Surgical management of low back pain

Spinal surgery for chronic low back pain is controversial, and the disproportionate number of fusions in private hospitals is unexplained.

In developed countries, low back pain is the most common presenting symptom in primary care practice, with a lifetime prevalence of 80% for episodes of back pain. It affects adolescent sportsmen, pregnant women, hospital nurses and middle-aged labourers, and it peaks in the elderly. Back pain disrupts the rhythm of daily life, affecting work, recreation, social life and family income. The level of disability has a significant cost to the community.

There is an encyclopaedic range of medical and alternative treatments for low back pain. Most have, at best, limited benefits. Disappointed patients resort to nerve blocks and ablative rhizotomies which also have limited evidence for long-term benefits.

Armed with mobile phones, consumed with social media, and with rapid access to online information, our patients present with high expectations of modern technology, including surgery. With outstanding results from hip and knee arthroplasties, they expect similar results from spinal surgery. Not uncommonly, the patient attends the surgical consultation with an expectation that the problem scan be fixed.

Aetiology

At the initial consultation, the astute family physician will consider a wide range of diagnoses in the patient with the recent onset of back pain. Renal stones, aortic aneurism, gastric and pancreatic conditions, malignant metastases, discitis and ankylosing spondylitis will all need to be considered before accepting the diagnosis of non-specific axial low back pain.

Clinical examination in the absence of a radiculopathy is likely to show non-specific signs and is unlikely to identify any specific injury. The supporting muscles, interspinous ligaments, lateral facet joints, vertebrae, discs and sacroiliac joints may all contribute to chronic low back pain, but their individual contribution can be difficult to elucidate clinically.

Today, chronic pain is understood in terms of a biopsychosocial concept, although this can be difficult to explain to a patient. The surgeon John Loeser has untangled this concept with the Loeser rings. He likens the pain injury to the inner core of an onion, with additional layers surrounding it which enhance the experience of pain, including childhood issues, masked depression, substance abuse, pain behaviour and entitlements to secondary gain. For the benefit of the patient and the reputation of the surgeon, these aspects of chronic pain need to be carefully explored before considering spinal surgery.

In the absence of a diagnosis, magnetic resonance imaging of the lumbar spine is required to exclude congenital or advanced pathological changes in patients with low back pain. This tends to open Pandora’s Box. Imaging will identify degenerative changes from the third decade onwards, including disc dehydration (the black disc), disc narrowing, lateral facet joint arthropathy and bone spurs. However, there is “very little correlation between imaging findings of disc herniation and the clinical course. Imaging findings of structural change of osteoarthritis do not correlate with pain production”.

The patient with chronic low back pain, having seen the report of the radiologist and suggestions for further pain interventions, then has renewed expectations of successful treatment. For patients with non-specific axial back pain, clinical examination and radiological imaging are unreliable guides to surgical or other pain interventions. Because of this dilemma, and faced with anxious patients with high expectations from modern surgical technology, there has been a growing enthusiasm for surgical fusions.

Natural history

The spinal surgeon needs to be conscious of the natural history of low back pain. It is common in adolescence (18–50%), causing disability in up to 9%. There is the
There is a point prevalence in addition, there has also been a lack of evidence for effectiveness of surgery for a firm conclusion to be drawn. A further Cochrane review in 2005 reported “variable clinical outcomes ranging between 16% and 95%”. There was no evident difference, over a period of 2 years, between artificial disc replacement and the less expensive fusion technique. It also found that the techniques using intradiscal thermal coagulation and spinal spacers had lost the support of surgeons and have since been discarded, and that there was insufficient evidence to support spinal fusion for degenerative disc disease, whether for back pain or in conjunction with spinal decompression.

More recently, an Australian study on trends in spinal surgery has noted a significant increase in the rate of fusions, over a 10-year period, of 175%. The rate had increased from 8.4 per 100 000 to 23.1 per 100 000, and 69.9% were instrumented. The 2005 review by Gibson and Waddell was critical of the outcomes measured, preferring “patient-centred outcomes rather than an assessment of the short-term surgical outcomes.” This was to emphasise that reports needed to focus on the patient’s perception of pain relief and the patient’s return to the previous level of daily activities and employment. It was noted that “The limited evidence of the long-term effects of either surgical decompression or fusion remains a matter of concern given the magnitude of the clinical problem, the numbers and the cost of surgical procedures being performed”.

A later study of a cohort of patients receiving workers’ compensation in New South Wales concluded that the outcomes were so poor that spinal fusions were not recommended for this group. In addition, independent reviews noted that the incidence of persistent post-operative pain syndrome was as high as 40% and that there was a 50% success rate, at best, from the first operation, 30% from the second and 15% from the third.

**Surgery**

Spinal fusion surgery for lumbar non-specific low back pain is controversial, particularly because the origin of the pain is undetermined and imaging of the spine is unhelpful. The procedure dates back to 1889 but it is in internationa...