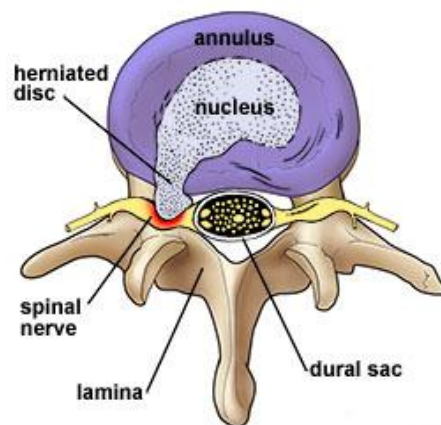


Mini-Laminotomy (micro-discectomy) & Removal of Prolapsed Disc Fragments

A partial lumbar discectomy is a relatively small operation, which is required usually for the treatment of a disc prolapse, which is causing significant pressure on one of the lower lumbar nerve roots which in turn causes sciatica. The term *sciatica* means there is pain in the distribution of the sciatic nerve usually arising from pressure on one of the component nerve roots as it emerges from the lumbar spine. The commonest cause for this pressure is a disc prolapse of either the L4/5 or the lumbo-sacral disc.

The most commonly utilised investigations to demonstrate a disc prolapse are a plain CT scan or an MRI scan. Occasionally we need to resort to a lumbar myelogram, which is an investigation whereby some contrast dye is injected into the spinal fluid space via a lumbar puncture.

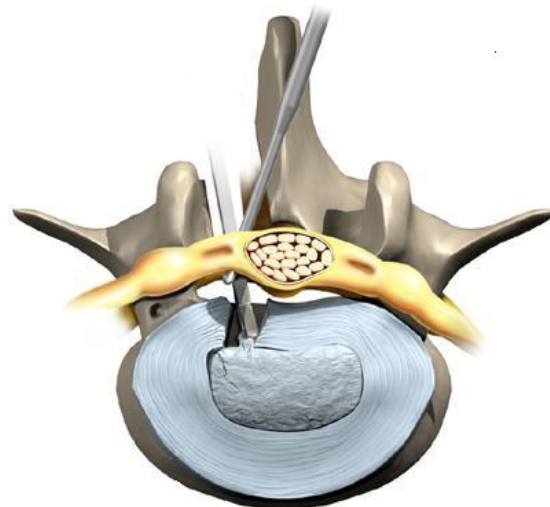
The commonest location of a disc prolapse is at L4/5 or the lumbo-sacral levels and the prolapse commonly occurs in a postero-lateral location, that is, not directly in the mid-line but to one side. In this location the emerging nerve roots are prone to compression as they emerge beneath the small knuckles at the back of the spine called the facet joints. Beneath these knuckles there is very little room for the emerging nerve root and a disc prolapse easily causes compression.



Surgery is performed only if all efforts at non-surgical treatment are exhausted and have failed or if right from the outset the disc prolapse is very large and there is significant neurological deficit such as a foot drop. Simply, if there is a significant

weakness of the foot at the outset then waiting and trying to remedy the situation with conservative means is unlikely to produce a satisfactory result.

Surgery involves a minimally invasive approach to the lumbar spine via a short mid-line incision. Commonly an incision is 6 or 7cm. and in very thin patients might be even less than this. The incision is placed in the vertical position in the mid-line. The approach to the lumbar spine is usually restricted to one or other side, that is, if the disc prolapse is on the right causing right leg sciatica then the muscles on the right side are elevated exposing posterior elements of the spine. At the back of the spine we find the laminae, a small window is opened up between two of the laminae by resecting and nibbling a few millimetres of bone of each lamina and then removing a flat ligament called the "ligamentum flavum" (the yellow ligament). By resecting this ligament the surgeon gains access to the spinal canal. The nerve root is readily identified and gently retracted towards the mid-line and usually in this location the disc prolapse is exposed and two or three fragments of prolapsed material are removed. If there is a hole in the posterior annulus of the disc a small pituitary rongeur is placed in the disc space to remove any loose fragments. Next, the nerve root that was compressed is examined in its entirety and followed down into the exit foramen to exclude further fragments of disc material which have extended perhaps up or down the spinal canal or into the exit foramen. This portion of the procedure is often referred to as a rhizolysis.



