



Catheter Ablation for Ventricular Tachycardia

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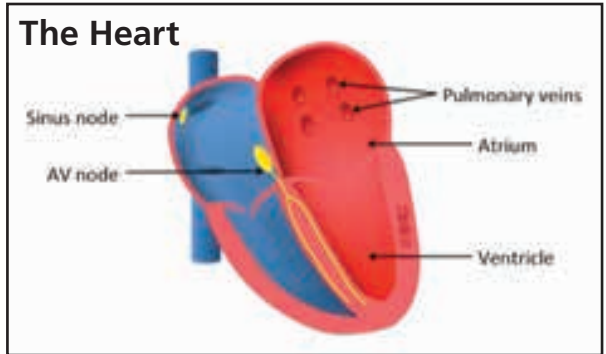
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About this patient information leaflet

This patient information leaflet is about 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.

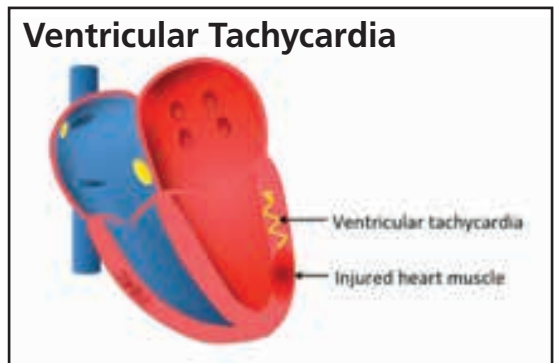
This booklet has been prepared for individuals preparing to undergo one of the procedures described or for individuals looking for more information about these procedures. The information provided within this booklet does not replace the consultation that takes place between the patient and the doctor.



Ventricular tachycardia

What is ventricular tachycardia?

Ventricular tachycardia (VT) is an abnormal and rapid heart rhythm. VT affects the main pumping chambers of the heart (called ventricles). The healthy heart has its own electrical system responsible for controlling the heart rhythm and heart rate. When this electrical system is not functioning



properly, VT can occur. If the VT is very fast, the heart will be unable to pump enough blood to circulate in the body and keep the blood pressure high enough. In some cases this may lead to a loss of consciousness. If the heart has previously been damaged, for example by a heart attack, infection or heart failure, then the VT could cause death.

Why does ventricular tachycardia occur?

Most people who get VT have sustained some form of damage or injury to the heart. Heart attacks are the most common cause of this injury. Other causes could be infection, excessive alcohol or inherited conditions. The injury causes a scar on the heart that allows VT to occur. Hearts that are functioning normally and have no scar may also develop VT although this is less common.

Is ventricular tachycardia dangerous?

VT in hearts that have not been damaged is usually not dangerous but can be troublesome for the patient as the fast heartbeats produce palpitations, and can interfere with driving and cause anxiety. VT is dangerous, however, when the heart has been damaged and the pumping action of the heart is abnormal.

How is ventricular tachycardia diagnosed?

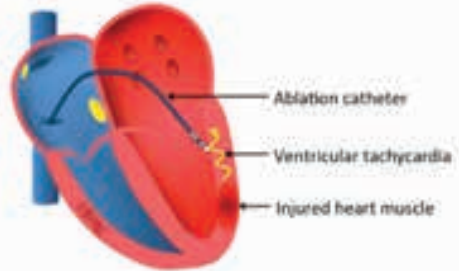
VT may be diagnosed when patients with palpitations have a recording (electrocardiogram or ECG) done of their heart rhythm. Occasionally VT can be detected by chance during screening tests or heart rhythm recordings for other conditions. VT may also be diagnosed with a ventricular stimulation test.

Catheter ablation for ventricular tachycardia

What is catheter ablation for ventricular tachycardia?

Catheter ablation is a term that describes the process of modifying the heart muscle so that it no longer transmits electrical signals. Catheter ablation for ventricular tachycardia is a keyhole operation on the heart that aims to stop and prevent VT from occurring. The operation involves passing long fine wires (called catheters) into the heart via the blood vessels through small punctures in the skin. Strong sedatives and local anaesthetic are used to make it comfortable and virtually painless. Once in the heart, the catheter ends are placed in contact with the heart muscle.

Catheter Ablation of Ventricular Tachycardia



The wires are used to seek out the abnormal heart muscle connections that may be responsible for causing the VT. This identifies the location and type of abnormal electrical connection that is responsible for the VT. This electrical connection can be modified by ablation so that it is no longer capable of causing VT. The ablation energy is then applied through the tip of one of the wires onto the abnormal connections. The process of finding and ablating the abnormality can take anything from 2–4 hours.

