University Hospitals of Leicester
NHS Trust

Having an ablation to treat an irregular heartbeat (atrial fibrillation / atypical atrial flutter)

Cardiac Rhythm Management

Information for Patients

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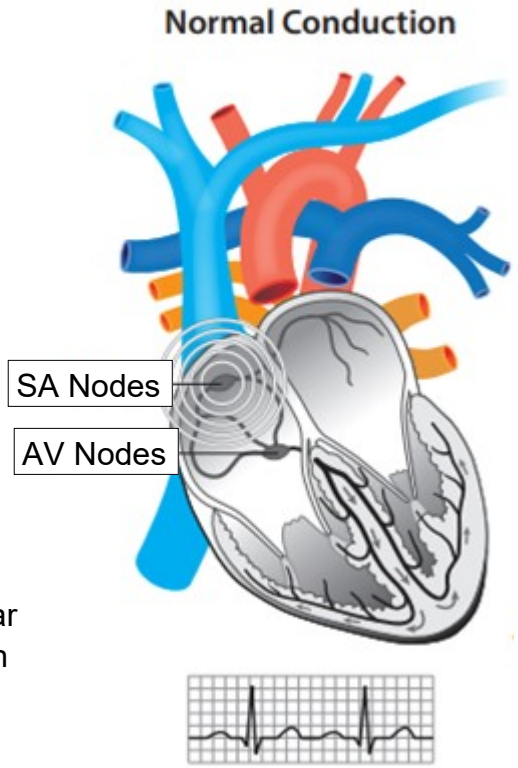
Introduction

This booklet has been written to help you understand the ablation procedure. This is a treatment to help symptoms from abnormal or fast heart rhythms such as atrial fibrillation, and atypical atrial flutter.

How does the heart work normally?



The heart is a pump which circulates the blood around your body and to your brain.

Your heart has its own natural pacemaker (the sinus node). This sits in the right upper part of the heart (right atrium). This sends out an electrical pulse or signal to keep your heart beating regularly and not too slowly.

The electrical signals spread through the top chambers (atria) causing the muscle to contract and squeeze the blood into the bottom chambers of the heart (ventricles).

The electrical signals are then received by the middle junction box in the heart. This is called the atrio ventricular or AV node. The signals are slowed down and pass down to the bottom chambers of the heart (ventricles) by some 'conduction pathways' called bundle branches.

The bottom chambers, or ventricles, then contract and squeeze the blood out around the body and brain from the left side, or to the lungs from the right side.

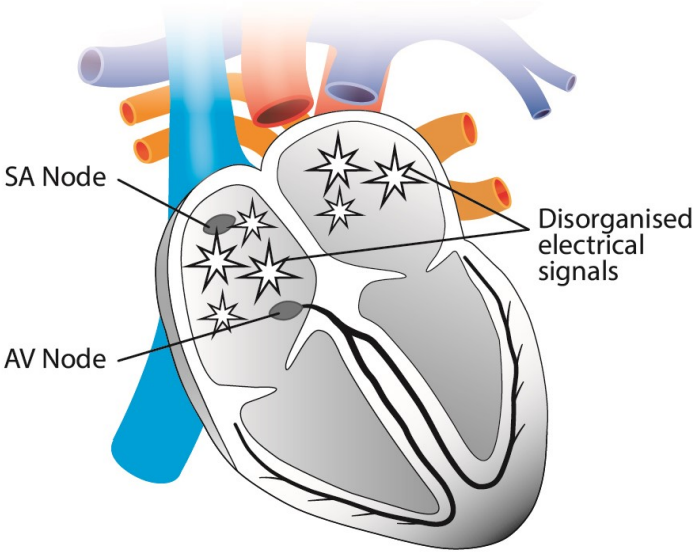
Health information and support is available at www.nhs.uk or call 111 for non-emergency medical advice

Visit www.uhleicester.nhs.uk for maps and information about visiting Leicester's Hospitals.
To give feedback about this information sheet, contact uhl-tr.informationforpatientsmailbox@nhs.net

What is atrial fibrillation (AF) / atypical atrial flutter?

