Advara HeartCare

Catheter Ablation for Supraventricular Tachycardia (SVT)

Patient information

What is it?

Supraventricular tachycardia (SVT) is a common type of heart racing affecting up to 1 in 400 people in the population.

The heart racing is due to an abnormal electrical circuit travelling rapidly around your heart at a rate usually between 150-250 beats per minute. These circuits generally involve the normal electrical tissue or fibres (the atrio-ventricular or AV node) and/or one or more abnormal fibres.

Individuals with this type of heart racing, or tachycardia, have usually been born with these extra fibres (or pathways) even though the racing may not become evident until the teen years or later in life.

Several different types of pathways exist and the electrocardiogram (ECG) obtained at a time when your heart is racing, as well as the ECG obtained at normal times, may give a hint as to the type of abnormal electrical pathways you have. Most individuals who have these abnormal electrical pathways within their hearts have otherwise normal hearts and do not have problems with their valves or coronary arteries.

The most common types of abnormal electrical pathways leading to these arrhythmias include:

- **AV node re-entry**
  The circuit forms from electrical impulses travelling within the normal AV node.
- **AV re-entry**
  The circuit forms from electrical impulses travelling via the AV node and an abnormal extra pathway.
- **Wolff-Parkinson-White syndrome**
  This is a special variant of AV re-entry where the extra electrical pathway that bridges the upper (atria) and the lower (ventricle) chamber of the heart has particular electrical properties that make it often possible to be seen on the ECG when the heart is in a normal rhythm. It is uncommon.

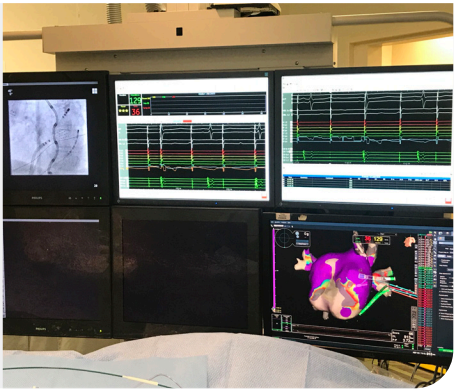
Why perform catheter ablation?

Catheter ablation for both AV re-entry and AV node re-entry tachycardia is being used as the **treatment of choice in individuals with frequent arrhythmias**, particularly for those in whom drugs do not work or are poorly tolerated.

The advent of catheter ablation as treatment for arrhythmias is of importance for two reasons.

- **First**, many individuals with supraventricular tachycardia require “lifelong” drug therapy to control the attacks and with that comes the risk of side effects
- **Second**, the procedure has a very high cure rate (approximately 95%) with a low risk of complications

In order to cure the arrhythmias, special catheters (small, flexible wires with metal tips) are used. **These catheters are placed into the heart under X-ray guidance.** These catheters are used to stimulate the heart and record the electrical activity from within the heart.



In most cases it is necessary to trigger an episode of tachycardia to determine what type it is and where it is coming from. If the area of the heart responsible for the tachycardia can be identified one of the catheters can be manipulated so its tip electrode is in contact with the abnormal tissue. The location of the ablation target is determined by a process known as **mapping**.

- During mapping the ablation catheter is moved from spot to spot until the appropriate area is found
- Mapping may take only minutes but on occasions can take several hours

Once the catheter is considered to be in the appropriate spot radiofrequency energy (modified surgical cautery) is delivered via the ablation catheter.

- This heats and damages the tissue surrounding the catheter and if the location was correct the tachycardia is cured
- Frequently more than one spot needs to be cauterised to successfully eliminate the tachycardia
- Following each RF delivery retesting is performed to detect whether the tachycardia has been completely eliminated

In experienced hands **90 to 95% of cases of SVT can be cured** with the procedure lasting an hour or two.

In a small proportion of cases (approximately 5%) the cauterised area can recover and a second ablation procedure may be required. In another small proportion of people the area to be cauterised cannot be identified or is not accessible to the mapping catheter.

What should I expect?

You will be taken to the Electrophysiology Laboratory (EP Lab).

- Generally patients are admitted to the hospital on the morning of the procedure
- Generally medications to control your heart rhythm should be **stopped two-four days prior to the procedure.** Discuss with your cardiologist when to stop taking medications
- Since X-ray is required for the procedure you must alert your doctor if you think you may be pregnant

In the EP Lab you will be given intravenous sedation or general anaesthetic.

- Local anaesthetic is placed in the skin using a small needle
- Catheters may be placed in the right and/or left groin
- Through sheaths and under X-ray guidance the flexible EP catheters are advanced up the veins to the heart. There is very little sensation associated with the placement of these catheters
- During the delivery of the RF energy there may be mild chest discomfort
- Occasionally multiple applications of electrical current may be required to destroy the abnormal fibre.

At the end of the procedure all the catheters and sheaths will be removed.

- You will stay in bed for three to five hours to prevent bleeding at sites where the catheters were inserted
- Discharge is usually arranged the same or next day

The team performing the procedure includes:

- Advara HeartCare cardiologist
- catheter laboratory nurses
- anaesthetist and anaesthetic nurse
- a radiographer
- a cardiac scientist
- a 3D mapping cardiac scientist may be present

Risks

The amount of tissue damaged in a typical ablation procedure is insignificant for overall heart pumping function. The scar tissue seems to remain stable over time and not cause problems even years later. Nonetheless occasionally complications can occur.

The **possible complications** are listed below:

- The application of the radiofrequency current close to the normal conduction system of the heart could produce heart block and necessitate implantation of a permanent pacemaker. This risk only applies if the abnormal pathway is close to your normal electrical conduction system (i.e., within millimetres). This risk will be discussed with you by your cardiologist.
- A blood clot may form on the catheter that carries the radiofrequency current to the heart. This clot may become dislodged and obstruct a blood vessel causing a stroke, heart attack or injury of another organ (approx. 1 in 1000 to 1 in 5000 risk). This is usually only a risk if ablation is being performed on the left (arterial) side of the heart.
- The catheter could damage the heart valves or a coronary artery. The risk is very rare.
- Other rare complications (reported in the literature) include cardiac perforation (producing a hole in the heart wall), haemo or pneumothorax (blood or air in the chest wall requiring tube drainage), damage to the femoral artery (1 in 10000) and damage to the phrenic nerve (the nerve supplying the diaphragm)

You should **read the consent form** and understand the risks involved with this procedure. Please clarify any concerns or queries about this procedure with your cardiologist before signing this form.

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