

Queen Elizabeth Hospital Birmingham



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Catheter Ablation for Supra-Ventricular Tachycardia

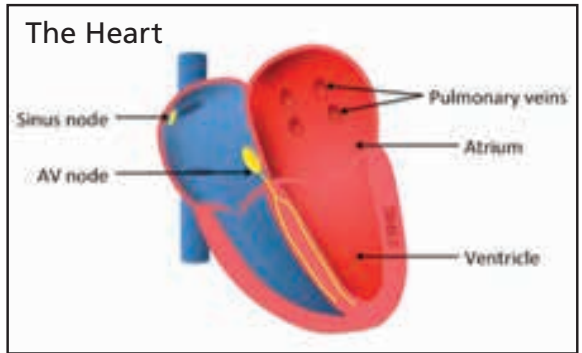
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About this patient information leaflet

This patient information leaflet is about supra-ventricular tachycardia, one of the main heart rhythm problems we treat with catheter ablation procedures. It is one of a series of leaflets that we have produced, written in everyday language that explains what a particular heart rhythm condition is, what its symptoms are, why it occurs and how it is treated.

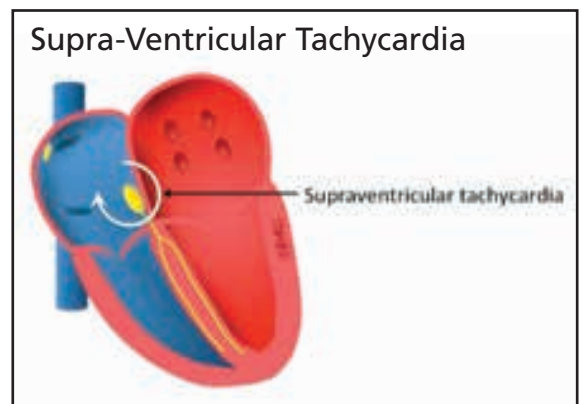


This booklet has been prepared for individuals preparing to undergo one of the procedures described or for individuals looking for more information about these procedures. The information provided within this booklet does not replace the consultation that takes place between the patient and the doctor.

Supra-ventricular tachycardia

What is supra-ventricular tachycardia?

Supra-ventricular tachycardia (SVT) is a condition that results in the heart beating faster than normal. The rapid heart rate produces a sensation of palpitations or fluttering in the chest. It is an abnormal heart rhythm. The heart has an electrical system that controls the rhythm and speed of the heartbeat. An SVT is caused by an extra electrical connection within the smaller, upper chambers of the heart (called atria). This extra connection allows the normal electrical system to run faster and out of control. These episodes or attacks of palpitations can last anywhere from minutes to hours. They are often unpredictable. Sometimes individuals have only a few seconds of warning before they start. Apart from the palpitations when the heart is racing, individuals may also feel light-headed, short of breath, sweaty and sometimes have chest pain.



How is supra-ventricular tachycardia diagnosed?

Individuals with palpitations often see their doctor or attend the emergency department where they have a recording of their heart rhythm (electrocardiogram or ECG) performed during their palpitations. The ECG often shows that there is an SVT. In some cases, the fast heart rates don't last long enough to get a recording at the surgery or hospital. In these situations your doctor may have arranged for you to take a heart rhythm monitor (Holter monitor or loop recorder) home to record your palpitations.

Some individuals are unable to get their palpitations recorded on an ECG despite numerous attempts. This is usually because the palpitations are infrequent or short-lived. In this case, an attempt at diagnosing an SVT can be made by doing an electrophysiology study.

Is supra-ventricular tachycardia dangerous?

In most cases this abnormal heart rhythm is not life threatening. It does however make people feel unwell during the attacks. Individuals who get SVT can become anxious because these attacks of palpitations are unpredictable. The attacks and anxiety can interfere with work, education or holidays.

Catheter ablation for supra-ventricular tachycardia

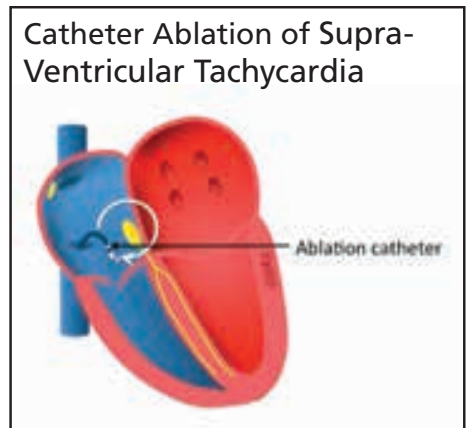
What is catheter ablation for supra-ventricular tachycardia?

