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The information - sciatica

Consultant neurosurgeon Mr Amjad Shad offers his evidence-based presentation on the subject of sciatica using PUNs and DENs

The Patient's Unmet Needs (PUNs)

A 32-year-old labourer attends your emergency surgery with sudden onset of lancinating low back pain radiating to his left foot. It has been present for two weeks and is associated with occasional paraesthesiae in his leg and buttock. He's had a few minor episodes in the past, but never this long or this severe. He's otherwise fit and well and has been taking over the counter medication. 'I've had enough,' he says. 'I think I need a scan, and I'd like you to send me to a specialist to sort it out.'

The Doctor's Educational Needs (DENs)

Should we be using the term sciatica anymore? What is the actual pathological process in this kind of presentation?

Although still commonly used in clinical parlance, the term 'sciatica' is somewhat indistinct. Radicular pain, radiculopathy and somatic referred pain are all synonymous with the broad term sciatica, which is generally understood as symptoms indicative of the inflammation and/or compression of the sciatic nerve. [1]

More recently referred to by clinicians as radicular pain, symptoms include a lancinating pain from the back of the pelvis, through the buttocks, down the legs to the feet with possible paraesthesia or weakness in the leg (radiculopathy).

Although the intervertebral disc is often cited as the culprit in sciatica cases, the exact relationship of the disc to nerve and pain is still uncertain.

Evidence suggests that the nucleus pulposus of the disc provokes an inflammatory response in sciatic nerve roots, but it is not the only cause of pain. Inflammation, abnormal immune factors and mechanical deformation or compression of the nerve - or more likely, a combination of each - can also result in radicular or 'sciatic' pain.[2]

Often presenting with radicular pain, radiculopathy is a neurological state in which a sensory block causes numbness and a block of motor fibres causes weakness. Reflexes are diminished in both cases.

Piriformis syndrome can cause similar symptoms to those of sciatica and is often overlooked in diagnosis. When the piriformis muscle (deep in the hip/buttock) becomes tight or inflamed it can cause irritation of the sciatic nerve. Alongside history of pain and symptoms, GPs should look for a contracted piriformis muscle in the physical exam.

What is the prognosis? At what point would a scan or referral be appropriate?

In most acute sciatica patients the prognosis of natural recovery is favourable and they can generally be resolved within six weeks with over the counter NSAIDs and continuation of activities of daily living (ADLs).[3]

A number of signs and symptoms in the patient's history, physical and neurological exam may predict different types of outcome .[4]

Research shows that most consistent predictors of an unfavourable outcome are sciatic symptoms of more than 30 days, increased pain when sitting, coughing, sneezing, and straining.

Chronic sciatica usually requires a combination of self-help techniques and medical treatment including physical therapy, or more recently intervertebral differential dynamics (IDD) therapy, a non-surgical spinal decompression treatment which is available in private practice.

With the exception of red flag situations, diagnostic imaging would not usually be suggested unless the patient had failed to respond to conservative treatment after six to eight weeks.

Diagnostic imaging is valid for the investigation of sciatica caused by a herniated disc, but a herniated disc can exist without sciatic symptoms and vice-versa, therefore it can sometimes lead to false-positive interpretations.

Candidates for intervertebral differential dynamics (IDD) therapy will usually require an MRI scan to identify the spinal level of any disc herniation in order to provide a targeted treatment.

Magnetic resonance neurography (MRN) is a new type of adapted MRI which is able to capture images of the nerves which may influence the future diagnosis of sciatic conditions.[5]

Patients often mention numbness or paraesthesia and vague urinary symptoms too. What clear symptoms or signs should alert the GP to possible cord compression? What red flags might suggest significant underlying pathology?

Cauda equina syndrome is a relatively rare but serious condition involving loss of function of the nerve roots in the lumbar vertebral canal at the foot of the spinal cord. Caused by trauma, tumor, infection, herniated disc or spinal stenosis, it is a medical emergency which may require urgent surgical intervention. In addition to radicular pain or back pain, symptoms may include:

- Altered sensation, weakness or numbness in lower extremities, legs and/or feet.
- Loss of sensation, or a 'strange' sensation, in "saddle" area (inner thighs, buttocks, back of legs, sacral region).
- Urinary or bowel incontinence, retention of urine, inability to hold urine, rectal incontinence.

