

## EP CASE REPORT

# His bundle pacing after Senning baffle operation

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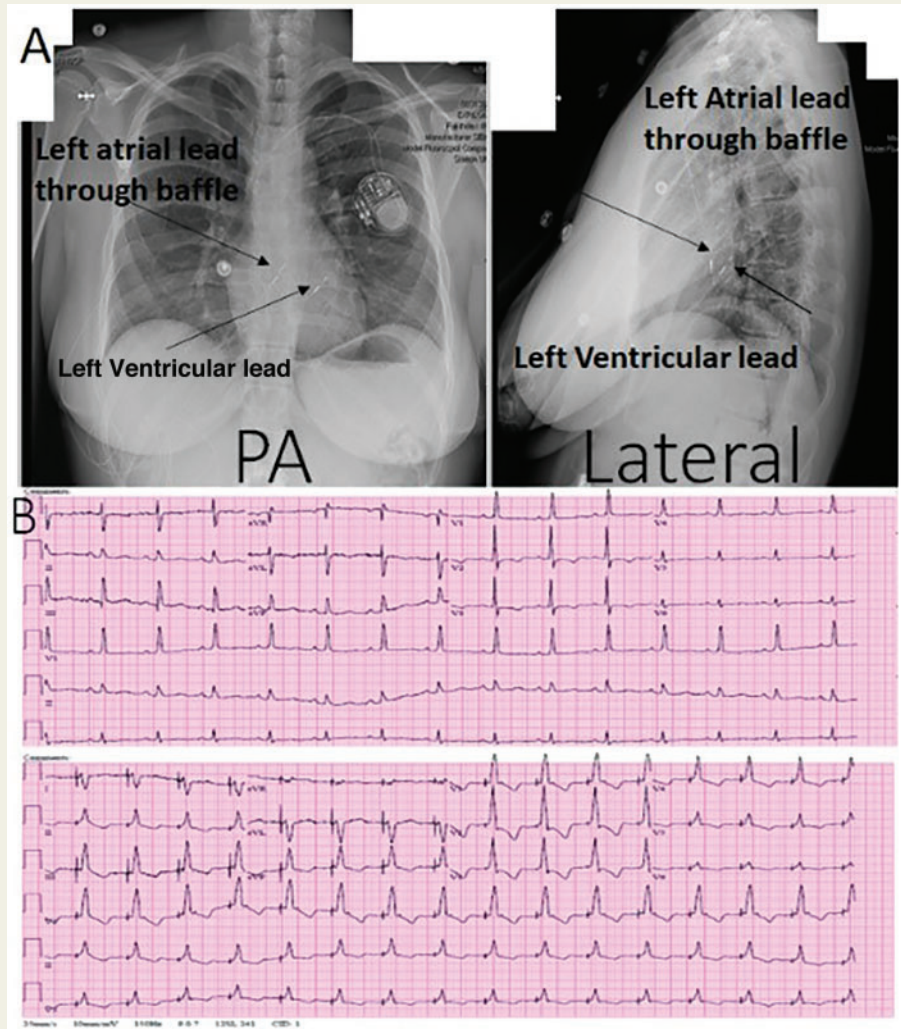
### Introduction

Long-term right ventricular pacing can cause left ventricular dysfunction in those with congenital heart disease.<sup>1</sup> His bundle pacing in adults without congenital heart disease has demonstrated reversal of pacemaker-induced cardiomyopathy; however, no data exist in patients with repaired dextro-transposition of the great arteries (D-TGA).<sup>2,3</sup> We present a patient with D-TGA and a Senning-baffle repair with sinus node dysfunction and intermittent heart block treated with non-selective His bundle pacemaker placement.

### Case

A 39-year-old female with D-TGA status post-balloon atrial septostomy at 2 weeks of age and subsequent Senning repair at 12 months of age, presented with syncope, symptomatic intermittent heart block, and sinus pauses. After haemodynamic evaluation, she had a pacemaker placed.

A 1 cm incision was made below the left clavicle. A device pocket was created within the pectoralis major muscular sheath, and two left axillary vein accesses were obtained utilizing ultrasound and the Seldinger-technique. The C315 sheath was deployed over a Glidewire placed in the left (sub-pulmonary) ventricular outflow tract and exchanged for 69 cm 3830 lead (Medtronic) which was guided to the His bundle signal and screwed into the sub-pulmonary left ventricular myocardium distal to the mitral annulus (Figure 1A). Pacing was used to confirm the QRS complex and the overall depolarization vector was similar to an un-paced rhythm with QRS duration of 100 milliseconds (ms, Figure 1B). Similarly, a 59 cm 3830 lead was then deployed with a J-curve catheter into the atrial position.



**Figure 1** (A) Position of the lead on PA and lateral X-ray including atrial baffle lead and left ventricular lead. (B) Electrocardiogram of underlying QRS morphology before pacing and morphology after pacing.

A Medtronic Azure XT-DR-MRI was connected to the 3830 leads. Her ventricular lead had an R-wave of 4.8 mV, impedance 950  $\Omega$ , unipolar capture threshold of 0.5 V@0.4 ms, with His capture at 1 V@0.4 ms, unipolar. The pacemaker was programmed AAI-DDD (MVP mode) 50–150 b.p.m.

The patient's 8-month follow-up demonstrated atrial pacing at 5.4%, ventricular pacing at 0.1% with ventricular lead demonstrating capture threshold at 0.625 V@0.4 ms, the impedance at 456  $\Omega$  and R-wave at 5.8 mV and stable atrial lead measures.

### **Discussion**

We describe our experience with placement of a His bundle pacing system in an adult patient with D-TGA. His bundle placement was performed via the sub-pulmonary left ventricle, with atrial baffle access (Senning). The initial wire was placed in the left ventricular outflow tract, then with His bundle sheath retracted proximally until His signal obtained in the left ventricle. Pacing gave a similar axis to prior intrinsic morphology and with identifiable His capture with a change in output, confirming non-selective His bundle pacing. We present the first case of d-TGA and His bundle pacing through a Senning baffle.<sup>3</sup>

### **Conclusion**

Non-selective His bundle pacing is possible from the left ventricular septum in the subpulmonic ventricle in a patient with D-TGA and Senning/atrial baffle.

**Conflict of interest:** none declared.

### **References**

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