Introduction: Multiple atrioventricular accessory pathways (MAPs) was accounted for 3-20% patients undergoing electrophysiology study (EPS) for pre-excitation syndrome. It was also associated with a higher risk for ventricular fibrillation. A thorough EPS is required to determine the presence MAPs after which catheter ablation is performed. MAPs demonstrated a satisfying long-term success rate of single session radiofrequency ablation.

Methods: A woman, 52 years old, was admitted due to recurrent palpitation that had led her to emergency department at least forty-two times before. No history of syncope, chest pain nor dyspnea ever occurred. The EPS exhibited an AVRT after RV pacing with earliest VA on CS3-4, followed by a trans-septal puncture, and an ablation on CS3-4. However, a later atrial pacing still resulted on an AVRT, thus another accessory pathway was suspected. Subsequently, VA fusion was found on anteroseptal LV (1 o’clock direction) where another ablation was performed. Eventually, further RV pacing conducted no more AVRT. This case was part of the first EPS series ever performed in North Sulawesi and was the first successful RF ablation of MAP in North Sulawesi history.

Result: The existence of MAPs could either be assessed by the findings of ≥2 pathways during a single EPS; or ≥2 new pathways on a subsequent EPS - located differently from the one where ablation was completed previously. A meticulous mapping of the atrium and ventricle activation pattern is needed to identify the accessory pathway on which radiofrequency ablation is going to be delivered. A search for a second or more accessory pathway is performed if the first one is successful, followed by another ablation procedure.

Conclusion: The incidence of MAPs varied widely on patients with pre-excitation syndrome, while its existence had been correlated to a higher rate of certain malignant arrhythmia. Through a comprehensive EPS and delivery of RF ablation, patients with MAPs had been able to be treated with a favorable long-term outcome.