Surgical decompression to reduce pressure on the nerve within 24 to 48 hours gives maximum potential for improvement of sensory and motor deficits as well as bladder and bowel functioning. Most surgeons suggest operating within eight hours of onset.

Red flags suggesting cancer or infection are:

- age over 50 with no previous back pain
- history of cancer
- fever, chills , unexplained weight loss
- recent bacterial infection
- intravenaous drug abuse(leading risk factor for spinal infections)
- immune condition e.g. HIV
- spinal deformity

Is there any evidence to favour any one medication over any other in terms of securing pain relief? Is there a role for physiotherapy when the patient has radicular pain?

Over-the-counter NSAIDs are thought to work best. For patients with asthma, high blood pressure, liver disease, heart disease or stomach and digestive disorders, paracetamol is more suitable.

GPs may prescribe a mild opiate-based painkiller, such as codeine or if symptoms are severe, a muscle relaxant. Gabapentin or pregabalin can be considered for reducing neuropathic pain.

A tricyclic antidepressant such as amitriptyline is sometimes used but in low doses since its most common side-effect is drowsiness. However, it is not clear whether the low dose has any long-term benefit.

Physiotherapy exercises for sciatica include stretching and core strengthening in order to support the spine and are designed to reduce pain in the short-term and provide conditioning to prevent future recurrences, but there seems to be little evidence to firmly conclude that physiotherapy is any more effective in the treatment of sciatica than the continuation of activities of daily living.[3]

Whether symptoms can be exacerbated by physiotherapy appears to be unclear and reliant upon anecdotal evidence.

Patients are educated about lifestyle changes to help avoid activities or situations which put undue stress on the lower back, for example heavy lifting or playing golf.

Exercises are usually given by a physiotherapist and performed at home by the patient. Exercise compliance is a challenge and despite best intentions, failure to perform exercises may affect long-term treatment outcomes.

As part of conservative care, IDD therapy offers a non-invasive spinal decompression option for patients with an identifiable disc herniation. Treatment involves the precise mechanical decompression of targeted segments of the spine in a manner not possible with traditional traction.

When would surgery be considered and what is its success rate?

Surgical procedures are typically considered when the patient has exhausted non-surgical options and remains in pain with a lack of function.

Before opting for spinal surgery surgeons should have a discussion with the patient about any non-surgical options as well as the relative risks and benefits of surgery.

Where the sciatica pain is due to lumbar disc herniation, a microdiscectomy or small open surgery with magnification may be considered. In this surgery, the portion of the herniated disc affecting the nerve is removed.

This surgery is generally considered after 4-6 weeks if the severe pain is not relieved by non-surgical means.

Approximately 90% to 95% of microdiscectomy patients will experience immediate relief from their sciatic pain. However, in studies of early surgery versus prolonged conservative treatment for sciatica, outcomes at one and two years were similar for both the surgical and non-surgical groups and at two years 20% all patients reported an unsatisfactory outcome.[6]

Where the sciatica pain is due to lumbar spinal stenosis, a lumbar laminectomy may be recommended whereby the bone or disc material which is affecting the nerve root is removed.

Laminectomy may be offered as an option if the spinal stenosis causes the patient's activity tolerance to fall to an unacceptable level. 70% to 80% of patients typically experience relief from their sciatic nerve pain.

If a vertebra has slipped, it may be possible to fuse it into place using a bone graft supported by metal rods and in doing so, reduce the chance of the spine becoming damaged in the future.

Key points

Cause

- Inflammation and/or compression of the sciatic nerve

Epidemiology

- Age, occupation, excessive driving can be risk factors

Clinical Features

- Lancinating or dull pain through the pelvis, buttocks, thigh, leg
- Paraesthesia in the leg/foot

Management

- 60% of acute sciatica cases resolve naturally within three months, 70% within a year
- Chronic sciatica responds to physical therapy including IDD Therapy spinal decompression
- Epidural steroid injections can provide temporary relief
- Surgery can produce immediate relief but should be regarded as a last resort

Pitfalls

- Cauda Equina
- Misdiagnosis of somatic referred pain/Piriformis Syndrome
- Early surgery

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