At the conclusion of the procedure the wound is closed with dissolving suture material. The operation rarely lasts longer than one hour.

Following surgery pain-killer medicine is usually given via a continuous infusion and 24 hours after the surgery the patient is mobilised. Meals are commenced on the following day after the surgery and patients are often discharged at 48 to 72 hours following the surgery depending on post-operative pain levels, age of patient, support at home etc.

The potential complications of this type of surgery can be divided into local or general. The local complications relate to the wound itself and include infection - 3%, wound breakdown - one in 500, neurological complications such as temporary weakness affecting a nerve root - one in 1000. Very rarely more sinister complications can occur such as partial weakness of the whole leg, for example if the patient experiences a post-operative haemorrhage, which leads to a blood clot. This occurs extremely rarely perhaps 1 in 10,000. Disc prolapse recurrence occurs in 3-4% cases and the most likely time for a recurrence is during the first six weeks following the surgery. For this reason we will ask you to restrict certain activities such as prolonged sitting or standing. If a recurrent prolapse does occur, occasionally a redo second operation is required.

The main general complications relate to the requirement for a general anaesthetic and include cardio-vascular and pulmonary problems although in young people less than 60 years of age who are in good health the chance of such a complication is less than 1 in 50,000. Blood clots in the legs (deep venous thrombosis) occur less frequently in spinal surgery than in lower limb surgery, but nevertheless does occur perhaps in 5 – 10% of cases. Very rarely a blood clot in the lower leg can separate and travel to the lungs (pulmonary embolism).

To avoid the main two complications of this type of surgery, namely blood clots in the lower legs and infection in the wound prophylactic antibiotics and prophylactic anticoagulants are prescribed in the days following the surgery to avoid these complications.

Post-operative regime

Following the surgery, patients are mobilised from their bed at 24 hours and can often go home at 48 hours. Patients can usually travel home in the family car but on occasion the ambulance is used. Dressings are taken off the wound one week following the surgery and if dissolving sutures are used to close the skin wound, and this is

usual, then no sutures or staples need to be removed subsequently. In short, the wound will take care of itself. For the first three or four weeks following the surgery patients are expected to walk at least 15 minutes twice daily and to avoid prolonged sitting. Patients are allowed to sit up to half an hour in a chair with arm rests to have their meals and to open their bowels and use the toilet. There are no specific exercises that are necessary in the first few weeks; simply walking is the best exercise.

At three or four weeks following the surgery the first clinical review occurs at which time the wound is inspected for satisfactory healing and then usually a more vigorous exercise program commenced often with the help of a local physiotherapist.

The usual time off work for an office worker is 3 – 6 weeks and for a manual worker is 6 – 12 weeks.

The aim of the surgery is to remove the pressure on the emerging nerve root as quickly and as easily as possible by removing the prolapsed disc fragment. Please note that no attempt is made to completely remove the disc nor is there any attempt made to replace the disc material that prolapsed nor can the disc be repaired by surgical means. The hole in the disc annulus where the fragments of disc material prolapsed will heal spontaneously over a three-month period of time. Unfortunately, some patients experience persistent back pain following this simple procedure due to inflammation in the posterior annulus of the disc. This persistent backache can be troublesome in 10 – 15% of patients who have sustained a disc prolapse. This mechanical back pain occurs not because of the surgery but because the disc was injured and prolapsed and is even a problem in patients who do not undergo surgery for a disc prolapse but who are treated with conservative means. Once the fragments of prolapsed disc material have been removed and the pressure on the nerve has been relieved usually residual back pain is managed with exercises, walking and hydrotherapy. In the longer term, residual mechanical back pain following this type of surgery is usually not a persistent problem and readily responds to conservative treatment. Never the less, it is important to understand from the very outset that the operation described in this leaflet does not aim to address the problem of back pain but rather relieve one of sciatica, namely pain in the leg due to pressure on emerging lumbar nerve roots.

Do not hesitate to contact this office should you require more information in relation to this operation.