The electrical system within the heart is tested to diagnose the cause of the palpitations. This usually identifies the location and type of electrical connection that is responsible for the palpitations. Once the diagnosis is made then the connection can be changed by catheter ablation. Catheter ablation is a term that describes the process of modifying the heart muscle so that it no longer transmits electrical signals. Ablation is done by heating or freezing the connection so that it is not capable of causing palpitations.

There are also other methods using laser or ultrasound but we do not use these.

Who benefits from having catheter ablation for supra-ventricular tachycardia?

- Individuals who have abnormalities of the heart's electrical system causing rapid heart rates and palpitations



- Individuals who experience rapid heart rates in those situations where drug therapy has either failed to control the heart rates, or where the side effects of those drugs have become undesirable. Catheter ablation can often offer a complete cure for this
- Individuals who are not keen to take medicines for long periods of time. Catheter ablation can often offer a complete cure for this

How successful is catheter ablation for supra-ventricular tachycardia?

Catheter ablation is very effective at stopping or preventing the abnormal heart rhythm from returning providing the SVT can be started during the procedure. The chance of successfully curing the SVT with catheter ablation is 95% with the remaining 5% requiring a repeat procedure. Individuals that have decided to have catheter ablation for supra-ventricular tachycardia without having had their palpitations recorded on an ECG previously have a lower chance of a successful procedure.

What does catheter ablation for supra-ventricular tachycardia involve?

The procedure involves passing long fine wires (called catheters) into the heart via the blood vessels. Strong sedatives and local anaesthetic are used to make it comfortable and virtually painless. The procedure is performed as a keyhole operation through small punctures in the skin. The punctures are made in the groin and sometimes underneath the left collarbone or on the side of the neck. Once in the heart, the catheter ends are placed in contact with the heart muscle.

The wires are used to seek out the abnormal heart muscle connections that may be responsible for causing the SVT. The ablation energy (heat or freezing) is applied through the tip of one of the wires onto the abnormal connection for about 30 seconds. Sometimes the connection can be a little resistant to a single application so several energy deliveries may be necessary. Finding the abnormality and then delivering the energy can take anything from 1–4 hours.

Are there any alternatives to having catheter ablation for supra-ventricular tachycardia?

Generally speaking an SVT is not life threatening although the symptoms can feel intense and interfere with everyday activities. In more rare cases the SVT can be dangerous. If your SVT is dangerous your cardiologist will advise you of this. It is up to you to decide what treatment you want.

Your cardiologist will have discussed the following alternative treatments with you:

- Taking prescribed drugs continually to prevent attacks. These may have side effects, may not work and may need to be taken life-long
- Dealing with the attacks as and when they appear by using various methods

such as splashing cold water on the face, rubbing the neck and taking deep breaths. These methods are safe. Attending an emergency department is also an option

- Using alternative therapies, for example aromatherapy, acupuncture or homeopathy. Your cardiologist will not be able to talk to you in detail about these methods and this kind of therapy will not prevent attacks from occurring

What happens before my procedure?

Once you have decided to have catheter ablation your cardiologist will explain the procedure to you in detail, go through the potential risks and answer all your questions.

During the week prior to your scheduled procedure you will be asked to attend a pre-admission clinic at the Queen Elizabeth Hospital. At this visit you will be asked what medication you are taking, your heart will be examined briefly and blood tests will be done. You will be given further instructions in preparation for your procedure and you will have the opportunity to ask any questions. This is also a good time to inform the medical team of any of your allergies.

Three days before coming into hospital for your procedure, you will be asked to stop taking the medications prescribed to control your heart rhythm. Stopping the medication before the procedure will make it easier for us to identify the abnormal circuit in the heart. If the medication was effective in controlling your palpitations then for the few days before the procedure you may experience an increase in these palpitations. This is normal but may be uncomfortable. If we do not want you to stop the heart rhythm medication before your procedure, then your consultant will have discussed this previously with you.

