SPECIALTY SUMMARIES

ROUNDUP³⁶⁰

Spine

Percutaneous vertebroplastv Vertebroplasty is a much-debated procedure for patients with a vertebral compression fracture. Consequently, a paper from Victoria (Australia), Rochester and Seattle (USA) makes good reading. Two multicentre, randomised controlled trials were undertaken, one in each country, with a total of 209 participants. The object was to compare percutaneous vertebroplasty with a placebo procedure using pain and function at one month post-procedure as the main outcome measure. Individual patient data meta-analysis from these two blinded trials failed to show an advantage of vertebroplasty over placebo. Indeed at one month those in the vertebroplasty group were more likely to be using opioids.¹ 360 agrees that these results do not support the hypothesis that selected subgroups would benefit from percutaneous vertebroplasty.

As if to further highlight the possible pitfalls of percutaneous vertebroplasty, a case report from Beirut (Lebanon) describes a case of anterior spinal cord syndrome in a 20-year-old man who had sustained pathological fractures of T8 and L1 without retropulsion of bony fragments into the vertebral canal. Immediately after the vertebroplasty the patient experienced total paralysis and loss of sensitivity to pain and temperature in both lower limbs. It appears that cement had leaked directly into the anterior spinal artery and had led to an irreversible paralysis.² A tragic case,

360 feels, and perhaps something clinicians should consider as part of their informed consenting process.

Caudal epidurals and lumbar radiculopathy

Caudal epidural injections are widely used in the management of chronic lumbar radiculopathy. A multicentred, blinded, randomised controlled trial into this therapy has recently been published and is clearly very welcome. Researchers from Tromsø (Norway) have looked at the efficacy of a caudal epidural steroid or saline injection in the short (six weeks), intermediate (12 weeks) and long term (52 weeks). Although there were 328 exclusions from their original total of 461 patients who initially presented, both groups improved after injection and there was no statistically significant difference between them. Some patients actually improved before injection. The conclusion? Caudal epidural steroid or saline injections are not recommended for chronic lumbar radiculopathy.3 360 suspects that some practices may be turned upside down by this finding.

Biological treatments and the degenerate disc

An interesting review article on the emerging role of biological treatments in the management of intervertebral disc degeneration has recently been published from Philadelphia (USA). The unique environment of the intervertebral disc does present challenges, be they related to the development or delivery of biological therapies. The acceleration of cellular senescence and apoptosis in degenerate intervertebral discs has prompted the development of treatments based on replacing intervertebral disc cells using various cell sources. A number of ideas have been considered, including disc cell reimplantation, stem cell implantation, disc denervation, injection of therapeutic proteins and gene therapy. Degeneration leads to changes in the expression of matrix protein, cytokines, and proteinases, so the injection of growth factors and mitogens may help overcome these. Such treatments are presently being explored in animal studies. Meanwhile gene therapy is an elegant way of addressing changes in protein expression, although efforts to apply this technology to the degenerate intervertebral disc are still in their infancy.4 Watch this space, thinks 360. There will be plenty more detail to follow.

Herpes and back pain

Yet what about the cause of intervertebral disc degeneration? Is it all to do with Anno Domini? Perhaps not, suggests a paper from Heraklion (Greece). Here, researchers proposed that disc degeneration might be caused by low-grade infection, the herpes virus in particular. They applied a polymerase-chain-reaction-based assay to screen for the DNA of eight different herpes viruses in 16 patients and two controls. The DNA for at least one herpes virus was detected in 13 specimens (81.25%). Herpes simplex virus type 1 was the most frequently detected (56.25%). followed by cytomegalovirus (37.5%). In two patients co-infection by both viruses was detected.5 360 is very excited by this paper, as it appears to be the first unequivocal evidence of the potential role of herpes as a contributing factor in the pathogenesis of degenerative disc disease. Remember peptic ulceration? Could this be the first evidence of an orthopaedic Helicobacter pylori lookalike? Perhaps it could have been infection all along. Well done, Greece. Keep up the good work.