- **Atrial fibrillation** happens when the sinus node loses control of the heart rhythm. This causes rapid and chaotic quivering of the atria.
- **Atypical flutter** is when the electrical signals are rapid but more organised.
- In both cases, in the bottom chambers the signals can travel fast through the AV node giving you a fast pulse. We need the rhythm to be diagnosed from an electrocardiograph (ECG), which is an electrical tracing of your heart.
- These rhythms come from the top chambers of the heart (atria) but are different to the normal heart rhythm (sinus rhythm).
- During an episode of atrial fibrillation, the heart beat is often rapid, irregular and of varying intensity. This can cause unpleasant symptoms of palpitations, light-headedness, breathlessness, chest pain and may even lead to a collapse.
- They do not put your life at risk.
- Some people do not have any symptoms and it is found through a routine ECG.
- **Paroxysmal atrial fibrillation is when** these episodes happen at irregular intervals (intermittent). This happens because other areas of the atrium produce rapid, uncontrolled electrical impulses, often from the four pulmonary veins. These veins are what brings the blood from the lungs into the atria.
- **Persistent, permanent or chronic atrial fibrillation** happens if the heart is continuously in an irregular rhythm. The cells do not conduct the normal impulses smoothly, causing them to break up and be discharged rapidly in many different directions. In this situation patients also often complain of tiredness and lack of energy.

Atrial Fibrillation



How do you treat atrial fibrillation / atypical atrial flutter?

- It can be treated with medication (beta blockers and anti-arrhythmic drugs) or a surgical procedure known as catheter ablation.

Risk factors related to atrial fibrillation

- High blood pressure and valvular heart disease are the most common risk factors.
- Heart related risk factors include:
  - heart failure
  - coronary artery disease
  - cardiomyopathy
  - congenital heart disease
- Lung related risk factors include:
  - Chronic Obstructive Pulmonary Disease (COPD)
  - obesity
  - sleep apnoea
- Other risk factors include:
  - excess alcohol intake
  - smoking
  - diabetes mellitus
  - too much thyroid hormone in the body (thyrotoxicosis)

However, half of cases are not related with any of these risk factors.

- The success rates of ablation for atrial fibrillation are not as good in patients who are severely overweight (Body Mass Index above 35). Many patients who have weight problems will be advised to try to lose weight before being admitted for the procedure.
- People who manage to lose a significant amount of weight are more likely to have a successful outcome and less likely to need repeat ablation or further medication after the ablation.
- If you need help with this while you are on the waiting list for ablation, please speak to your General Practitioner (GP) to find out what services are available in your area for people with weight problems.

Why am I being considered for a catheter ablation?

Atrial fibrillation

- Abnormal electrical signals from the pulmonary veins start most attacks of atrial fibrillation. The aim of the procedure is to stop the electrical signals from the pulmonary veins entering the left atrium, called pulmonary vein isolation. This is not suitable for everybody and is not seen as a cure.
- Ablation is seen as a treatment for patients who have symptoms which significantly affect their quality of life. It is for patients who have either failed to feel better on medication or have had side effects from medication.
- The procedure is only used to treat symptoms and may not increase life expectancy or reduce the risk of stroke.
- This can be achieved either by freezing (Cryo-ablation), shock waves (Pulse Field Ablation) or burning (Radiofrequency) around the opening of the pulmonary veins.
- If your attacks of atrial fibrillation happen sometimes (paroxysmal), isolation of these veins has a 70 to 80% chance of reducing or preventing your symptoms. 1 in 10 patients may need a second procedure to reduce symptoms more.
- Atrial fibrillation that is there all the time (persistent) is more difficult to treat. The final success rate is between 60 and 70% but up to 1 in 4 patients need at least 2 procedures.
- The more risk factors a patient has, the more likely they are to develop areas of scar or ‘hot spots’ in the top chambers of the heart (atria) that can make the atrial fibrillation harder to treat.
- We will advise you about how to manage your risk factors. This will help to improve your symptoms, increase the success of the procedure and reduce the chance of these rhythms coming back in the future.

