**Pathology**

The spinal column is made up of blocks of hard bone, the vertebrae (5) separated by discs that are soft and rubbery (7). In the middle of the spinal column is the spinal canal (6), a hollow space that contains the spinal cord and nerve roots (8). The discs between the vertebrae allow the lumbar spine to bend and also act as shock absorbers.

The discs (7) are made of a tough outer fibrous membrane (the annulus) filled with gel-like substance called the nucleus. A disc ‘prolapses’ or ‘ruptures’ (9) when part of the gel-like nucleus leaks or pushes out into the spinal canal. In the lumbar spine, this puts pressure on the nerve roots as they come out of the spinal canal (8), producing the classical sciatica and back pain. Depending on the size of the disc prolapse, there may be leg weakness, numbness and rarely loss of control of bowel and urinary functions.

Also as part of the normal aging process, the lumbar discs shrink and the spaces between the vertebrae get narrower. The disc itself becomes less flexible and the fibrous outer membrane may tear. Such age related wear-and-tear, weight gain, improper lifting or spinal trauma can all lead to this condition.

Most of the population will suffer back pain at some time in their lives, with an estimated lifetime risk of between 60-90%. Between 1-3% of these cases is due to a lumbar disc prolapse, which classically presents with shooting pains down the leg (i.e. sciatica).

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Treatment options

Fortunately, symptoms related to nearly 80% of disc prolapses resolve over time (4-8 weeks), with conservative therapy alone including simple painkillers, short period of rest, physiotherapy, chirotherapy, epidural injections etc.

In general, surgery is recommended when a ruptured disc is pinching the spinal nerve root and there is:

• Persistent or recurrent leg pain (ie failed conservative treatment)
• Numbness or weakness in the leg(s) or feet
• Impaired bowel or bladder function (urgent surgery needed)

Day case microdiscectomy

The surgery is performed from the back under a general anaesthetic (figure A). An operating microscope and specialised microsurgical techniques are employed to minimise the trauma to tissues and at the same time improve vision and access for the surgeon (figure B).

This type of keyhole surgical approach requires only a very small skin incision (about 2cm) (figure D & E). Through this incision, tubular dilators are used to create a minimally invasive opening to the site of the lumbar disc prolapse (C). Only the small portion of the disc (5-10%) that is pressing against the nerve root is excised, and the rest of the disc remains intact (figures F-H). Finally, the wound is closed with self-absorbable sutures (figures D & E).

Because of the keyhole approach, patient recovery is quicker than with traditional lumbar discectomy. Most patients are able to start walking a few hours after the surgery and are discharged home later the same day. A specific post-operative recovery plan tailored to each patient is provided prior to discharge home. The recovery is generally 1-2 weeks with most people able to resume normal activities after one month.

Lumbar microdiscectomy is effective in alleviating the sciatica in over 90% of patients, but the outcome will be specific to the individual patient. Complications, such as infection, bleeding, nerve injury and bowel or bladder problems are some of the potential adverse risks of spinal surgery. Please consult your surgeon for a complete list of indications, clinical results, adverse events, and other important medical information.

In Manchester, UK, Day Case Microdiscectomy for lumbar disc prolapse is undertaken at the Neuroscience units of Salford Royal (NHS) and The Alexandra Hospital.

Other useful links related to lumbar microdiscectomy

Spine Universe (for Patients & Professionals)

Spine-health.com (for Patients & Professionals)
www.spine-health.com