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Lumbar Microdiscectomy

The standard neurosurgical operation to relieve nerve root compression by disc prolapse

Consent:
Supported decision making

- Doctors are no longer the sole arbiter of determining what risks are material to their patients (2015 Montgomery v Lanarkshire Health Board)
- Doctors need to take reasonable steps to ensure that patients are aware of all risks that are material to them
- Inform of all management options
- It is a process, not simply signing a form
- Cooling of period before final decision
- Confirmation of consent on day of surgery

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Aim of microdiscectomy

- To relieve nerve root compression by removing the herniated disc fragment
- This stops nerve damage and allows recovery of nerve function
  - Relief of pain in the distribution of the nerve
  - Recovery of strength in muscles supplied by the nerve
  - Potentially recovery of feeling (in numb areas)
- Back pain may or may not respond
- Improvement in leg pain may allow exercises to help the back

Standard microdiscectomy

- I use a microscope – this gives excellent illumination and magnification to facilitate a safe and effective operation
- Alternatives:
  - Surgical loupes – magnification only, with a fixed focal distance (Can be used with an additional light source0
  - Endoscopic – Minimally invasive spinal surgery – using tubular systems and a number of small wounds. Proponents claim faster recovery and less surgical pain than standard approach
  - LASER discectomy – Vaporisation of disc material to help body absorb these fragments. Minimally invasive but poor results
- These new technologies do not offer as good outcome as the standard microdiscectomy

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How much discectomy?

- Simple discectomy – removes the offending fragment only, risk is excessive early recurrence rates
- Radical discectomy –removes ruptured fragment and clears the disc space of loose, worn material, preserving healthy disc. Low risk, and low early recurrence rates
- Total discectomy – removes ruptured disc fragment and all disc material in the segment – needs an implant – either cage for fusion, or artificial disc. Higher risks and of no benefit in standard cases

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Microdiscectomy (1)

- Performed under general anaesthetic
- Patient is carefully positioned prone (facing down) on a special padded operating frame (Wilson frame) which keeps pressure off the abdomen to reduce venous pressure
- A special cushion keeps pressure off the eyes
- An x-ray is taken with a sterile needle placed to optimize the incision site and length

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Microdiscectomy (2)

- Paraspinal muscle is carefully swept of the bone
- Special retractors are used to maintain a corridor for vision
- A further x-ray is taken to ensure the correct level
- A little bone is drilled away from the lamina on each side, and part of the facet joint is trimmed
- Ligament is peeled away to expose the nerves
- The nerve root is carefully dissected off the disc to reveal the ruptured disc fragment
- The ruptured fragment is removed, and the disc space cleared of loose / worn disc fragment
- Any spots of bleeding are cauterised
- The wound is closed with a dissolving stitch

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Post – operative plan

- Walking after surgery – same day
- Home after overnight stay following assessment by physiotherapist
- First 6 weeks – allow healing, short walks
  - No driving, no lifting, avoid low seats
- Pain relief
  - Anti-inflammatories – useful 2 weeks, perhaps longer
  - Opioids – co-codamol – esp first 3 days, then as necessary
  - Can stop amitriptyline
  - Wean from pregabalin/ gabapentin halving every 2 weeks

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Physiotherapy

- Very light stretching exercises first 6 weeks
- Stages after microdiscectomy
  - Healing – first 6w
  - Correction of posture
  - Restoration of range of motion in lumbar spine
  - Core strengthening
  - More intensive exercise
  - Work towards optimal weight

Complications

- Immediate
  - Epidural haematoma – rare. Features are severe back pain with progressive numbness and weakness in legs. Requires return to theatre for washout
  - Nerve injury – pain, weakness, numbness in distribution of nerve. Could have incontinence and loss of sexual function
  - CSF leak – unusual. Leak in theatre will be repaired. Wound is closed with a nylon stitch. There may be 24h bed rest. Rare to need to return to theatre
  - Blindness – reduced blood pressure from anaesthesia and prone (face down position) – rate: 1 in 50,000
  - Massive (catastrophic / fatal) haemorrhage – RCS suggests 1 in 4000, although I have never seen in any neurosurgical unit that I have worked in over 30y
- Early
  - Infection – usually superficial – responds to antibiotics. Rarely deep – may need prolonged antibiotics. Occasionally wound washout in theatre is required
  - Thrombosis – DVT/PE – prophylactic measures include – risk assessment, TED stockings, pneumatic compression boots in theatre, occasionally subcutaneous clexane injections (to take home), early mobilisation
- Late
  - Recurrent disc prolapse – a consequence of degenerative change developing in the healthy disc that remains
  - Discitis – infection in disc space, may need prolonged antibiotics, occasionally further surgery
  - Instability – very rare