

# Nicholas Gall MSc MD FRCP

## Consultant Cardiologist

**Central London Consulting Rooms:**  
London Bridge Hospital  
Cromwell Hospital  
London Independent Hospital

**NHS:**  
King's College Hospital

**Outer London Consulting Rooms:**  
Blackheath Hospital  
Chelsfield Park Hospital  
Shirley Oaks Hospital  
Sloane Hospital

### **INFORMATION FOR PATIENTS UNDERGOING RADIOFREQUENCY AV NODE ABLATION AND PACEMAKER INSERTION**

Atrial fibrillation (AF) is the commonest abnormal heart rhythm. It is an irregular fast heart rhythm originating in the top chambers of your heart (atria) that can drive your heart's main pumping chambers (ventricles) fast and irregularly. This may produce symptoms such as palpitations, breathlessness and dizziness.

This procedure is used to stop your ventricles going too fast permanently by disconnecting the top from the bottom of your heart. This disconnection is done using a special wire passed through a large vein into your heart. The connection between the top and bottom of your heart (the AV node) can be cauterised (known as radiofrequency ablation). Without doing anything further the bottom of your heart would beat very slowly. To keep your heart rate up a pacemaker is then put in. If you already have a pacemaker, only the ablation is needed.

#### **IMPORTANT**

- **If you are taking warfarin we will need to ensure that your INR (a measure of your blood's thinness) has been well controlled prior to the procedure. We will also need to control it for the procedure. Please arrange to have your INR checked 5 days before your procedure. Phone us on that day so that we can advise you whether to stop the warfarin. If this coincides with a weekend, phone us at the earliest opportunity. Please have your yellow book to hand when you phone. You MUST tell us if you are taking warfarin for an artificial heart valve or a recent clot in the leg (deep vein thrombosis /DVT) or on the lung (pulmonary embolus /PE).**
- **If you are taking Clopidogrel (Plavix) you will need to stop this 5 days prior to your procedure. However if you have had an angioplasty please phone the Cardiac Helpline for advice. This may also apply to other blood thinning drugs; if in doubt let us know.**
- **If there is any chance that you may be pregnant please let us know.**
- **If you are taking antibiotics on the days leading up to your procedure, please let us know so that we can advise you what to do.**
- **Please take all of your other tablets on the day of your admission and bring them with you.**

You will be admitted on the day of your procedure and should expect to stay in for a minimum of two nights. On the morning of your procedure you will be asked to take a shower or bath as this helps reduce the risk of infection. You must also not have anything to eat or drink for 4 hours beforehand. You will be asked to shave the top of your leg. The nurses will help you if necessary.

The procedure usually takes place in one of the Cardiac Catheter Labs. There will always be a nurse available to explain what is happening.

### **The Ablation**

To get the ablation catheter into your heart we usually use the large vein at the top of your leg. The doctor will numb the area with local anaesthetic; this stings at first but after that you should only feel pressure. Two small plastic tubes (sheaths) can then be placed in the vein in your leg. Using the x-ray camera the doctor can then pass the ablation catheter through one sheath up into your heart. Using the electrical signals from the catheter the AV node can be located and ablated. This is done by heating the end of the catheter; you may feel warmth or chest discomfort when this is done but it rarely hurts. You can have as much painkiller and sedation as you need at any point during the procedure. To keep your heart 'ticking over' while the permanent pacemaker is put in, a temporary pacemaker is used – this consists of a wire placed in your heart through the other sheath, linked to an external pacemaker box. Both of these wires are removed at the end of the procedure. This part of the procedure usually takes no more than half an hour.

### **The Pacemaker**

Once the doctors are happy that the ablation has been successful, the pacemaker is put in. A pacemaker consists of a metal box, which contains a battery and computer circuitry, and one or more wires which connect the pacemaker box directly to your heart muscle. The pacemaker detects your heart's electrical activity and, using a small electric charge passed through the wires, stops your heart beating too slowly. The procedure to implant the pacemaker usually takes up to an hour and a half.