Indian implants – keeping the costs down

In this cost-driven healthcare era, a paper from Mumbai (India) makes for good reading. Indian spinal surgeons have to choose between foreign implants and Indian implants for their patients. For example, an Indian four-pediclescrew rod construct costs \$US330, roughly one-third the price of a similar foreign device. About 60% of Indian patients simply cannot afford expensive foreign implants, yet there are little written data available on how these Indian implants fare. Consequently, the authors analysed the results of 1572 titanium pedicle screws used in 239 patients with a minimum one-year follow-up. Patients were divided into Indian and foreign implant groups. In the foreign implant group there was a single incident of implant failure

(0.15%). In the Indian implant group there were five such incidents (0.56%). Despite this difference, it still appears that the rate of failure for the cheaper Indian implants was low, with approximately one implant complication for every 200 screws. Overall, there was no statistically significant difference in failure rates between Indian and foreign implants.6 360 notes that the Indian implants appear to be a safe and viable option. So perhaps there is no need for patients to fork out that bit extra for the so-called 'better' implant from overseas.

Cervical radiculopathy and peripheral neuropathy combined

In patients with cervical radiculopathy it appears that peripheral neuropathies are more common. A proximal lesion along an axon might predispose that nerve to injury more distally. To investigate this hypothesis, the frequency of median nerve neuropathy at the wrist and the frequency of ulnar nerve neuropathy at the elbow were investigated in 80 patients with one-sided cervical radiculopathy by researchers in Samsun (Turkey). The authors compared the symptomatic and asymptomatic extremities by using ulnar and median nerve conduction studies. However, the frequency of ulnar and median nerve neuropathy did not support an association between cervical radiculopathy and distal neuropathy. Consequently, it appears that any link between the two is associational rather than causative.7

Lumbar instability

Segmental instability of the lumbar spine is, to some, a poorly defined term, especially as it relates to degenerative spondylolisthesis and rotational translation. Researchers from **UIm (Germany)** have thus investigated whether a facet joint effusion on a conventional, supine MRI suggests abnormal movement in the lumbar spine. The authors looked at 160 patients who had undergone decompression only or decompression with instrumented fusion for degenerative spondylolisthesis, albeit with different degrees of narrowing of the spinal canal. All patients had pre-operative upright radiographs as well as supine MRI scans. The imaging studies were assessed for a number of different



parameters including the degree of slippage, the presence of facet joint effusions, and the presence of rotational translation on the anteroposterior radiograph. Although 40 of the 160 patients showed no facet joint effusion, for those where an effusion was present, its extent correlated significantly with degree of slippage between standing and supine positions. The extent of the left/right difference in the effusion was also associated with rotational translation. It thus appears that a facet joint effusion correlates closely with the extent of slippage of a degenerative spondylolisthesis. Furthermore, the greater the difference in right and left facet joint effusions, the higher the chance of having rotational translation.8

Athletes and spondylolysis Athletic performance can be significantly impaired by spondylolysis, a condition investigated by surgeons from **Gifu** and **Chiba** (Japan). They undertook a retrospective study of bony union after segmental wire fixation on 44 athletes with symptomatic spondylolysis. The bulk (42/44) were at L5 only, although two were at both L4 and L5. Bilateral bony union was achieved in 31 of 46 vertebrae (67.4%) at a mean follow-up of 85 months. Unilateral union was seen in six (13%) and nonunion in nine (19.6%). Bony un-

ion was an important factor in clinical outcome, although the authors concluded that further studies were needed to gain a better understanding of other factors that might affect clinical outcome after surgical repair of spondylolysis.⁹ However, 360 notes that no comment was made as to whether athletic performance was improved after surgery.

Complications and scoliosis surgery

Scoliosis surgery is a demanding subspecialty at the best of times, so 360 feels a major, multicentre publication from Charlottesville (USA) is most certainly worth reading. Although a retrospective review of the Scoliosis Research Society Morbidity and Mortality database, this allowed an analysis of an astonishing 19,360 cases entered onto the database between 2004 and 2007. Of these, complications occurred in 1971 (10.2%) cases. The highest complication rate was for neuromuscular scoliosis (17.9%), followed by congenital scoliosis (10.6%) and idiopathic scoliosis (6.3%). Surgery for neuromuscular and congenital scoliosis also had the highest death rates (0.3% each), followed by idiopathic scoliosis (0.02%). Perhaps unsurprisingly, higher rates of new neurological deficits were associated with revision procedures and corrective osteotomies. Meanwhile, anterior, screw-only constructs or

wire-only constructs, had more complications than pedicle screwonly procedures.¹⁰ 360's view? This is serious surgery and not for the occasional operator. These data will certainly be useful in the decisionmaking and counselling processes.

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