Femoral Endarterectomy

What is this operation?

The femoral artery runs from the groin to the thigh and delivering blood to the leg. Where it is located in the groin (common femoral artery) it is particularly prone to the build-up of atherosclerosis causing narrowing (stenosis) of the artery and a reduction in blood flow into the leg.This may result in intermittent claudication or contribute to the development of critical limb ischaemia if there is a tandem lesion elsewhere in the leg arteries. An endarterectomy is the open surgical removal of the atherosclerotic plaque from the artery.

In our experience the majority of femoral endarterectomies require a concurrent Iliac (pelvic artery) artery angioplasty/stenting due to a tandem lesion reducing the blood flow into the femoral artery: This is termed a hybrid procedure -combining open and endovascular surgical techniques.

Why is this operation being offered?

For the majority of clients common femoral endarterectomy is undertaken to treat severe, symptomatic peripheral arterial disease; in other words, leg pain that significantly impacts on the quality of life or one's ability to work, non-healing ulcers, or a leg that is threatened as a result of lack of blood supply (critical limb ischaemia).

Because the common femoral artery is close to the skin and easily accessible from a surgical perspective, the majority of surgeons recommend treating a narrowing (stenosis) or blockage (occlusion) of this artery with an endarterectomy. The operation provides a durable solution with minimal postoperative complications.

Occasionally, for some clients, in who open surgery poses an higher risk than normal or for personal preference, we can offer a minimally invasive common femoral artery angioplasty +/- stenting as an alternative treatment option. At the circulation clinic we offer all our clients the option to choose between the different treatment options outlining thoroughly the risks and benefits of each option.

What happens before your operation?

Before you undergo a femoral endarterectomy a number of essential investigations and assessments are performed to assess the suitability of your disease for both endarterectomy and angioplasty/stenting as well as your overall fitness to undergo arterial surgery. These may include:

- Blood tests
- CT angiography
- Duplex Doppler ultrasound examination of the leg arteries
- ECG

Once the decision has been made to proceed to femoral endarterectomy an admission date will be agreed between yourself and your surgeon. A pre-admission visit may be required to complete paperwork and undertake blood tests or other allied tests required prior to undergoing a general anaesthetic. Please bring all your medications to your pre-admission review.

What happens on the day of admission?

You will usually be admitted the day before, or, if you are undergoing your surgery later in the day, the morning of surgery so as to ensure all requirements prior to the procedure have been adequately completed. Your surgeon will visit you and ask you to sign a consent form for your operation. You will also be visited by your anaesthetist. The side of the operation will be marked with indelible pen: please do not wash this off prior to the operation

Please do not stop any of your normal medications unless specifically instructed to by your surgeon

If you smoke, we strongly encourage you to stop as soon as possible to reduce the risk of peri-operative complications.

What do I need to bring when I come into hospital?

You should bring the following items with you at the time of admission:

- All you normal medication
- Nightwear & slippers
- Toiletries

- A set of comfortable clothes for discharge
- A good book

What happens during the operation?

The first part of your operation involves giving you an anaesthetic. The majority of femoral endarterectomies are performed under general anaesthesia (with you asleep). Occasionally a femoral endarterectomy may be performed under local anaesthetic (numbing the groin with an injection) or under a spinal anaesthetic where an injection into your back numbs you from the waist down for the duration of the procedure. In our experience clients prefer and find it more comfortable to undergo a femoral endarterectomy under general anaesthesia.

Once you have been anaesthetised you will have a tube (catheter) inserted into your bladder to drain your urine. This facilitates accurate assessment of your hydration status during and immediately after the operation. Occasionally the anaesthetist will decide to insert a small tube into an artery in your wrist to enable accurate measurement of your blood pressure during your operation. Once the necessary monitoring equipment has been connected your surgeon will start the operation.

The surgeon will make a vertical or slightly skewed incision (5-10cm) in the groin to expose the common femoral artery and its two main branches (superficial femoral artery and profunda femoris artery). Once these arteries have been secured the common femoral artery is opened (arteriotomy) and cleared of the disease (endarterectomy) causing the narrowing. In a significant number of cases there is disease that extends above the common femoral artery into your pelvic (iliac) arteries inhibiting the blood flow reaching the common femoral artery and in turn contributing to the client's symptoms. If this disease can be removed (endarterectomy) through the groin incision your surgeon will do so at the same time -ilio-femoral endarterectomy. If the disease is occurring too high up in the pelvic arteries to be reached through the groin incision safely then your surgeon may elect to perform an angioplasty +/- stenting of the iliac arteries at the same. This will have been discussed with the client pre-operatively.

Once adequate flow has been established into the common femoral artery and the disease in the femoral artery has been removed a patch is stitched to the arteriotomy to widen the artery helping to prevent recurrence of the disease.

