Percutaneous Dual Chamber Pacemaker Implantation via Transhepatic Approach in a Patient with Ebstein’s Anomaly after Glenn Operation and Tricuspid Valve Replacement

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Introduction: A 62-year-old woman with Ebstein’s Anomaly was admitted with exertional dyspnea. The 24-h electrocardiogram monitoring showed junctional escape rhythm without P waves at a heart rate of 33 beats per minute and Mobitz type II block. Implantation of a permanent pacemaker was recommended. She had a history of Glenn operation and tricuspid valve replacement two years ago. Contrast-enhanced computed tomography showed that the superior vena cava was connected to the right pulmonary artery (Panel A).

Methods: Given subclavian vein hindered, transhepatic venous route would be a reasonable approach. The procedure was performed with the patient under conscious sedation. Under ultrasound guidance, the middle hepatic vein was successfully punctured and catheterized for lead access. Two guide wires were advanced into the right atrium via the hepatic vein via. A ventricular lead was screwed into the inferior wall of the right ventricle, the atrial lead was inserted in the right atrium.

Result: After confirming acceptable capture threshold, the leads were connected to a dual chamber pacemaker, and the generator was placed in a pocket under the fascia of the rectus abdominis muscle (Panel B). No complications such as local liver injury, hematoma and hepatic vein thrombosis were observed. During the 6-month follow-up, there was no hepatic dysfunction and dislocation of electrode.

Conclusion: The trans-hepatic route may be considered as a viable route for pacemaker implantation in such case which subclavian vein route isn’t feasible.