Good recovery of left ventricular function after Nodo Hisian catheter ablation in Wolff-Parkinson-White syndrome

Introduction: Manifest accessory pathway (AP) located in the Nodo Hisian (NH) region around the Atrioventricular Node (AVN) are rare and poses challenges for ablation strategy since ablation in this case is associated with risk of Atrioventricular (AV) block. Here we present a rare case of symptomatic Wolff-Parkinson-White (WPW) syndrome with NH AP and deterioration of left ventricular ejection fraction (LVEF) who underwent successful AP ablation.

Methods: A 19-year-old woman presented to local hospital with palpitation and dyspnea for several hours. The electrocardiography (ECG) showed a supraventricular (SVT) rhythm with a heart rate of 201 beats per minute. She was then treated with intravenous amiodarone but failed to convert to sinus rhythm and finally did convert with cardioversion after 48 hours. The ECG showed sinus rhythm and delta wave. Echocardiography showed dilation of all cardiac chambers with LVEF 50%, which was a significant deterioration than normal echocardiography 3 months ago. She was then scheduled for ablation and electrophysiology study showed eccentric activation during sinus with earliest V at septal area and fused A and V wave on His catheter. Retrograde conduction of AP also at the same area. We then performed a slowly uptitrated dose of radio frequency catheter ablation (RFCA) at the tricuspid annulus right in front of the His Bundle. The procedure was successful with no complication and the tachycardia could not be induced anymore afterwards. The next day ECG showed no delta wave and subsequent echocardiography showed the cardiac chambers and LVEF returned to normal.

Result: For this case, we used a recently proposed maximal pre-excitation based algorithm and showed accurate location based on surface ECG. Risks with ablation strategy for NH AP can be minimized with use of different techniques such as placement of the catheter on the tricuspid annulus more at the ventricular insertion and lower RF power. We used RFCA placed on the tricuspid annulus at the ventricular insertion with careful slowly uptitrated dose and produced a good result with no complication. Significant deterioration of LVEF in this case could be caused by NH dysynchrony considering the presence of NH AP. However, the patient suffered an episode of tachycardia for almost 48 hours and we thought was the main factor contributing to LVEF deterioration. Furthermore, after successful ablation, echocardiography showed the return of LVEF after 10 days confirming our theory.

Conclusion: This report showed that catheter ablation of WPW syndrome with NH AP could be performed safely and resulted in good recovery of LVEF.