

Post-Ablation Follow-Up for Supraventricular Tachycardia and Flutter: A Case Study

Kyle Johnson B.S., Christopher Sleiman B.S., Danielle Barnett Trapp, DO, Sanjoy Bhattacharya, MD

Arizona College of Osteopathic Medicine at Midwestern University, Glendale, Arizona

Heart One Associates

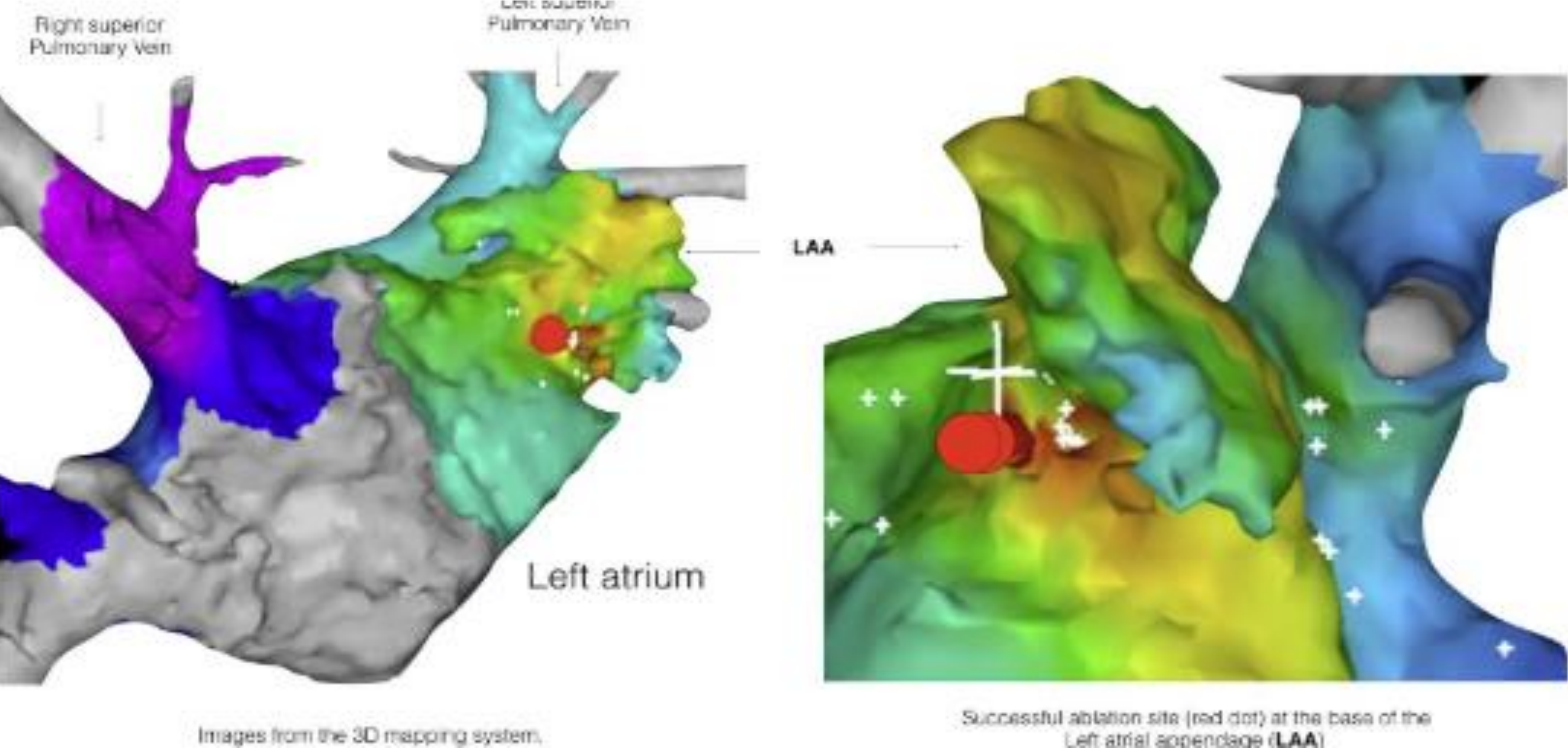
Introduction

Supraventricular tachycardia (SVT) is a group of arrhythmias characterized by rapid heart rates originating from above the ventricles. These arrhythmias are commonly encountered in clinical practice and may significantly impact patient quality of life. SVT typically presents with episodes of palpitations, dizziness, chest discomfort, and, in severe