Why am I having catheter ablation for ventricular tachycardia?

You have most likely been offered a catheter ablation because the VT has become troublesome and difficult to manage. It could be that:

- Various tablets have been tried but have not been effective in controlling the VT

- The tablets may have stopped the VT but have produced unwanted and unpleasant side effects
- Some patients with VT will have had a defibrillator pacemaker (ICD) inserted that has not effectively stopped the VT
- Patients with an ICD pacemaker may have experienced shocks which occur too often or are painful

What happens before the 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.

Occasionally we may ask you to stop taking the medications prescribed to control your heart rhythm before coming into hospital for your procedure. If we want you to stop the heart rhythm medication before your procedure, then your consultant will have discussed this previously with you. 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 the VT then for the few days before the procedure you may experience an increase in symptoms of VT. This is normal but may be uncomfortable.

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?

Please take your medication on the morning as you would do normally at home unless we have specifically asked you not to take certain drugs.

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 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 is numb, tiny punctures will be made with a needle into your vein and artery. Usually one puncture in the artery and two punctures in the vein are made to allow the insertion and movement of the catheters up into the heart under X-ray guidance.

Occasionally an additional puncture in the front of the chest under the breastbone may be necessary. This will allow us to place a wire onto the outer surface of the heart. This may need to be done because the VT may be originating on the surface of the heart rather than on the inside. We will discuss this with you in advance if we are planning epicardial ablation because it carries a higher chance of complications.

When all the wires are positioned in the heart we will start to identify the abnormal heart tissue and 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 and chest. 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 groin will be carried out. Your doctor will come and talk to you about the outcome of your procedure and check your recovery.

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.

Can the rapid heart rate or palpitations return?

The chance of the palpitations returning is low. If the VT does return, it is usually 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 VT can be restarted while you are waiting for the consultation.

In the majority of cases catheter ablation for ventricular tachycardia is successful in providing a cure from these abnormal heart rhythms.

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 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 groin area where the punctures were made can also be painful after the procedure. Chest and groin 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.

Groin bruising and swelling (haematoma)

Bruising is common because the anticoagulation medication makes the bleeding from the punctures in the groin take longer to stop. The bruise may increase in size after you have been discharged. If you have a large bruise then the whole thigh may

become black and blue and look unsightly. 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 100 (1%) of cases there is more bleeding than we would expect in the groin at the site of 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 anticoagulation medication is causing the blood to take longer to clot or 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, in less than 1 in 1000 (0.1%) cases, an operation 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.

Stroke

This is a rare complication during catheter ablation for ventricular tachycardia. It happens in less than 1 in 500 (0.2%) 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.

Blood around the heart (pericardial effusion)

Sometimes blood leaks out of the heart through a puncture made accidentally 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 100 (1%).

Permanent pacemaker

Rarely, during catheter ablation for ventricular tachycardia, the normal electrical system of the heart that controls the heartbeat becomes damaged. The electrical system may recover during the following days but in other cases implanting a pacemaker will be necessary to prevent the heart from beating too slowly. The risk of needing a pacemaker following the ablation is about 1 in 500 (0.2%).

Coronary artery damage (myocardial infarction)

If we perform catheter ablation on the surface of the heart the catheters may damage the coronary arteries causing a heart attack. You will need to stay in hospital a little longer for

treatment if this happens. The risk of a heart attack during the procedure is 1 in 500 (0.2%).

Damage to abdominal organs

If epicardial ablation has been attempted or performed, then when the wire is being passed under the breastbone the liver, stomach or bowel may be damaged or cause bleeding internally. If this happens you will need an operation to repair the damage.

Nerve damage

This complication can occur if epicardial ablation is performed. The nerves that control the breathing muscle are found close to the surface of the heart. During ablation these nerves can be damaged. The risk of damaging these nerves is 1 in 100 (1%). If this happened you may be short of breath. Sometimes the damaged nerve will return to normal but may be permanently damaged.

Death

The risk of dying from VT ablation procedure or from one of the above complications is influenced by the heart function and other medical problems that may be present. For individuals that have normal sized hearts and normal heart function then the risk is less than 1 in 1000 (0.1%). Individuals that have damaged hearts with reduced heart function or heart failure, then the risk of death may be 1 in 100 (1%). 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

How to contact us

Queen Elizabeth Hospital Birmingham

Ambulatory Care Ward	0121 371 3115 0121 371 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.arrhythmiaalliance.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)



The Trust provides free monthly health talks on a variety of medical conditions and treatments. For more information visit www.uhb.nhs.uk/health-talks.htm or call 0121 371 4323.

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