On the day before your procedure it is helpful if you can prepare the right groin area by carefully shaving an area of about 15cm x 15cm (6in x 6in) as in the diagram. If you are unable to do this then we will do it either beforehand on the ward or at the time of the procedure.

What happens on the day of my procedure?

On the day of your procedure you should go to the Ambulatory Care Ward unless your appointment letter has requested you go to a different ward. We ask you to be there early, usually between 07:30 and 08:00. If you have not previously signed the consent form then you will have the opportunity to read it and ask questions before you sign it.

Unless you have been instructed differently, please ensure that you do not eat



anything after 04:00 on the morning of your procedure. You may drink water up to 06:00.

Once you are at your bed and changed into a hospital gown, a small cannula (or tube) will be inserted into the back of your hand or arm veins. This is used to administer the sedative and any other medication needed before, during and after the procedure.

We are unable to give you an exact time your procedure will start as procedures are undertaken throughout the day and we cannot predict how long each will take. Although you may be admitted in the morning, you might only have your procedure in the afternoon. The team on the ward will keep you updated while you wait for your procedure.

What happens at the start of my procedure?

A nurse or doctor will come and fetch you from the ward and either walk with you or take you on your bed to the operating room. You will notice that the theatre has large-scale X-ray equipment and many computer screens that are used for the procedure. The theatre staff will introduce themselves and help you onto the operating table. Usually a nurse, a radiographer, a cardiac physiologist and one or two doctors are present in the room with you. When you are lying down you will be attached to a heart monitoring system (ECG).

The nurse will begin to give you the pain control medication and sedation using the cannula in your arm. An oxygen mask will be placed over your mouth and nose. The skin over the top of the right leg where you shaved will be exposed and cleaned with alcohol fluid. A sheet will be draped over you which will cover you from the neck to your feet and only the small shaved area will be exposed. Local anaesthetic will be injected into your right groin (and sometimes near the left collarbone or side of the neck) as the sedative begins to take effect. The nurse will remain with you throughout the procedure ensuring that you are as comfortable as possible. You will more than likely sleep through most of the procedure following the sedation that was given to you.

Once your skin in the groin, collarbone or neck is numb, two or three tiny punctures will be made with a needle into your vein. This will allow the insertion and movement of the catheters up into the heart under X-ray guidance. When all the wires are positioned in the heart we will try and start up the SVT. When the abnormal heart connection has been found we will ablate it. We will check that you are free from pain at regular intervals during the procedure.

When the ablation is complete the catheters will be withdrawn from the heart and removed from the groin, collarbone or neck. It is at this stage that you may start to wake up and feel us putting gentle pressure on the puncture sites. This is done for a few minutes to stop the bleeding. When the bleeding has stopped a small plaster will be placed over the puncture sites. From this point onwards

we ask that you lie on your back for a few hours and avoid bending your legs, particularly the right leg as the groin punctures may still bleed. We will help you move back onto your bed from the operating table by sliding you on a sheet so that you don't need to bend your leg.

What happens after the procedure?

You will be returned to the ward where you were admitted. It is possible that you may not remember anything from the operating room and might only wake up fully when you are back on the ward. This is normal. The person who accompanied you to the hospital can visit you as soon as you get back to the ward. You may feel sleepy for the rest of the evening as the sedative continues to wear off. We can give you more pain relief medication if you have any pain.

Once you are back on the ward you should lie on your back for 2 hours and after this, if there is no bleeding from the groin, we will allow you to sit up for a further 2 hours. If all has gone well you will be able to walk 4 hours after the procedure. You can drink water (through a straw) within the first hour after the procedure and then you can eat and have other drinks after that as long as you are not too drowsy.

During the first 4 hours after the procedure you will be attached to a heart monitor and regular checks of your blood pressure and puncture sites will be carried out. Your doctor will come and talk to you about the outcome of your procedure and check your recovery. You may be prescribed a small dose of aspirin for at least 6 weeks after the procedure unless you are taking a different anticoagulant.

The following day you may have a heart scan to check for fluid around the heart. Your doctor will advise you about your medication and answer any questions you may have about the procedure.

You will be able to go home the following morning after your procedure if you are well enough to be discharged. A discharge letter with an updated list of your medication will be given to you to take to the GP. We will give you a supply of any new medication. One of the nursing team will discuss your medication with you again before you leave. We will make arrangements for a follow up consultation.

What can I expect when I go home?

