Ebstein Anomaly Presenting with Dual Tachycardia: Successful Ablation of Both

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Introduction: Ebstein anomaly (EA) is a congenital cyanotic which present with enlargement of right atrium and displacement of tricuspid valve leading to atrialization of right ventricle. It is well associated with tachyarrhythmias including atrial flutter or fibrillation, atrioventricular nodal reentry tachycardia (AVNRT) and accessory pathway mediated tachycardia, and ventricular tachyarrhythmias. We presented a case of Ebstein anomaly presented with two tachycardias.

Methods: A 45-year-old lady who had Ebstein anomaly presented with 8 months history of dyspnea associated with palpitation. 12-lead electrocardiogram showed 2:1 counterclockwise atrial flutter with pre-excitation. (figure 1). Echocardiography showed ejection fraction of 65%, dilated right atrium with severe tricuspid regurgitation, mild pulmonary regurgitation and atrial septal defect secundum. We performed 3D mapping using Ensite system. Three right femoral vein punctures were done with two 7F sheaths for non-irrigated ablation and quadripolar catheter. One right jugular vein with 6F sheath for coronary sinus catheter. 3D mapping was done using ablation catheter to create right atrium (RA) geometry and local activation (LAT) mapping.

Result: Using the ablation catheter which was placed at cavo-tricuspid isthmus (CTI) with atrial pacing showed post pacing interval minus tachycardia cycle length (PPI – TCL) <30ms indicating the atrial flutter was isthmus dependent. Activation mapping also showed counterclockwise atrial flutter. There was also earliest potential of 149ms was noted at the right posteroseptal area extending to the anterior of inferior vena cava (IVC) antrum with fused AV signal. We performed ablation at CTI using irrigating ablation catheter with SL1 sheath for better support at 30W, 45°C. During ablation of CTI line, there was also disappearance of delta wave followed by retrograde block. The ablation of CTI line was completed with termination of flutter.

Conclusion: In our case, she had concomitant two tachycardias which were successfully ablated. Interestingly the accessory pathways located near the CTI line which susceptible to termination of AP during simultaneous flutter ablation.