Atypical atrial flutter

- Most atypical atrial flutters rely on a small area in the heart, often related to scar, which is critical in sustaining the abnormal rhythm.
- This can develop after having heart procedures or surgery or as a result of your heart structure.
- The aim of the procedure is to find the critical area and remove it using hot or cold energy (ablation).
- We use Mapping Systems (Computer Software) to create a model of the heart chamber and help find the location of the critical signals.
- There is around 80% chance of improving or stopping your symptoms from coming back.
- Some patients may have lots of abnormal signals in multiple areas of the heart which may effect the end result.

Possible risks

As with all procedures there are some risks. It is important that you understand the risks so that you can make a decision whether you want to have the procedure or not. In a planned procedure, the benefits should outweigh the risks.

- There is a 2 in 1000 risk of death. Included in this is perforation with uncontrolled bleeding/Atrial oesophageal fistula. Atrial-oesophageal fistula is a rare but life threatening complication.
- There is a 1 in 200 risk that you will have a stroke.
- There is a 1 in 100 risk that blood will leak into the tissues around the heart which will need passage of a drain under the breast bone to drain away the blood leak.
- There is a 1 in 100 risk that there will be damage to a pulmonary vein causing breathlessness after the procedure.
- There is 1 to 2 in 100 risk of paralysis of the right diaphragm. This may cause breathlessness. 75% of this is temporary.
- There is a 1 in 500 risk of needing a pacemaker.
- Groin nerve damage is rare. Bruising where the catheters are passed into the vein is common. In about 1 in 100 patients the vein is damaged and a small operation is needed to repair it.
- It is common to have chest discomfort during ablation. We will give painkillers and sedative drugs up to a safe limit as needed for the pain.
- Ionising radiation can cause cancer which happens after many years. The risk of developing cancer because of this procedure is less than 0.01%. This is very low. For comparison, half of the general population will get cancer at some point in their life.
- Depending on the complexity of the procedure there is a small chance of radiation induced erythema (skin reddening), if you are at increased risk of this we will let you know after the procedure is finished.

Your Cardiologist will have explained to you why you need to have the ablation and the benefits of this procedure.

The risks and benefits will be explained to you. If you agree to go ahead, you will be asked to sign a consent form before the procedure goes ahead.

Blood thinning medicines (anti-coagulation)

Before having an ablation procedure you must be taking a tablet to thin your blood (anti-coagulation).

There are 2 types of tablets: direct oral anticoagulants (DOAC) and warfarin.

1. Direct oral anti-coagulant (DOAC)

If you are on one of the following: RIVAROXABAN, APIXABAN, DABIGATRAN or EDOXABAN

You must take this tablet every day as written on the box for at least 4 weeks before and for a period of time after the ablation. Sometimes we may advise you to take this for the rest of your life.

If a dose is missed or its taken later than normal your ablation will be delayed.

2. Warfarin

Please make sure you have weekly blood tests (INR) for 4 weeks before and 3 weeks after your ablation. Please also arrange a blood test 2 days before you are due to have your ablation procedure.

If your blood test result drops below the target INR level that you have been given, your ablation will be delayed. Please ring through with your weekly readings for the 4 weeks before the procedure.

Please leave a telephone message on the Cardiac Rhythm Management helpline (**0116 258 3848**) with: **Your name, Hospital number, INR result and the date the test was taken.**

Pre-admission and preparing yourself

All patients having an ablation will be seen in the Cardiac Rhythm pre-admission clinic. This is so that you will know what to expect on the day of your procedure.

At your preadmission appointment we will give you specific information about the procedure, your medication and when to stop eating and drinking.

If you have been given a preadmission date which is less than 7 days before your procedure please contact the Cardiac Rhythm Team on 0116 258 3848 for advice on your medication.

Please remember to bring the following to your preadmission appointment:

- Your current medication or recent prescription.
- Your record of INR blood tests if you take warfarin.

Antimicrobial wash and nasal cream

At your pre-admission appointment we will give you antimicrobial wash and nasal cream. Please use these as instructed for the **3** days before and on the day of your procedure.

Eating and drinking (fasting)

- **If your admission time is 7.30am:** Do not eat anything from midnight the night before. You can have water only until 2 hours before your procedure.
- **If your admission time is 11am:** Do not eat anything from 5am on the day of the procedure. You can have water only until 2 hours before your procedure.

You will be admitted to ward 32. Please bring a small overnight bag with you and all of your medication. If you are on warfarin, please bring your anticoagulation booklet and readings.