The wound is then repaired in layers with stitches. A drain is often inserted into the wounds to drain any excess fluid that may accumulate in the immediate post-operative period. The wound is then dressed in an absorbent adhesive dressing.

What are the risks?

All arterial surgery is associated with risk. Femoral endarterectomy is an operation performed in an area of natural bend (hip joint movement) where sweat can accumulate. Thus, the majority of early operative complications relate to wound breakdown or infection.

Complications of femoral endarterectomy surgery can broadly be categorised according to when they occur (during the hospital admission (early) or following discharge (late)) and whether or not they occur at the site of surgery (local) or affect the entire body (systemic).

Some possible complications of leg bypass surgery include;

- Early complications:
  - Local
    - Wound related
      - Bleeding
      - Infection
      - Wound breakdown (dehiscence)
      - Fluid collection (seroma)
    - Injury to surrounding structures
      - Nerve damage causing numbness, pain or weakness in the thigh.
      - Lymphatic leak causing leakage from the wound, collection or leg swelling
    - Patch complications
      - Bleeding.
      - Patch infection (rare)
    - Blood clot in leg (deep vein thrombosis)
    - Limb loss (very rare, <1%)
  - Systemic (<5%)
    - Heart related
      - Heart attack
      - Irregular heart rhythm
    - Lung related
      - Pneumonia
      - Fluid on the lungs
      - Clot on the lung (pulmonary embolus)
    - Kidney related
      - Kidney failure that may require temporary dialysis

- Late complications (After discharge)
    - Wound Complications
        - Pain: Because of the location of the wound in that it crosses an area of natural bend the wound can be tender in the recovery period.
    - Infection: Because of its location close to the genitalia and the propensity for sweat to accumulate in this area there is a higher propensity for the wound to become contaminated and thereafter infected. The vast majority of infected wounds are successfully treated with a combination of antibiotics and wound dressings.
    - Collection: The wound can develop a fluid collection beneath the skin. The majority of these self-resolve, but occasionally the collection required drainage or a secondary procedure to resolve it.
    - Disease recurrence
        - >95% of clients do not require any further intervention within 3 years of surgery.
            - Those that do require re-intervention because the nature of the disease has changed the intervention can be most likely performed as a day-case minimally invasive angioplasty.
    - Leg swelling
        - The majority of clients will have some degree of leg swelling following surgery. This rarely causes significant morbidity.
    - Chronic pain
        - Some clients may suffer with pain at the site of their healed incisions which requires ongoing pain relief treatment.
    - Systemic complications: Following any form of arterial surgery individuals are at a higher risk than normal for developing heart attacks, deep vein thrombosis etc. during the first 6 weeks post-surgery. We thus recommend strongly to all our clients to ensure they convalesce in accordance with their surgeons advice.

All these potential complications are understandably concerning to our clients. Rest assured our surgeons make every effort to ensure your risk is reduced to the lowest level possible through our expertise and experience. The overall risk of you suffering from a major complication during your hospital stay that threatens your life or leg is less than 5% i.e. for every 100 clients we perform an endarterectomy on 95 will be discharged home without significant complication. When complications do occur, we pride ourselves in dealing with them rapidly and appropriately.

What happens after the operation?

The majority of clients remain in hospital for 5 days in total. During this period of convalescence you will initially be confined to bed and a chair for 24 hours post-surgery. Then we begin to mobilise you so that by the time of discharge you are able to walk independently and perform your daily ablutions unaided. Sometimes, clients require further rehabilitation and will remain in hospital for longer to regain strength. Throughout this period of recuperation there will be discomfort at the site of the operation which we treat with pain medication.

What happens when I go home?

Although at the time of discharge we ensure you are safe to go home we ask that there is a responsible adult with you for the first few days following discharge.
You will be able to have a shower at 48 hours post-surgery but we ask you to refrain from bathing until the wounds are fully dry.

For the first few weeks post-surgery there is often groin discomfort, leg swelling and wound leakage. You may feel physically exhausted doing relatively minor activity, rest assured this entirely normal and improves with time.

The majority of clients are able to return to work within 6 weeks of discharge, but this does depend on the nature of your employment and how well you recuperate from your surgery. If in any doubt, please wait until you have been reviewed in clinic by your surgeon.

When Will I be able to drive?

You are able to drive when you are able to perform an emergency stop and are able to concentrate fully on driving. Overall we advise you to not drive a car for the first 4 weeks post-surgery or until you have pain free movement of leg and are able to stamp your foot on the ground. Different rules apply for different ‘Group’ license holders and we recommend contacting the DVLA and your car insurance company for further advice.

Will I need to see the surgeon again?

We review all clients following femoral endarterectomy in clinic approximately 6 weeks following surgery.