cases, syncope¹. Although its prognosis is generally favorable, persistent SVT or recurrent episodes may require definitive management, such as catheter-based interventions².

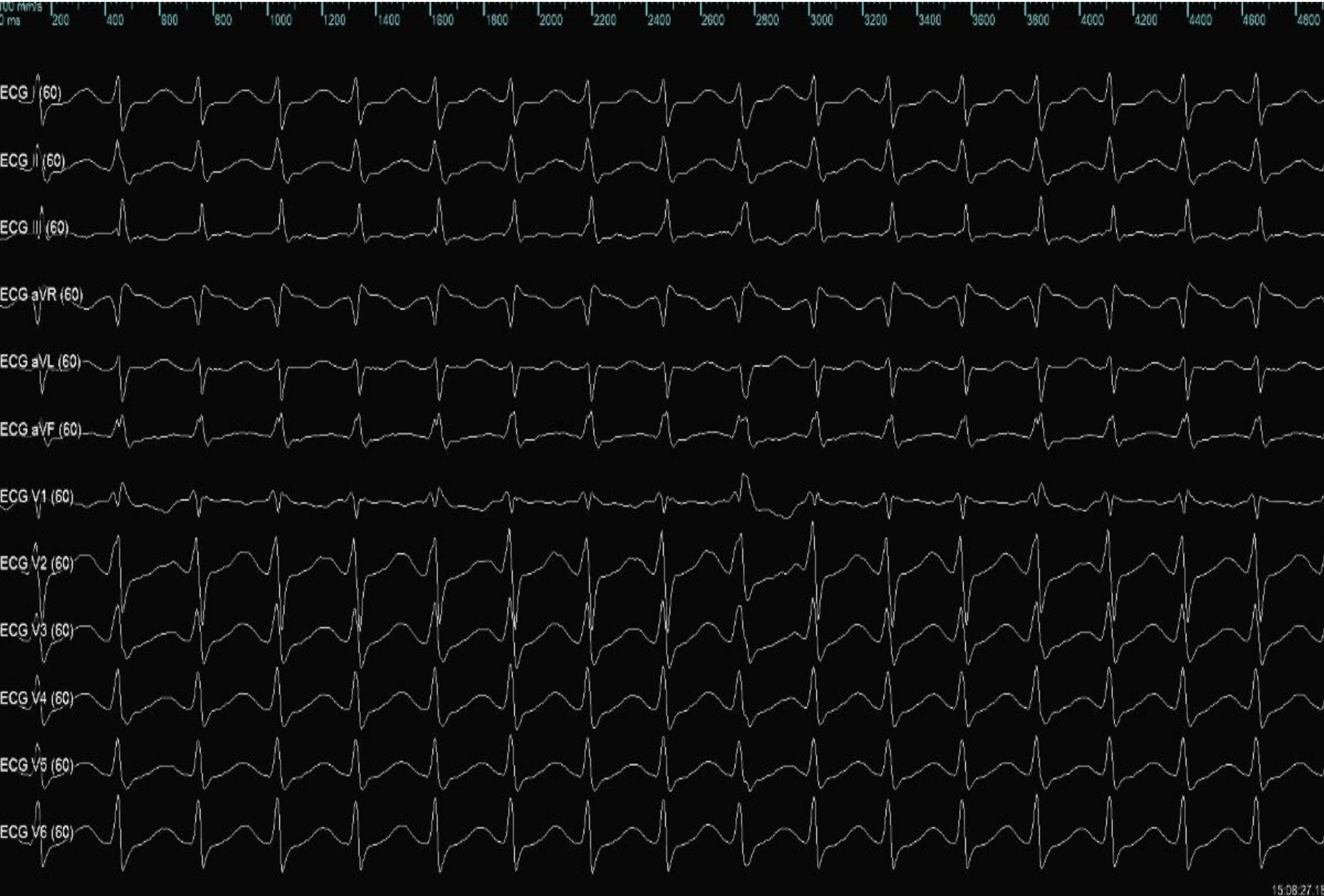
Radiofrequency ablation has emerged as a highly effective treatment modality for SVT, particularly for patients with arrhythmias resistant to pharmacological management³. Ablation targets the electrical pathways causing the arrhythmia, often leading to complete symptom resolution. Studies have demonstrated its safety and efficacy, with success rates exceeding 95% in specific SVT subtypes, such as atrioventricular nodal reentrant tachycardia (AVNRT) or atrioventricular reentrant tachycardia (AVRT)².