On arrival to Glenfield Hospital

Please report to the ward desk when you arrive on ward 32 and you will be shown to the waiting room or to your bed space.

During the ward admission:

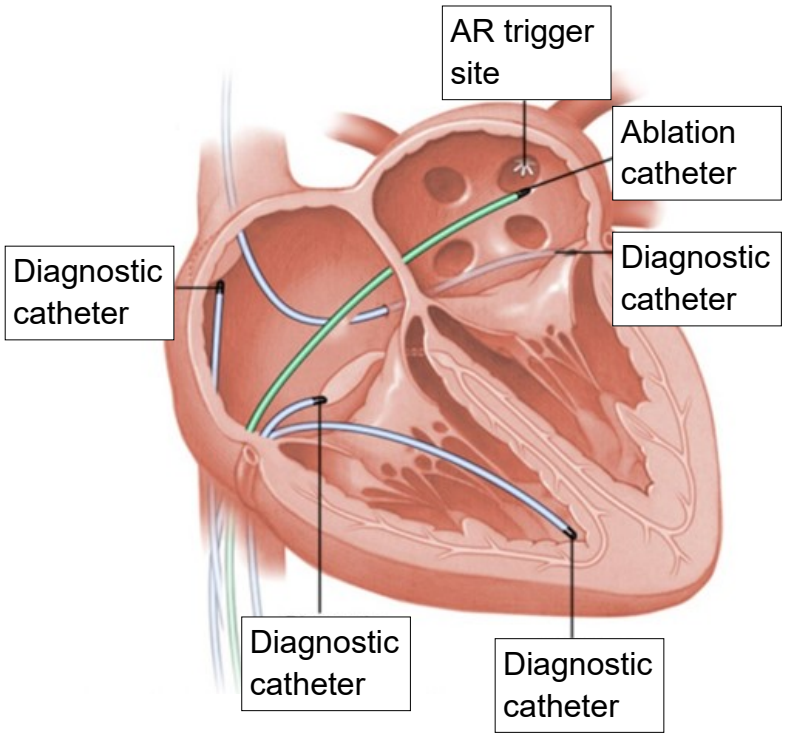
- The nurse will check your details.
- They will confirm your tablet advice has been followed.
- You will have your questions answered.
- Have a cannula (small tube in the vein) inserted. This is for the sedation and other medications to be given through it.
- Have your chest, groin and hair on your back shaved (if needed).
- Undress, put on a gown and lie down on a bed or trolley.
- A doctor will tell you about the ablation and go through the consent procedure with you.
- A member of the Catheter lab team will collect you and again confirm your details. They will take you to the procedure room (the Catheter Lab).

What happens in the ablation procedure for an atrial fibrillation?

On arrival to the procedure room, you will meet the rest of the team.

We will then:

- Confirm your details.
- Answer any other questions you have.
- Connect you to blood pressure, heart rate and oxygen level monitors.
- You might be given a clear mask to breath oxygen.
- ECG stickers will be placed onto your chest.
- Sticky pads will be attached to the front and back of your chest and lower back. These feel cold.
- Give you something to help you relax and put pain relief into your cannula.
- Clean the top of your leg (s) with a antiseptic cleaning solution and cover you with a sterile sheet.
- Give you local anaesthetic at the top of the leg to numb the skin. This will feel sharp and sting for a short while.
- Use a needle to enter the vein at the top of the leg on the right (sometimes the left as well) to position small tubes in the vein (s). We may use an ultrasound scan to find the vein (s).
- Thin wires (catheters) will be passed through the vein into the heart.



