



CATHETER ABLATION FOR ATRIAL FIBRILLATION

Patient Information Booklet

Our mission is to provide advanced, safe and effective heart rhythm management.



The Heart Rhythm Clinic is a team of dedicated healthcare professionals led by Clinical Professor Rukshen Weerasooriya. We have international recognition in the field of catheter ablation for atrial fibrillation.

Our team-based approach is the key to our success with each highly trained member of the team playing a critical role in patient care and safety. We pride ourselves on keeping our knowledge at the cutting edge.

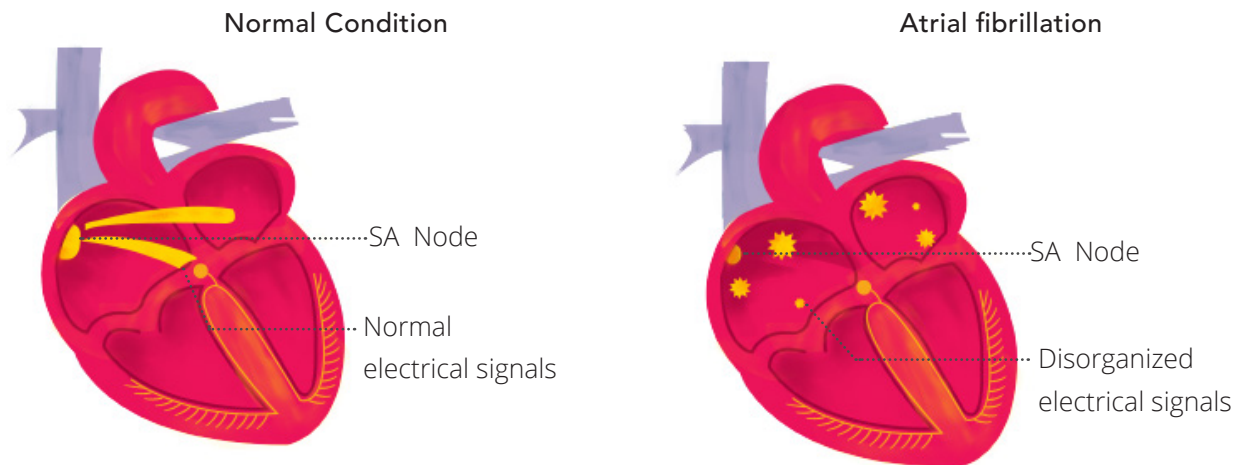


PROFESSOR RUKSHEN WEERASOORIYA

- Studied Medicine at the University of Western Australia (UWA) (1988-1994)
- Undergraduate research degree concentrating on cardiac electrophysiology at UWA (1992)
- Postgraduate training in cardiology at Royal Perth Hospital (1999-2001)
- Completed Fellowship of Royal Australian College of Physicians (2001)
- Overseas Fellowship in cardiac electrophysiology at Hôpital Cardiologique du Haut Lévêque, Bordeaux, France (2001-2003)
- Cardiologist, Cardiac Electrophysiologist and Clinical Professor of Medicine with appointments at UWA , Hollywood Private Hospital, Mount Private Hospital and Joondalup Health Campus

WHAT IS ATRIAL FIBRILLATION?

Atrial fibrillation (AF) is an abnormal heart rhythm within the upper pumping chambers of the heart (left and right atria) which disrupts the heart's overall pumping sequence.



The most common symptom is fast, irregular heart palpitations. Other symptoms include tiredness and shortness of breath.

AF may occur as an isolated heart abnormality, or because of a number of other heart and general medical problems. Being overweight, and other conditions such as an overactive thyroid gland, heart valve problems and previous heart attack can cause or be related to AF.

High blood pressure and sleep apnoea are also strongly linked with AF. AF can be exacerbated by excess caffeine or alcohol consumption, however it is considered a capricious problem and often no clear cause is found.

There are three broad categories of AF:

- Paroxysmal: AF is intermittent
- Persistent: AF does not spontaneously go away and cardioversion is required to restore sinus rhythm
- Permanent: Doctors have decided to leave the patient in AF and to just control the heart rate

FAQ ABOUT ATRIAL FIBRILLATION

How common is it?

