Degenerative lumbar spine disease

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Background

Degenerative lumbar spine disease (DLSD) is a spine disease with or without neural compression. The incidence of DLSD is around 1% of those over the age of 70. The symptoms however, are poor, with many asymptomatic patients, a significant proportion of whom are at risk of developing a herniated central lumbar disc. A slipped disc is not necessarily painful. In every case, the symptoms are related to the size, location and rate of development of the herniation.

Diagnosis of degenerative lumbar spine disease

The primary symptom of DLSD is axial pain. The pain may be of low back pain or left and right buttock pain (sciatica). Other symptoms may include neural symptoms of the limbs such as numbness, tingling and weakness. Some patients may present with a motor deficit. In terms of investigation, imaging techniques are the most useful. Plain X-rays, especially performed in flexion and extension, will help identify any spinal instability that may be present. The imaging modality of choice, however, is the MRI scan. MRI clearly demonstrates the neural elements and defines any areas of bony, ligamentous or discal degeneration and compression (see Figure 1). CT scans are still useful if detailed information about the bone structure is required, particularly in patients who are to undergo instrumented spinal fusion. Electrodiagnostic evaluation, such as nerve conduction studies, is helpful in determining the level of relevant pathology especially in patients with difficult clinical assessment and multi-level spinal disease on MRI.

Management of degenerative lumbar spine disease

Management of DLSD requires a multi-disciplinary team approach comprising of, at least, neurosurgeon/spinal surgeons, a neuroradiologist, pain specialists and physiotherapists. This is important to provide the patients with the most effective treatment for their particular symptoms. Although patients with DLSD represent the biggest group of patients seen in a general neurological clinic, only a small proportion will ever require surgery.

In patients presenting with acute or chronic low back pain, without neural compression or spinal instability, conservative measures are likely to settle the pain in the majority. Such measures include weight reduction, structured exercise programmes; analgesics such as paracetamol, non-steroidal anti-inflammatory drugs or opioids; physiotherapy; spinal manipulation by qualified osteopaths or chiropractors; and acupuncture. In patients with chronic pain (more than one year), epidural injections, transcutaneous electrical nerve stimulation (TENS) and combined physical and psychological rehabilitation programmes may be of additional benefit. The role of surgery in such patients remains controversial. Spinal fusion may benefit selected patients. When instability (degenerative spondylolisthesis) complicates back pain, spinal fusion may achieve good pain control. Percutaneous spinal instrumentation systems now available, allow minimally invasive surgery with more rapid recovery and a shorter hospital stay.
In patients with DLSD and radicular pain, conservative measures are usually sufficient to improve the symptom in six to eight weeks. If severe pain persists beyond this time, or if a motor neurological defect, such as a foot drop, is present, serious consideration should be given to surgery. The timing of surgery is particularly important if neurological recovery is to be achieved. The aim of surgery is to decompress the neural elements and the most common operations performed are lumbar laminectomy and lumbar microdiscectomy. The recent development of endoscopic microdiscectomy technique allows day-case local anaesthetic surgery with the additional benefit of excellent cosmetic results. Spinal cord stimulation remains an effective treatment in patients with severe pain especially if pain persists despite decompressive surgery.

**Prognosis of degenerative lumbar spine disease**

The prognosis of patients with DLSD depends on the underlying diagnosis, delivery of prompt treatment and psycho-socio-economic factors. Well motivated patients with a good social support network are more likely to recover well and resume work. Despite all the treatment available, some 10 percent of patients become chronically disabled, especially with back pain. In others, conservative and surgical measures are effective in improving the symptoms. Spinal decompensation and radicular pain respond well to surgery with up to 90 percent pain relief. When motor weakness is present or in patients with cauda equina syndrome, the timing of surgery is crucial in determining any neurological recovery with the best results seen in patients operated within 48 hours of presentation. The prognosis for recovery of sensory deficits such as numbness and paresthesia is less predictable.

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