Placement of diagnostic catheters (wires) and ablation catheter within the heart

- X-rays are used during the procedure to help us position the catheters in the right places in the heart to record the heart signals.
- The X-ray tube will move at different angles around you.
- You must lie still during the procedure as the systems we use to see the catheters inside your heart are very sensitive to movement.
- We use a special needle to make a small hole in the thin wall between the top chambers of the heart (Trans-septal Puncture) to pass the catheters into the left atrium.
- We will give you blood thinning medication (heparin) to reduce the risk of blood clots.
- Once we have safely advanced the wires in the left atrium, we identify the pulmonary veins and either freeze (Cryoablation), use a shock wave (Pulsed Field Ablation / PFA) or burn (Radio Frequency Ablation) around the opening of each pulmonary vein to create lesions (see page 10 and 11 for pictures and explanations of each treatment).
- Lesions are a specific area of altered or scarred heart tissue that no longer conducts electrical signals. This includes the tissues around it. This acts as a ‘roadblock’, making sure that the signals follow the normal path.
- There will be an uncomfortable feeling in your chest during the ablation. Please let the team know if it hurts.
- If your heart rhythm is still in atrial fibrillation at the end of the ablation procedure, you might need a treatment called cardioversion to restore a normal heart rhythm. This will be done under heavy sedation or a brief general anaesthetic. Once you are asleep the doctor will deliver a small electric shock to the heart in order to get the rhythm back to normal.
- The procedure is likely to last between 2 to 4 hours.
- At the end of the procedure, we take the tubes and catheters out of the vein.
- We will press on the groin or put stitches (suture) in the skin to stop any bleeding.

What happens in the ablation procedure for an atypical flutter?

- The procedure is similar to the one above up to the point of passing wires into the heart.
- When all the catheters are in the heart, a special Mapping System (Computer Software) is used to collect information about its shape and where the critical electrical signals that are causing the atrial flutter.
- Radio-frequency ablation (page 11) will be used to burn the heart tissue where these signals are.
- The procedure is likely to last around 4 hours.
- At the end of the procedure, the tubes and catheters are taken out of the vein.
- We will press on the groin or put a suture in the skin to stop any bleeding.

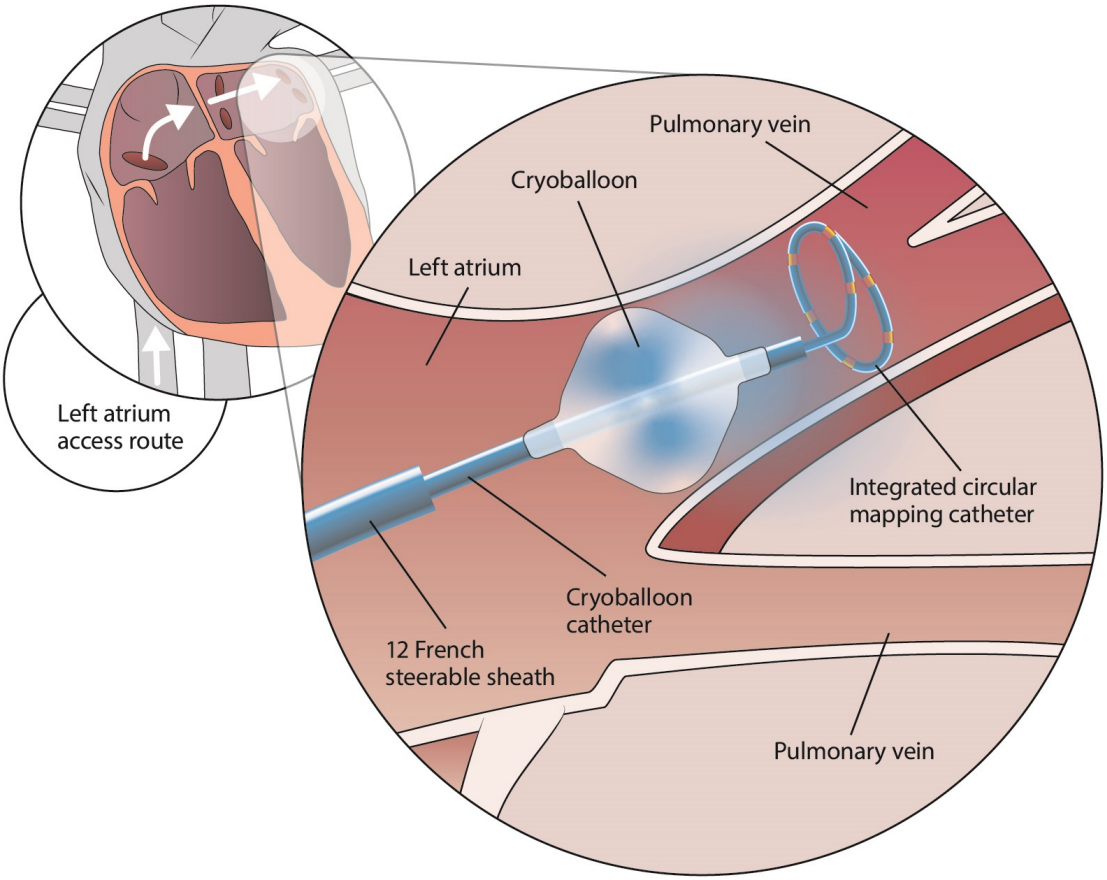
Types of ablation:

- **Cryoablation of pulmonary vein**

Freezing or Cryoablation is where a small balloon is placed into the mouth of each pulmonary vein. This is done for a few minutes at a time to create the lesions (scar tissue) by freezing the heart tissue around it.

You may feel an ‘ice cream headache’ during the freezing.

You may get hiccups when we deliver electrical impulses to pace the nerve that supplies the diaphragm. We do this to reduce the risk of damage to the (phrenic) nerve.

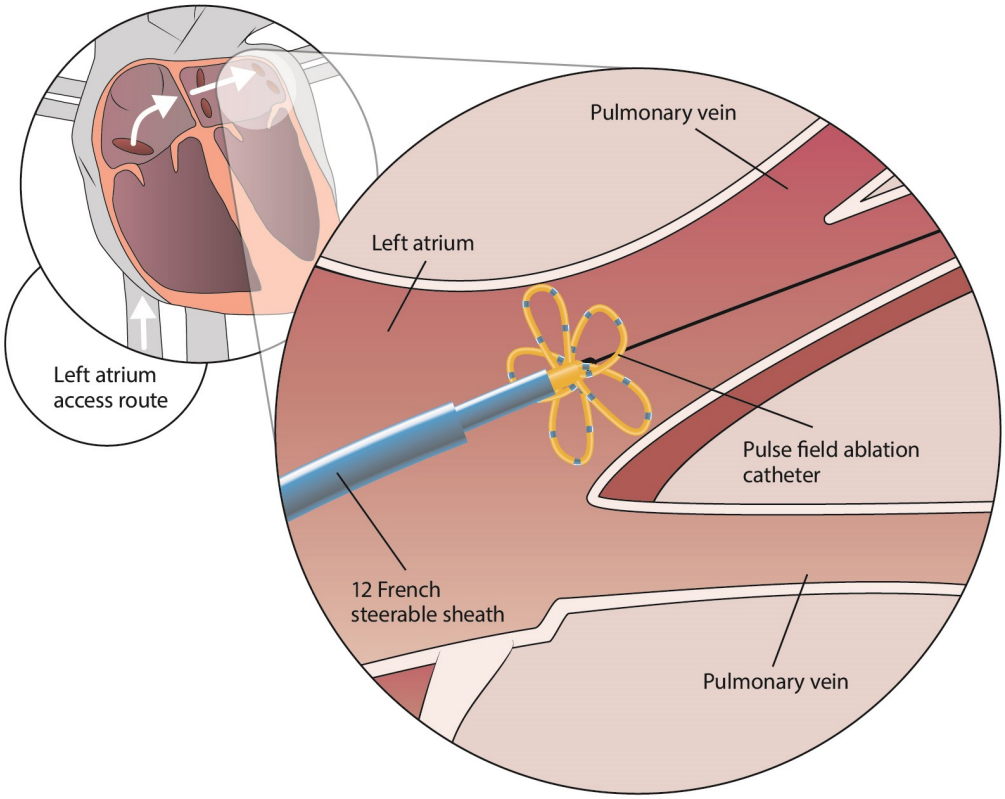


• Pulsed field ablation (PFA) catheter used for atrial fibrillation

Shock wave or Pulsed Field Ablation is where a catheter uses high-voltage, non-thermal electrical pulses at the opening of the pulmonary vein to create tiny holes in the heart cells.

This causes them to die which then stops the abnormal heart signals.

This is usually done under a general anaesthetic or heavy sedation. This means you will be asleep.