One to two percent of the population suffer from AF, and the chance of developing AF increases with age (5% of people over 65 and 10% of people over 80 have atrial fibrillation).

Is Atrial Fibrillation dangerous?

Atrial fibrillation is a major risk factor for stroke and in very rare instances can lead to impaired heart pumping function. Atrial fibrillation may significantly affect quality of life but the severity of symptoms does not indicate any particular danger.

Why does AF start?

Although there is extensive ongoing research, no-one knows the answer to this question. We do know that the rhythm disturbance usually starts as a result of extra beats (ectopic beats) from the pulmonary veins which attach into the back of the left upper chamber of the heart (left atrium).

This discovery was made in the Hôpital Cardiologique du Haut Lévêque, Bordeaux, France in the 1990's. This critical discovery paved the way for effective catheter ablation treatments which are now common.

Once atrial fibrillation occurs, it may gradually become worse. This is because of a process called atrial remodelling. Atrial remodelling is when the heart muscle gradually becomes 'addicted' to atrial fibrillation and begins to prefer this rhythm to normal rhythm. Over time, patients may progress from paroxysmal to persistent, and then to permanent AF.

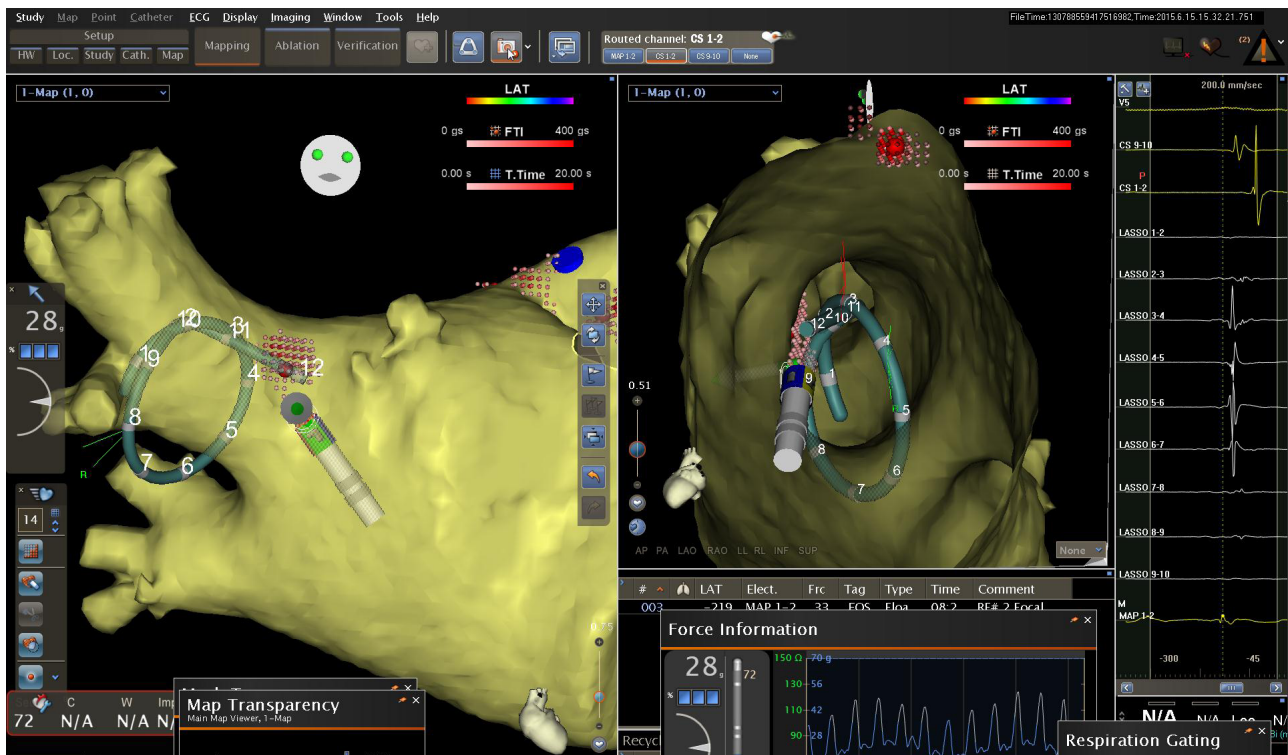
To some degree atrial remodelling can be reversed by drugs and catheter ablation in its early stages. But as remodelling progresses atrial fibrillation becomes more difficult to treat by catheter ablation.