This part of the procedure is also performed under local anaesthetic; you will also receive some sedation (as much as you need). An incision is made by your left shoulder (if you are right-handed, vice versa if you are left handed) just under your collar-bone. A wire (or wires) is passed into your heart through a vein either in your shoulder or just under your collar bone. Once in the right place the wire is secured to reduce the chances of it moving in everyday life. Once the wires are in the correct position, the pacing box is then attached and inserted under the skin. Finally, the wound is stitched closed. These stitches are usually dissolvable and therefore do not require removal. For the procedure you will be given a course of antibiotics to prevent pacemaker infection. The antibiotics usually used are Penicillin-based. Therefore **it is very important to inform staff if you are allergic to Penicillin**. If this is the case an alternative antibiotic will be used.

You will spend the next couple of days monitored on the ward to make sure that the ablation is successful and that the pacemaker is working well. The day after the procedure you will need to have a chest x-ray to check the position of the pacemaker wires and a pacemaker check to make sure that all is well. If all goes well we will discharge you two days after the procedure with a follow-up appointment in the pacing clinic for six weeks.

You may notice some pain after the procedure but this should not be too bad. It can usually be relieved with 'over-the-counter' pain killers, such as paracetamol. Shoulder stiffness can develop if you are reluctant to use the affected arm soon after implantation. Gentle arm movements the day after the procedure are advised to prevent this. You are advised that when doing these gentle movements you should **NOT** lift the arm on the pacemaker side above shoulder height. Do discuss what effect this procedure may have on your home life and work with one of the doctors or nurses.

You will be given a pacemaker identification card – please carry this with you at all times.

**You are not allowed to drive after a pacemaker or after an ablation procedure for one week if you hold a normal driving licence. This is a DVLA requirement. If you have a commercial licence this is extended to six weeks, and you should always let the DVLA and your car insurance company know what you have had done.**

### **Complications**

This procedure cannot be performed without some element of risk; you need to understand the possible complications before you sign the consent form. It is important that you understand these are uncommon and unpredictable. The majority of patients have no problems. The possible complications are listed below for your information:

### **Ablations risks**

**Vascular damage** (damage to the vein at the top of the leg): this occurs in *approximately 1 in 500* patients. Often this settles on its own but occasionally a small operation is needed to repair the vein.

**Pericardial effusion** (blood leak around the heart): this occurs in *approximately 1 in 500* patients. This may occur during the burning. Sometimes this resolves on its own but occasionally a drain is needed. If so your stay in hospital may be delayed by a day or two.

### **Pacemaker risks**

**Pneumothorax** (air leak around the lungs): this occurs in *approximately 1 in 100 patients*. The veins used to get the pacemaker wires to your heart lie very near to the lung. It is possible to nick the lung on the way past causing an air leak. Sometimes this resolves on its own. Occasionally a chest drain is needed; if so your stay in hospital may be delayed by a day or two.

**Pericardial effusion** (blood leak around the heart): this occurs in *approximately 1 in 500* patients. When the wire is positioned in the heart it can cause a fluid collection around the outside of the heart. Sometimes this resolves on its own but occasionally a drain is needed. If so your stay in hospital may be delayed by a day or two.

**Infection:** this occurs in *approximately 2 in 100* patients. Antibiotics are given routinely to help prevent this.

**Haematoma** (severe bruising): this occurs in *approximately 4 in 100 patients*. Rarely this bruising may need drainage. Patients taking blood thinning drugs are more prone to haematoma formation.

**Wire displacement:** this occurs in *approximately 5 in 100 patients*. This causes the pacemaker to pace inappropriately. In most cases the wires need to be repositioned requiring further surgery.

**X-rays.** Your examination and/or treatment involves a period of x-ray scanning that will give you a relatively small x-ray dose. In some cases where we need to do more extensive investigation and treatment, there is a small chance that you will get a skin reddening reaction like sunburn which will fade after a few days. Please ask the radiographer if you require further information.

### **Items which you should bring with you:**

Current tablets/medicines including your yellow warfarin book if you have one, details of your GP, next of kin and one other person (telephone numbers at home and at work), dressing gown, pyjamas/night dress.

### **You may also need:**

Slippers, shaving equipment, mirror, comb/brush, flannel/sponge, towel, clothes for travelling home, change for the phone, reading glasses and hearing aid (if required).

### **You should not bring:**

Television, jewellery (except wedding ring), large amounts of money.

**When you come into hospital, further advice will be available from the doctors and nurses.**