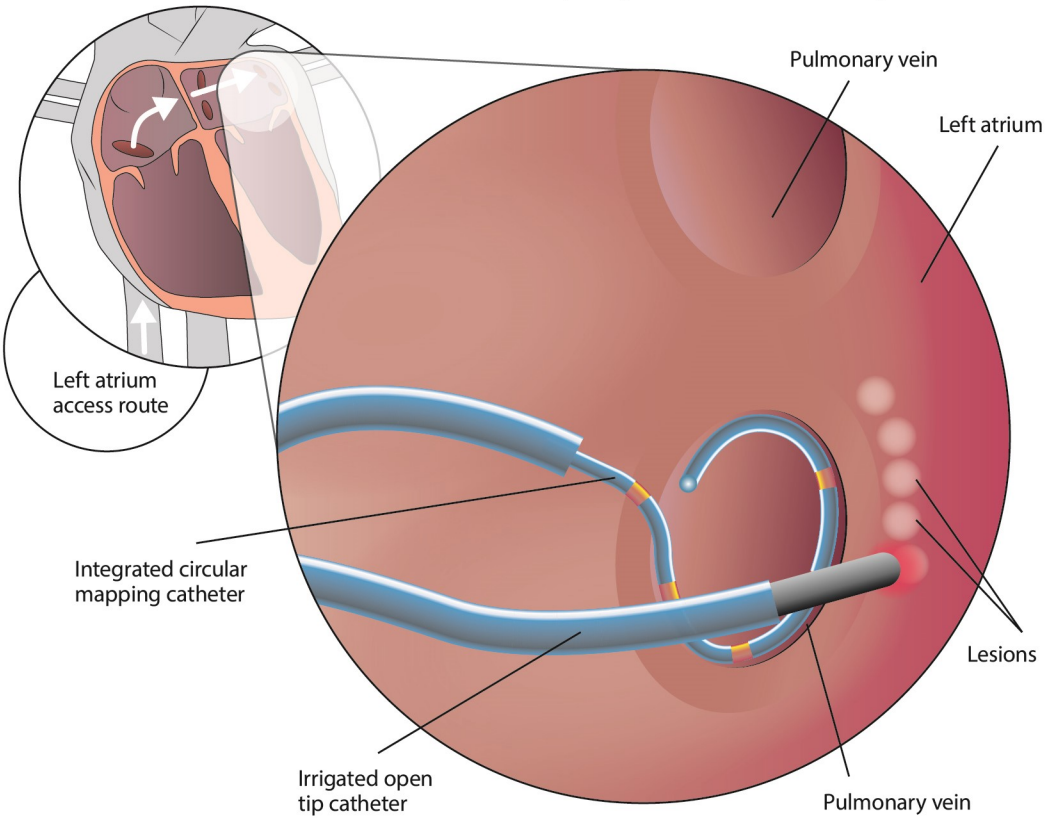


• Radio frequency ablation of pulmonary vein

Burning or Radiofrequency ablation uses heat energy given by a catheter.

This creates scar tissue (lesions) 1 point at a time. It blocks the abnormal electrical signals that are causing the fast heartbeats.

Radiofrequency ablation is almost always used in patients who are having a second procedure.



What happens after the procedure?

- After the procedure we will take you into the recovery area or the ward to rest.
- We may do a heart scan (ECHO) to check that there is no fluid around the heart.
- You will have small cuts in the top of the leg on the right (and maybe on the left as well). You may have a stitch in the skin. We will remove this after a few hours.
- There is a risk of bruising in the groin. Because of this we ask you to rest quietly in bed for 2 to 4 hours after the procedure.

We will:

- Record an ECG.
- Monitor your heart rate, blood pressure and oxygen levels for at least 4 hours.
- Give you something to eat and drink.
- Talk about the result of the ablation and answer any questions.
- Talk about changes to your tablets if needed.
- Do a scan of the heart (echocardiogram) before you go home.
- If you feel well, and the procedure was straightforward we will let you go home either later the same or next day morning.

Going home

Care of groin site

- You will have 2 to 3 small cuts in the top of the right leg and sometimes in the left leg. This is where the wires were passed through the vein into the heart.
- It is normal to have some soreness and bruising in this area.
- You should avoid hot baths or showers for 2 days but instead have them warm.
- You need to move around gently for the first few days at home, do not sit and do nothing.
- You will then need to take things at a steady pace for you for at least 1 week to let your cuts heal and the heart rhythm to settle.

