

Catheter Ablation for Supraventricular Tachycardias

- A Patient's Guide -

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(Last updated 8 Nov 2005)

Introduction

Supraventricular tachycardia (SVT) is a common heart rhythm disturbance where the heart beats faster than it should. This rhythm problem is usually effectively treated with medications or through a minimally-invasive surgical procedure called "catheter ablation." The term "supraventricular" comes from "*supra*-" meaning above, and "*ventricular*," meaning the lower chambers of your heart, the ventricles. It is important to realize that there several types of SVT, and that SVT is a general term used to describe more benign (generally safer) rapid heart rhythms that arise above (hence where the term "*supra*-") the ventricles (the lower chambers of the heart). The way your SVT develops (i.e., the mechanism), determines the treatment approach for each type of SVT. A heart electrical study called an "*electrophysiology study*" or "*EP study*" can determine the exact mechanism of the SVT, where the abnormal circuit exists that causes the SVT and guide the appropriate treatment strategy during the potentially curative "catheter ablation" procedure (where a small wire is used to cauterize the cells or short-circuit in the heart responsible for the rapid heart rhythm). Specific types of arrhythmias classified as SVTs include:

- **SVT arising from the atria (upper chambers of the heart)**
 - **Atrial tachycardias** (Also known as ectopic atrial tachycardias) - caused by a specific focus of cells in the atria that beat intermittently & rapidly. These rhythms tend to be brief (lasting seconds) and intermittent , but can be a cause of sustained rapid heart rhythms in some people.
 - **Atrial flutter** (a loop-the-loop rhythm that circulates around the tricuspid valve within the right atrium)
 - Other intra-atrial reentrant rhythms (rhythms that circulate around and around either the LEFT or RIGHT atrium but do not include the area around the

- tricuspid valve in their circuit), such as rhythms that circulate around atrial surgical scars.
 - [Atrial fibrillation](#) - the most common SVT in adults with IRREGULAR, rapid heart rhythm - more often seen in older adults
- **SVT arising from the AV node (the normal connection between upper and lower chambers of the heart)**
 - [AV nodal reentrant tachycardia](#) (the most common SVT in adults with a REGULAR, rapid rhythm), but can occur in kids)
 - **Junctional ectopic tachycardias** (rare and refractory medical therapy, seen most commonly in the young pediatric or neonatal population.)
- **SVT arising from abnormal congenital short circuits between the atria and ventricles of the heart (called "accessory pathways")**
 - [Wolff-Parkinson-White syndrome](#) - most common form of SVT in the pediatric population with a REGULAR, rapid rhythm), but can occur in adults. This rhythm is caused by a small (congenital) muscle fiber that remains after the development of the heart. This small muscle fiber (called an "accessory pathway") acts to "short-circuit" the normally insulated valve rings that separate the upper atrial chambers from the lower ventricular chambers.

What can cause SVT?

- Certain medicines that contain decongestants and diet supplements (like ephedrine and pseudoephedrine) may cause your SVT to become more prevalent. Thyroid disorders or thyroid medications can also make the rhythm problem occur more frequently, particularly if your thyroid levels are elevated. Also illicit drugs (like cocaine) can also make this problem more prevalent. Not uncommonly, patients comment that the episodes occur after a sudden change in body position (like bending over too fast) or occasionally after drinking something cold.

What are the signs and symptoms of SVT?

- A rapid heart beat that you notice and feels different than normal. Usually with SVT, the rapid rhythm is REGULAR (i.e., evenly spaced heart beats) in nature. You may feel like your heart is fluttering, racing, or having extra beats.
- Some people feel more short of breath, tired, or weak than usual. Fullness, pain, pressure in the neck, jaw, arms, or back area during the episodes is a common complaint.
- Feeling lightheaded or dizzy, or even nauseated. On occasion, people can even pass out during one of the episodes.
- Anxiety and being frightened are also common.

For the purpose of this tutorial, we will be discussing treatment of SVT's *other than* atrial fibrillation and atrial flutter. Description of treatment of these two arrhythmias can be found [here](#). We will first discuss AV nodal reentrant tachycardia ablation, then accessory pathway

ablation, and conclude with general remarks regarding treatment for other SVTs.

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