Summary

The septum has a complex anatomy and contains the major parts of the conduction system including the AVN and the penetrating bundle of His.

Septal accessory pathways are less common than the free wall accessory pathways, but they have unique electrocardiographic and electrophysiologic properties .They are also considered among the most technically challenging to be ablated successfully and safely.

We aimed from this study to evaluate the clinical, electrocardiographic and electrophysiologic properties of septal APs and to investigate the safety and efficacy of RF catheter ablation.

We enrolled 30 patients, symptomatic (90%) and asymptomatic in whom septal and a single APs have been proved electrophysiologically (19 PSAPs, 4 MSAPs, and 7 ASAPs). These included 21 males (70%) and 9 females (9%).The mean age was 28.56±10.84 years among females, and 22.38±8.37 among males.

All patients underwent clinical evaluation, electrocardiographic recording (during sinus rhythm and when feasible during tachycardia), echocardiographic examination, electrophysiological study, and catheter ablation (in 90%).

The majority of patients (90%) presented with episodes of palpitation, presyncope in 6 patients (20%), syncope in 2 patients (6.6%), and 1 patient (3.3%) survived a cardiac arrest.

ORT was the most common tachycardia (73.3%). 1 patient had a documented history of antidromic tachycardia. 8 patients had AF (23.7%), 2 of which were preexcited. In 4 patients, the tachycardia was unknown.

Most of patients tried one or more antiarrhythmic drugs. All patients but 4 (13.3% with MVP) had structurally normal heart.

ECG could discriminate anteroseptal APs from both midseptal and posteroseptal APs. All patients had positive delta wave from V2 to V6.There was overlap in ECG preexcitation patterns between midseptal and posteroseptal APs and between right posteroseptal and left posteroseptal APs. The presence of positive delta wave in at least 2 inferior leads with R wave transition between V3 and V4 was quite specific for anteroseptal APs. Site and orientation of ventricular insertion determine delta wave morphology and R wave transition and may explain the variable degrees of overlap between midseptal and posteroseptal APs.

All patients with anteroseptal and midseptal APs had manifest preexcitation and 66.6% had bidirectional conduction properties.10 patients with PSAPs had persistent preexcitation,2 had intermittent preexcitation, and 7 were concealed pathways.

The mean antegrade and retrograde ERPs of posteroseptal APs were shorter than ASAPs and MSAPs (although not statistically significant).The same applies to AF which was inducible only in patients with PSAPs. ORT was the inducible arrhythmia in 74% while antidromic tachycardia was inducible in only 1 patient with ASAP.

From 27 patients in whom RF energy was delivered, 25 patients (92.6%) were successfully ablated. Success rate was 100% in patients with MSAPs (n=4), 94.7% in patients with PSAPs (n=18), and 75% in patients with PSPA (n=3).RF energy was not delivered in 2 patients due to concern of AV block in these asymptomatic cases and mechanical bumping of another patient precluded RF ablation. The 4th patient with ASAP was complicated with CHB.

All ablated ASAPs and MSAPs were ablated at the right anteroseptal and midseptal areas respectively .Of PSAPs, 9 were ablated successfully in the right posteroseptal area, 7 in the left posteroseptal area, and 2 were ablated epicardially in a CS pouch. A part from hematomas, there was no reported significant complication during RF ablation of MSAPs and PSAPs.