Heart rhythm after the procedure

- It is normal for your heart rhythm to be unsettled in the first few weeks. It can take 3 months for the heart to heal before we decide how well the procedure has worked.
- This does not mean the procedure has not worked. It may be because of inflammation caused by the ablation.
- If you have any concerns or worries, please contact the Cardiac Rhythm Management Team on **0116 258 3848.**

Chest pain after the procedure

- It is normal to have some chest pain after the procedure for a few days.
- **Get urgent medical care right away by calling 999 (ambulance) if:**
  - the pain continues or gets worse
  - you have a fever
  - changes in eyesight and speech
  - weakness to your arms or legs
  - vomiting blood and/or difficulty swallowing
  - black stools

This could be being caused by a very rare but serious risk of the procedure called atrio-oesophageal fistula. This is where a connection forms between the back wall of the heart and the food pipe (oesophagus).

Bleeding

- It is rare to have severe bleeding from the insertion site once you are at home.
- However if bleeding does happen you must:
  1. Lie flat.
  2. Apply firm pressure to the insertion site for 10 minutes. It is best if someone else can apply pressure to the groin for you.
  3. If bleeding does not stop after 10 minutes of pressure, call 999.

Driving

- For a normal driving car licence (group 1) you can drive a car after 2 days. This will give time for your cuts to heal and your heart rhythm to settle.
- If after 2 days your groin is still sore and limits your movement please do not drive until you are back to normal.
- If you have a HGV/PSV (group 2) licence driving, you cannot drive for 2 weeks as per DVLA guidelines.

Work

- You will need to have at least 1 week off work to recover at home.
- Some people need to have 2 weeks, mostly if you have a manual job.
- If you need a sick note please talk with the ward staff before you go home.

Travelling

- You should wait for 4 weeks until you can fly in an airplane.
- Sometimes you may need to fly before this time but you should ask your Consultant about this.

Exercise

- You should do light exercise for at least 1 week and then build up slowly to what is normal for you.
- For more active exercise advice and getting back to normal please ask your Consultant or Specialist Nurse.

Advice on blood thinning medicine after the procedure (anti-coagulation)

- If you take Warfarin your INR blood levels need to be in range for at least 3 weeks (ideally 2.5 to 3.5). Please book a blood test (INR) within 1 week of getting home. Do not stop taking this unless your doctor tells you to.
- If you take a different tablet (DOAC) to thin your blood do not stop taking this unless your doctor tells you to.

Contact details

Cardiac Rhythm Nurses:

Tel: **0116 258 3848** (Monday to Friday, 8am to 5pm, excluding Bank holidays / answer phone available out of hours).

Email: uhl-tr.cardiacrhythmnurses@nhs.net

Please note this number is not an emergency number. Depending on your symptoms please contact your GP or 111 or for medical emergencies call 999.

More information

AF Association

Tel: **0178 945 1837**

Email: info@afa.org.uk

British Heart Foundation

Tel: **0300 330 3311**

Email bhf.org.uk

اگر آپ کو یہ معلومات کسی اور زبان میں درکار ہیں، تو براہِ کرم مندرجہ ذیل نمبر پر ٹیلی فون کریں۔

على هذه المعلومات بلغةٍ أخرى، الرجاء الاتصال على رقم الهاتف الذي يظهر في الأسفل

જો તમને અન્ય ભાષામાં આ માહિતી જોઈતી હોય, તો નીચે આપેલ નંબર પર કૃપા કરી ટેલિફોન કરો

ਜੇ ਤੁਸੀਂ ਇਹ ਜਾਣਕਾਰੀ ਕਿਸੇ ਹੋਰ ਭਾਸ਼ਾ ਵਿਚ ਚਾਹੁੰਦੇ ਹੋ, ਤਾਂ ਕਿਰਪਾ ਕਰਕੇ ਹੇਠਾਂ ਦਿੱਤੇ ਗਏ ਨੰਬਰ 'ਤੇ ਟੈਲੀਫੋਨ ਕਰੋ।

Aby uzyskać informacje w innym języku, proszę zadzwonić pod podany niżej numer telefonu

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