INVASIVE TREATMENTS

Surgical or catheter ablation of atrial tissue are the only invasive treatments for AF.

The major goal of catheter ablation is restoration of normal sinus rhythm without the need for medications, and minimisation or suppression of the risk of blood clot formation and cardiac failure.

Radiofrequency energy is delivered via a catheter to create lesions that eliminate the sources (ectopic foci) that are triggering/initiating the episodes of AF.



The CARTO3 (Biosense Webster, Diamond Bar, CA) system displays the shape of the heart and greatly increases the accuracy of the procedure. The red dots show the ablated area near the pulmonary veins*

PULMONARY VEIN ABLATION

Ablation of the triggers alone (mainly consisting of isolation of pulmonary veins) suppresses the paroxysmal form of AF in 85-90% of patients without medications. This result can require multiple procedures.

Professor Weerasooriya uses a number of high-tech mapping tools during the procedure. These tools give a clear understanding of the size and shape of the pulmonary veins and the location of catheters within the heart during the ablation.

Careful testing is performed after ablation to try to reduce the risk of the pulmonary veins recovering over time.



A CT or MRI scan is performed before the procedure

BEFORE THE PROCEDURE

After a consultation with Professor Weerasooriya, the patient may be asked to have some blood tests and a cardiac CT scan (or rarely a cardiac MRI scan). The CT scan will determine the size and number of pulmonary veins and confirm the absence of clot which may postpone the date of procedure.

Pre-operative instructions are individualised according to the clinical judgment of Professor Weerasooriya in discussion with the patient. If the patient is not already taking a blood thinning medication Professor Weerasooriya almost always prescribes one prior to the procedure.

The patient may also be prescribed a medication to suppress stomach acid (this can also be administered intravenously). This medication is used to protect the oesophagus (food pipe) during the ablation procedure. All patients continue this medication for three months following the procedure.

During the ablation the patient will be under a general anaesthetic. The patient will have the opportunity to speak with the anaesthetist prior to the procedure, as the level of anaesthesia required can be individualised according to the patient's requirements.

The patient will be asked not to eat or drink for 6 hours prior to the procedure.



Ablation procedure

DAY OF THE PROCEDURE

The patient will be admitted to hospital and will be asked to change into a surgical gown in preparation for the procedure. A Patient Service Assistant (PSA) will wheel the patient to the cath lab where the procedure will take place.

They will then be introduced to the team of medical staff who will care for them during the procedure including Professor Weerasooriya, a specialist anaesthetist, an anaesthetic technician, a radiographer (who assists the cardiologist with the use of x-ray equipment), a nurse, an assistant physician and a cardiac technician.

During the procedure a team approach is required. Technicians and the assisting physician help to interpret and record electrical signals from the patient's heart. The specialist anaesthetist and anaesthetic technician keep the patient comfortable, and the other nurses assist Professor Weerasooriya.

The cardiac technician will place ECG dots on the chest and occasionally a large adhesive pad onto the back which is used by the navigation system. The nurse will wash the right groin with antiseptic and the patient will be covered with sterile drapes.

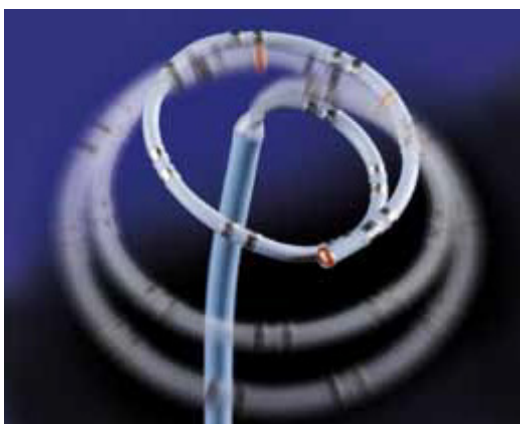
A temperature probe is inserted into the oesophagus and is continuously adjusted during the procedure to reduce the risk of damage during ablation.