Case Presentation

The patient, a 23-year-old female, presented with recurrent episodes of palpitations, dizziness and syncope where she is typically unresponsive for 10 seconds. She had a history of SVT and flutter diagnosed at age 21. Past medical history was unremarkable, and she reported no known allergies. Physical examination revealed a regular heart rate during sinus rhythm, with no murmurs or abnormal findings. Diagnostic tests, including ECG and Holter monitoring, confirmed intermittent SVT. On October 21, 2024, the patient underwent radiofrequency ablation targeting the left posterolateral accessory pathway. Post-procedure, she experienced mild groin discomfort but no recurrence of symptoms. Follow-up investigations showed normal cardiac function.



Before ECG



After ECG



Discussion

In this case, the ablation was performed under general anesthesia, with real-time monitoring ensuring patient safety. Post-ablation testing confirmed the absence of inducible arrhythmias, validating procedural success.

This patient had a right groin access with a deflectable quadripolar catheter advanced to the Right atrium as well as a decapolar catheter into the coronary sinus. Then a 3D electro-anatomic mapping system is created to form a geometry that allows maneuvering of diagnostic catheters along with fluoroscopy. Ventricular pacing as well as burst atrial pacing induced SVT and the tricuspid annulus map showed that the earliest atrial electrograms were on the left side so the septum was punctured and ablation was performed after an extensive mapping was completed. By targeting and ablating the left posterolateral accessory pathway, the arrhythmogenic substrate was successfully eliminated. Post-procedure, the patient exhibited complete resolution of symptoms, normal cardiac rhythm, and no complications—a testament to the procedural precision and efficacy of this intervention and the team that performed it.

3 months s/p ablation she had no further SVT and her quality of life had improved significantly.

Conclusions

SVT arises from abnormal electrical re-entry circuits within the heart¹. Common subtypes include atrioventricular nodal reentrant tachycardia (AVNRT) and atrioventricular reentrant tachycardia (AVRT). The patient's symptoms and diagnostic findings, such as ECG-confirmed flutter and SVT, suggested AVRT mediated by an accessory pathway³.

Standard diagnostic tools include:

- **Electrocardiography (ECG):** Baseline and during episodes, often revealing narrow QRS complexes and retrograde P-waves¹.
- **Echocardiography:** Ruling out structural anomalies¹.
- **Electrophysiology Study (EPS):** Essential for identifying arrhythmogenic foci and confirming pathway location prior to RFA¹.

Radiofrequency Ablation as a Treatment Modality

RFA is considered the gold standard for symptomatic SVT refractory to medications such as beta-blockers or calcium channel blockers³. During the procedure:

- An electrophysiologic catheter is guided to the site of the aberrant pathway.
- Radiofrequency energy induces thermal injury, creating scars that disrupt the reentrant circuit².

This case highlights the importance of early diagnosis and intervention in symptomatic SVT.

References

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