



The Rowan Suite

World Class Private Heart & Chest Care

Trans venous extraction (TLE) or removal of leads from the heart



Information for Patients & Families

What is a lead?

A lead is a special wire that delivers energy from a pacemaker or implantable cardioverter defibrillator (ICD) to the heart.

What is a lead extraction?

A lead extraction is the removal of one or more leads from the heart. **This procedure is used to remove pacemaker/ICD leads that have been in place for a few months or for many years.** It is NOT the same as a battery change. Removal of leads that are in placed outside the heart during open heart surgery is not possible with this procedure.

Why do I need a lead extraction or removal?

Your doctor has determined that your lead or leads need to be removed for one or more of the following reasons:

- An infection at the site of the device and/or lead (which if left, can cause an infection in the heart valves)
- Damage to the inside or outside of the lead (called a fracture)
- Blockage of the vein by a clot or scar tissue
- When it is not possible to insert new leads due to many existing leads that are in place

How is lead extraction performed?

An incision or cut is made over the area where the pacemaker or ICD generator (battery) is and it is removed. The leads are then detached from the device and freed from the scar tissue in the wound. The leads may be removed from the site of the pacemaker, the neck or groin. **If the leads have been in place for more than a few months they can become tightly attached by scar tissue to the heart and to the veins through which they pass, making removal of the leads difficult and risky. The risks will be discussed with you in full during the consent process.**

Sometimes leads can be removed simply by gently pulling on the lead. In most cases a special sheath (tube) is placed in the vein and this is threaded over the lead and guided to the tip of the lead (where the lead attaches to the heart).

A laser light or mechanical drill-like tip can often be attached to the sheath to help break up the scar tissue around the lead to help with its removal. **If this fails, open chest surgery may be required. Alternatively, in some cases, the leads may be detached from the pacemaker unit and simply left inside the patient.**

If this is the case, this will be fully discussed with you by the doctor.

Depending on your heart problem, a temporary pacemaker may be inserted, this is usually via the groin. A temporary pacemaker may remain in place after the procedure until a new device is implanted. In some cases when there is pacemaker or ICD infection, implantation of a new device may take place, some weeks later, to allow healing and completion of antibiotic treatment.

Are there risks to having a lead extraction?

Lead extraction is a complex surgical procedure with some unavoidable risks:

1. **Each time the lead is separated from scar tissue, there is a small chance of tearing the surrounding blood vessel or perforating the heart, which can result in major bleeding in the chest or around the heart**
2. **Blood clot lodging in the lung, heart or brain resulting in a heart attack or stroke**
3. **Problems related to anaesthesia**
4. **Death, as a result of any of the above complications**

Less severe problems include fluid accumulation around the heart or lung (not requiring drainage), bleeding under the skin, swelling of the arm, and a small amount of air entry into the vein. **Infection remains a risk in the short term following an extraction and patients are always given antibiotics during the procedure to help to prevent this.**

Published research studies on lead extraction confirm that the rate of major complications is approximately 2.0%, that is 1 in every 50 patients.

The doctor will discuss the risks in full with you when you consent to the procedure.

In the event of a complication, other procedures that may be required include:

1. **Blood transfusion**
2. **Immediate open heart surgery**

Will I be asleep during the procedure?

In order to perform this procedure you will be required to have a general anaesthetic. General anaesthesia usually requires the use of breathing tube and will allow you to 'sleep' for the procedure. A general anaesthetic allows us to monitor you better and deal with the complications, should they arise. The risks of an anaesthetic will also be discussed with you during the consent process.

What happens to my wound?

Following removal of the leads, the doctor who has performed the procedure will deal with the wound depending on the circumstances of the extraction.

Infected wounds may be dealt with in the following way:

- The wound may be closed on the day with sutures
- Delayed closure may be undertaken to allow for infection to settle

- A wound pack and/or a drain may be left in the wound

Will new leads be implanted?

New leads may be implanted in your heart during this procedure or at a later date. When your leads are replaced depends on the reason the leads are being removed. If they are being removed because you have an infection, you will be treated for the infection before new leads are implanted. Your doctor will discuss this with you.

How long will I stay in the hospital?

Lead extraction procedures usually take between 2 to 3 hours to complete. Afterwards, you will be transferred to the coronary care unit and stay there overnight.

If your new device and leads are implanted at the time your old leads are removed, you may be able to go home the morning after the extraction procedure.

If your device and leads are not replaced at the time of the extraction, you may have to stay in hospital until they are implanted.

Your doctor will be able to tell you how long you should expect to be in the hospital and when your new device and leads will be implanted

What else happens after the procedure?

If your leads were removed through your groin, you will need to lie flat in bed for several hours after the procedure.

After the extraction, you will have a chest X-ray to check your lungs and to check for any remaining lead fragments.

You will have an opportunity to discuss any concerns or questions you may have with your doctor during the consent process.

If you require this leaflet in another language or audio format please contact the Patient & Family Support Team on 0151 600 1517, stating the name of this information sheet and the format you require.

This information is available in large print. If you require a copy please ask a member of staff.

If you require a copy of this leaflet in any other format or language please contact us quoting the leaflet code and the language or format you require.

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