Successful left bundle branch pacing in a patient with dextrocardia using a modified sheath

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A 61-year-old woman with symptomatic bradycardic atrial flutter and syncope in the setting of dextrocardia with situs inversus and post mitral valve replacement underwent implantation of a dual-chamber pacemaker (FIGURE 1A). We chose vein access from the right side with the 3830 lead and C315-S10 sheath (Medtronic Inc, Minneapolis, Minnesota, United States) to perform the procedure of left bundle branch pacing (LBBP). Atrial and ventricular leads were advanced through the right subclavian vein and fixed in the atrial septum and left ventricular septal subendocardium, respectively (FIGURE 1B and 1C; Supplementary material, *Figure S1* and *S2*). The left bundle branch potential was recorded (FIGURE 1D). Left ventricular activation time was 55 milliseconds. The paced morphology of right bundle branch block and narrow QRS morphology under different output of pacing voltages indicated left bundle branch capture (FIGURE 1E).

LBBP is the most promising physiologic pacing with the rapid development in recent years.[1,2] It may even be the replacement or complementary therapy for cardiac resynchronization therapy.[3] Due to the inherent defects of His bundle pacing, such as difficulty in implantation, undersensing, and increase of capture threshold, one of the solutions for patients with His bundle pacing failure may be LBBP.[4]

Due to complex anatomic arrangement and lack of proper tools, physicians face great challenges with regard to permanent LBBP in patients with dextrocardia. The fixed curve of C315 sheath takes the lead into the free wall of the right ventricle instead of interventricular septum in the setting of dextrocardia. In our case, we modified the C315-S10 sheath manually by straightening the proximal curve (FIGURE 1F), which allowed to rotate the sheath clockwise and advance the 3830 lead into the ventricular septum.

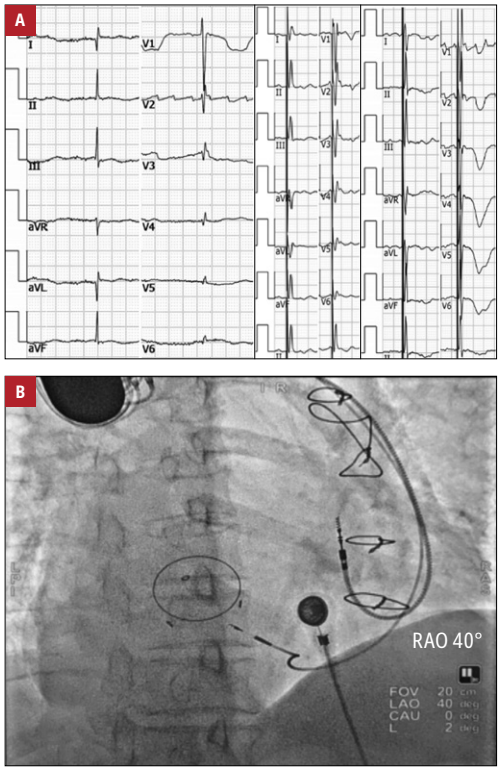

FIGURE 1 **A** – standard 12-lead electrocardiogram before pacemaker implantation (left), post pacemaker implantation (middle), and post pacemaker implantation with the leads reversed (right); note the Electrocardiogram leads (precordial, left and right hands) reversed. **B** – fluoroscopy, right anterior oblique view, showing the position of the leads

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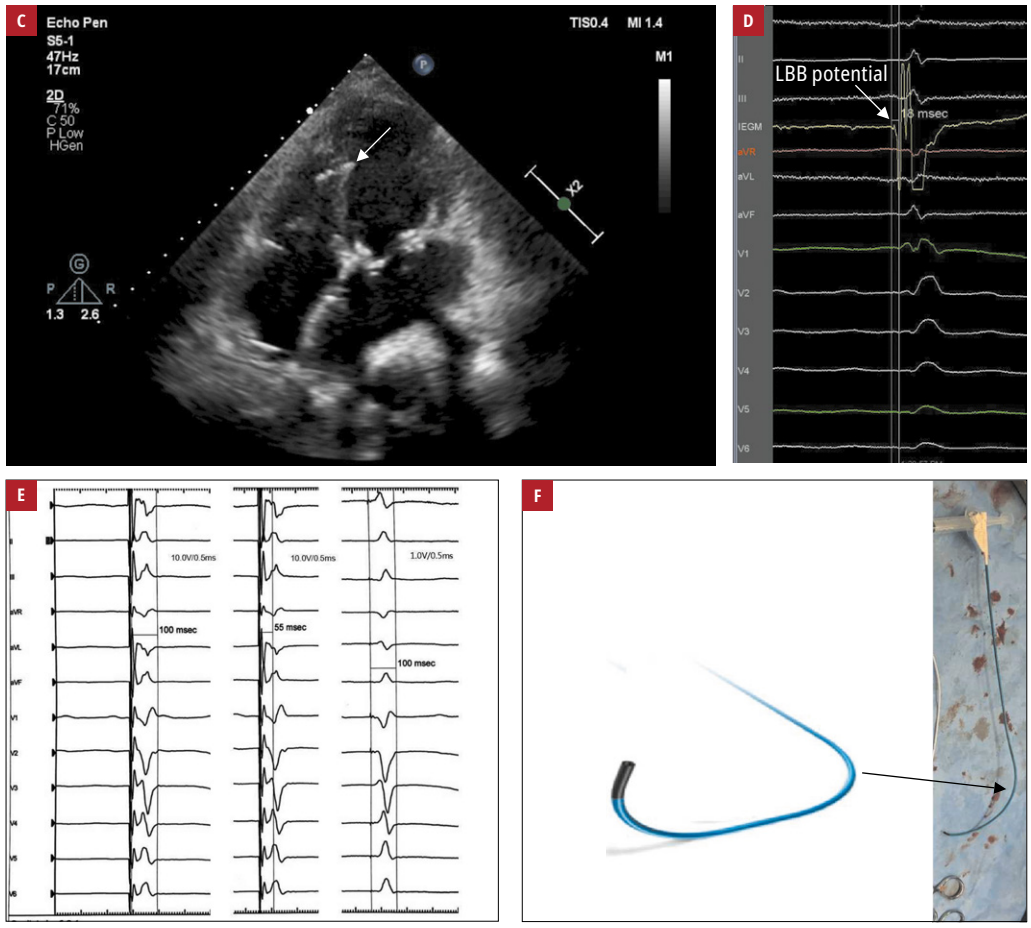

FIGURE 1 **C** – echocardiographic image showing the lead in left ventricular septal subendocardium (arrow) in the apical 4-chamber view; **D** – the left bundle branch potential (arrow) with the interval of 18 ms between the potential and the beginning of the QRS complex. **E** – after decreasing the output from 10 V/0.5 ms to 1 V/0.5 ms, the paced morphology changed slightly, indicating the change from nonselective left bundle branch pacing to selective left bundle branch pacing. QRS duration was 100 ms and left ventricular activation time was 55 ms. Note the electrocardiogram leads (precordial, left and right hands) reversed. **F** – picture of C315-S10 sheath, of which the proximal curve was modified into an L shape (black arrow)

SUPPLEMENTARY MATERIAL

Supplementary material is available at www.mp.pl/kardiologiapolska.

ARTICLE INFORMATION

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CONFLICT OF INTEREST None declared.

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