his TV replacement was sited very basally such that the CS drained into the RV and was therefore not accessible for pacing (Figure one). Leadless LV pacing (WiCS-EBR) was deemed unsuitable as it requires co-implantation of a conventional pacing system in order to trigger. The patient did not want to consider an epicardial surgical approach. We therefore offered a trans-septal LV lead along with AVN ablation.

Venous access was obtained via left subclavian and right femoral veins. A 5 french (Fr) sheath was inserted via the subclavian vein and an 0.032” guidewire advanced into the right atrium. A 10Fr sheath was inserted into the right femoral vein. Intracardiac echocardiography guided trans-septal puncture was performed using a 10Fr SL1 catheter and BKR1 XS trans-septal needle. This also allowed imaging of the left atrial appendage. The 0.032” guidewire was snared from the femoral approach and advanced across the intra-atrial septum into the left atrium. Subclavian access was then upsized to a 9.5Fr sheath. A select secure transvenous pacing system (Medtronic) was used. We were unable to advance the select secure guide catheter across the atrial septum. We switched to an MB2 CRT delivery catheter, which crossed with ease. A 69cm Medtronic 3830 lead was implanted into the basolateral wall of the LV.

The AVN was inaccessible from a trans-venous route as his mechanical TV replacement was sited above the triangle of Koch. The AVN ablation was undertaken via retrograde aortic approach. The His was ablated in the LV septum with one application of RF energy (40W for 60sec) using a D/F irrigated catheter. The patient remained on anti-coagulation throughout.

Conclusion
This case highlights an alternative option to surgery for patients requiring ventricular pacing in the presence of TV replacement and an inaccessible CS.
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Fig. 1. CT scan of the heart and vessels. A) 3-D volume rendered image of the inferior aspect of the heart illustrates a dilated ectatic coronary sinus (CS) draining into the right heart at the atrio-ventricular border (*). B) "Clipping" of the inferior aspect of right ventricle demonstrates the CS draining into the right ventricle rather than right atrium, at the ventricular aspect of the prosthetic tricuspid valve(<). LV-left ventricle, RV-right ventricle, LA-left atrium, RA-right atrium, L circumflex coronary artery.