Control room

Three catheters are introduced through the right femoral vein for mapping and ablation. A transeptal puncture is usually required to access the left atrium. During transeptal puncture a hole is created between the top chambers of the heart. This hole is usually healed four weeks post procedure.

Professor Weerasooriya will then use the ablation catheter to administer radiofrequency energy to create lesions to block the pathway of the abnormal electrical circuit causing the AF (similar to a firebreak). Catheter ablation is performed at the opening of pulmonary veins with a low level of energy to avoid narrowing of the vessel.



Circular Mapping Catheter



Ablation catheter within the heart

Venous isolation is successfully performed in almost 100% of cases. The entire procedure takes 2-4 hours.



DISCHARGE FROM HOSPITAL AND POST-OPERATIVE CARE

Typically the patient is returned to the cardiac ward after the procedure and are monitored by continuous ECG recording during their hospital stay. Most patients are discharged from hospital the following day.

Many patients develop pericarditis (inflammation of the lining around the heart) following the procedure. Pericarditis is characterised by pain on breathing and moving, as well as some shortness of breath. Rest, painkillers such as Panadol, and occasionally anti-inflammatory medications are used to treat pericarditis.

It is important to rest for at least one week following ablation. This means no strenuous physical activity and it is preferable to take a week off work to recover. Exercise should then be gradually re-commenced after the second postoperative week.

The likelihood of AF recurrence decreases over the next three months and the patient will be reviewed by Professor Weerasooriya at this time. Anticoagulant medications are recommended for at least three months after ablation.

Patients with a previous history of stroke, or at high risk of stroke related to AF will continue to take oral anticoagulant medication lifelong (Warfarin, Pradaxa, Eliquis or Xarelto).

REPEAT PROCEDURES

A repeat procedure may be required if ablated tissue recovers. The likelihood of repeat procedures depends on individual clinical circumstances and will be discussed by Professor Weerasooriya.

BENEFIT VERSUS RISK

When catheter ablation is undertaken by an experienced operator in a high-volume centre the procedure is low risk, and the reported success rate is as high as 85-90%.

Professor Weerasooriya has undertaken over 3000 AF ablation procedures as a sole operator and has a low complication rate compared with the published literature. The greatest advantage of catheter ablation for atrial fibrillation is the abolition of symptoms and a markedly improved quality of life. In paroxysmal AF, ablation is better than medication for controlling symptoms.

Catheter ablation is a low risk procedure. However, as with any procedure, complications can occur. Serious complications can be summarised as follows:

- Stroke (1 in 300 risk)
- Bleeding in the pericardial sac surrounding the heart (cardiac tamponade) (1 in 300 risk)
- Pulmonary vein narrowing (vein stenosis) (1 in 2000 risk)
- Damage to the oesophagus or food pipe (atriosephageal fistula) (1 in 5000 risk)
- Damage to heart valves (1 in 5000 risk)
- Death (1 in 10000 risk)

Less serious complications include the following:

- Nerve injury causing temporary breathing difficulty (1 in 1000 risk)
- Nerve injury causing abnormal stomach emptying (1 in 5000 risk)

WILL MY AF DISAPPEAR AFTER THE ABLATION?

It is not uncommon for patients to experience symptoms of AF for the first one to three months following the ablation procedure as the tissue heals. It is unfortunately impossible to immediately predict an individual patient's response to the ablation procedure and the success or failure of the procedure can only really be determined after three months.

If arrhythmia is troublesome during the post-operative period antiarrhythmic drugs can be temporarily re-started. It is important that you contact Professor Weerasooriya if there are any concerns or queries in the post-operative period.



PATIENT SUPPORT

Hearts 4 Heart is an Australian-based Atrial Fibrillation support group that provides education, support, and advocacy for those affected by AF. Please go to their website for further information. We encourage our patients to register with Hearts 4 Heart.

www.hearts4heart.org.au.



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