What can I expect when I go home?

If your puncture site starts to ooze, then lie down to help slow the bleeding, and press firmly on the puncture site for 10 minutes. If the wound continues to bleed after 10 minutes of firm pressure, go to your nearest Emergency Department.

If your puncture site starts spurting a lot of blood, lie down and call an ambulance immediately.

You may notice a small pea-sized lump develop under the puncture to the skin – this is normal. If the lump becomes larger than this, becomes tender or starts to develop a redness or discharge, contact Ambulatory Care on 0121 371 3125.

You can have a shower the day after you get home, and can remove your dressing at this point. You will only need to put a dressing back on if the wound starts to bleed. Avoid taking a hot bath for 2–3 days as this could cause further bleeding.

What happens when I go home?

Once you get home you can go about your normal routine but there are a number of activities that should be avoided after your procedure to allow the puncture sites to heal.

- Avoid lifting heavy objects for 7 days
- Avoid rigorous exercise for 5 days. We suggest walking if you wish to exercise
- The DVLA recommends that you do not drive for 2 days
- You should not fly within 7 days

Most people are back to work within a week (it depends upon what job you do and how strenuous it is) and most are back to all their normal activities within 2 weeks.

What if I have palpitations after my procedure?

You may experience what may feel like the start of palpitations within the first 6 weeks after the procedure. Usually these last a few seconds. This is normal and does not mean the procedure has not worked. Over the following months this sensation will disappear.

The chance of the palpitations returning is low, about 1 in 20 (5%). The SVT returns because the abnormal electrical connection that has been ablated has healed or because a part of the abnormal electrical connection was overlooked at the time of the procedure.

The procedure can be repeated if the palpitations return. The repeat procedure is usually shorter as the doctor will already have a clear knowledge of where the problem is. If your palpitations return then you can inform your GP or your local cardiologist and they will refer you back to us. It would be helpful but not essential to get an ECG whilst you are having palpitations and to bring it along to the consultation. In the meantime, the medication that you were taking before the procedure to control the SVT can be restarted while you are waiting for the consultation.

What symptoms should make me seek urgent medical help?

If you experience any of the following then we urge you to contact your local NHS hospital or GP:

- Increased swelling, pain or bleeding from the groin
- Increased shortness of breath
- Severe chest pain

If these occur you may need to be admitted to hospital for tests and observation. Your local hospital or GP should be able to deal with these in the first instance. If you get admitted to another hospital we would be very happy to give any advice to the doctors that are treating you at the time and we encourage them to contact our team to let us know what has happened to you.

What are the possible complications of catheter ablation for supra-ventricular tachycardia?

Although this procedure can be considered a “keyhole” procedure, it involves the heart and unfortunately, sometimes things can go wrong. Common complications are not dangerous but can be uncomfortable for a period of time. Dangerous complications are rare. If something goes wrong you may need to stay in hospital for a few more days.

Common but not dangerous complications

Pain

Pain in the centre of the chest can occur during the ablation as a result of the heat produced by the catheter. Usually this is adequately controlled by the pain relief medication given to you before and during the procedure. Pain in the chest can also start after the procedure and remain for a few days. This is because there may be inflammation around the heart caused by the ablation. The areas where the punctures were made can also be painful after the procedure. Chest, groin, neck or collarbone pain after the ablation can be controlled with paracetamol or anti-inflammatory medication such as ibuprofen.

Bleeding (haemorrhage)

A small amount of blood oozing from the groin immediately after the procedure is common. Very rarely when the bleeding takes a little longer to stop we may need to push on the groin to stop the bleeding. By the time you are discharged the bleeding should have stopped.

Puncture site bruising and swelling (haematoma)

A small bruise may develop around the puncture sites. The bruise may increase in size after you have been discharged and form a pea-sized lump in the groin. It may take up to 3 weeks to improve or disappear and the bruising may change colour as time passes, usually to green and yellow. If you are worried about your bruise then contact your GP who will be able to advise you.

Allergic reactions (anaphylaxis)

During the procedure some patients may develop a rash from the medication or from the monitoring stickers that have been placed on the skin. If this happens then we can give you medication during the procedure to counteract the allergic reaction.

Uncommon but more serious complications

Groin problems (haematoma and false aneurysm)

In about 1 in 200 (0.5%) of cases there is more bleeding than we would expect in the groin where we performed the punctures. We may need to place tight bandages or a pressure clamp to control the bleeding until it stops. This may be because the artery next to the vein was inadvertently punctured. The bleeding may also spread under the skin and form a blood clot making a lump under the skin. Very rarely an operation, in less than 1 in 1000 (0.1%) cases, is needed to repair the blood vessels in the groin. Although these groin problems are noticed and treated before you go home, a swelling can occur once you are back home. You will need to be seen by a doctor should this happen.

Blood around the heart (pericardial effusion)

Sometimes blood leaks out of the heart through a puncture made by one of the catheters. The blood accumulates around the heart. If the puncture does not seal off spontaneously and the blood leak is large then the blood must be removed. A thin tube is introduced through the skin in the front of the chest using local anaesthetic and placed near the heart to drain the accumulated blood. This drain can be removed 24 to 48 hours later. Should we recognise that blood has leaked out during the ablation procedure we will insert the drain while you are asleep. In most cases we are able to complete the ablation despite this leak.

Occasionally the blood leak is noticed later when you are back on the ward and a drain will be inserted then. The risk of needing a drain around the heart is about 1 in 500 (0.2%).

Punctured lung (pneumothorax)

When one of the catheter wires is placed underneath the collarbone there is a 1 in 100 (1%) risk that the lung underneath may be punctured. The punctured

lung allows air to escape and accumulate around the lung. If the puncture does not seal off spontaneously and the air leak is large then the air must be removed. A thin tube is introduced through the skin on the side of the chest (under the armpit) using local anaesthetic and placed near the lung to drain the accumulated air. This drain can be removed 24 to 48 hours later. A punctured lung is diagnosed with a chest X-ray.

Permanent pacemaker

The major risk of performing a catheter ablation for supra-ventricular tachycardia is that you may need to have a pacemaker inserted because the normal electrical system of the heart has been damaged by the ablation. The risk depends on how close the abnormal connection is to the normal electrical connections. We may only know precisely how close the different connections are at the time of the procedure. Generally, the risk of needing a pacemaker is less than 1 in 100 procedures (1%). If at the time of the procedure we evaluate that the risk is significantly higher than 1%, then we will not proceed further with the ablation. The alternatives to treat your SVT will be discussed with you once you are back on the ward.

Patients who we assess as having a higher risk than 1% for needing a pacemaker will have this increased risk explained before they agree to the procedure.

Stroke

This is a very rare complication during catheter ablation for supra-ventricular tachycardia. It happens in less than 1 in 1000 (0.1%) cases and occurs because a small clot or a small bubble of air blocks the blood supply to a part of the brain. During the procedure small clots can form on the catheters or become dislodged from inside the heart. The clots travel in the blood circulation to the brain.

Should you develop a stroke, in most cases, it will get better within 24 hours to a week. However, it can have permanent effects such as reduced mobility on the one side of the body or difficulty with speech. In some cases it may lead to coma or even death. If a stroke occurs we will ask stroke specialists to help with your treatment and recovery.

Death

The risk of dying from this procedure or from one of the above complications is less than 1 in 10 000 (0.01%). Although all the complications can be treated, in very rare cases the treatment may not be successful.

Making comments or complaints

We hope that you have no cause for complaint during your stay at the Queen Elizabeth Hospital, however, should you have any problems please do not hesitate to tell the nurse, and we will try to resolve the matter there and then.

Alternatively, the Patient Advice and Liaison Service (PALS) will be happy to resolve any problems, concerns or complaints that you might have. The contact details for PALS are printed at the end of this booklet.

How to contact us

Queen Elizabeth Hospital Birmingham

Ambulatory Care Ward	0121 371 3115/3125
Ward 304	0121 371 3049
Patient Advice and Liaison Service (PALS)	0121 371 3280
Cardiology Booking Clerk	0121 371 4037

Where can I get more information?

Arrhythmia Alliance	www.arrythmiaalliance.org.uk
Atrial Fibrillation Association	www.afa.org.uk
The British Heart Foundation	www.bhf.org.uk
Age UK	www.ageuk.org.uk
British Cardiac Patients Association	www.bcpa.co.uk
DVLA Medical Enquiries	0300 790 6806 (car, motorcycle) 0300 790 6807 (bus, coach, lorry) 0845 850 0095 (fax)

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