

ROUNDUP³⁶⁰

Spine

Yoga for chronic lower back pain

■ Back pain is a major problem that dominates the lives of many patients as well as a huge number of orthopaedic practices. ³⁶⁰ feels that there are as many ways of treating the condition as there are practices treating it. Consequently, work from **York, Manchester and Truro (UK)** into the role of yoga for the treatment of chronic low back pain is fascinating. The researchers studied 313 adults with low back pain. Yoga treatment was offered to 156 and more traditional care to 157. The yoga treatment was a 12-class, gradually progressing yoga programme delivered by 12 teachers over three months. The results showed the yoga group did better at three, six and 12 months, although 12 of this group reported increased pain.¹ However, it certainly appears that yoga is of use in the management of chronic low back pain. Anything that avoids surgery must be good.

Spinal tuberculosis

■ From **Changsha (China)** comes an excellent study on the surgical management of thoracic tuberculosis. Population migration, HIV and antibiotic resistance have led to an increasing incidence in this condition worldwide. One way of treating the disease is the use of internal fixation, debridement and interbody thoracic fusion via a posterior approach only, the researchers for this study reporting on the outcome for 60 adult patients. Patients were followed up for a mean of 27.5 months. The mean

operating time was 251 minutes, mean intra-operative blood loss 780 ml, and the rate of kyphosis correction was 79%. The mean corrected kyphosis angle was 25° and yet the loss of corrected angle was only 1.2°. Furthermore, the ESR and CRP levels decreased to normal three months after surgery. The rate of bone fusion was an impressive 100%, with a 100% cure rate.² ³⁶⁰ was delighted to learn of these results, which give evidence that the technique can successfully remove the focus of tuberculosis and restore spinal stability.

■ Staying with spinal tuberculosis is a paper from **Assiut (Egypt)** where surgeons looked at instrumented circumferential fusion of the dorsolumbar spine for the disease and whether it should be a single- or double-stage procedure. The authors reported on 57 patients, 32 of whom had received a one-stage procedure and 25 a two-stage operation. The two stages were an initial anterior debridement and fusion, followed ten to 14 days later by posterior stabilisation and posterolateral fusion. Patients were followed up for at least two years. The mean operating time and length of hospital stay were significantly longer in the two-stage group. The mean estimated blood loss was also larger. Complications were less frequent in the one-stage group. At final follow-up, all 34 patients with pre-operative neurological deficits showed at least some neurological improvement. All 57 patients showed significant improvement in their back pain, their mean kyphotic angle

had improved, and all had achieved a solid fusion. A return to the pre-disease activity level was seen in 43 (75.4%) patients.³ It thus appears to ³⁶⁰ that an instrumented circumferential fusion, whether in one or two stages, is an effective treatment for dorsolumbar tuberculosis. One-stage surgery, however, is advantageous because it has a lower complication rate, shorter hospital stay, shorter operating time and lower intra-operative blood loss.

Complications of spinal surgery

■ Spinal surgery can sometimes be extraordinarily high-risk, so a paper reporting on the mortality and morbidity of major spinal surgery in 942 adults by a group from **Vancouver (Canada)** is most helpful. Data on all patients undergoing surgery over a 12-month period were prospectively collected using a perioperative morbidity abstraction tool at weekly dedicated mortality and morbidity rounds. Before the introduction of this system, and using the hospital inpatient database, the authors' documented perioperative morbidity rate was 23%. Diagnosis, operative data, hospital data, major and minor complications (medical and surgical), and deaths were recorded. The mean age of the patients was 54 years, with 552 men and 390 women. The mean length of hospital stay was 13.5 days. However, ³⁶⁰ was astonished to learn that 822 (87%) patients had at least one documented complication. There were also 14 deaths during the study

period. The rate of intraoperative surgical complications was 10.5% and the incidence of postoperative complications was 73.5%. These are humbling results as it is clear that major spinal surgery in the adult can be associated with a high incidence of intra- and postoperative complications. As the authors conclude, without strict adherence to a prospective data collection system, the true complexity of this surgery may be greatly underestimated.⁴

■ Further stressing the potential complications of spinal surgery is a paper from **Ioannina (Greece)**. Here, the authors looked prospectively at bacterial wound contamination during simple and complex spinal procedures. The study comprised 40 patients divided into two groups. Group A included 20 patients who underwent an open discectomy for a herniated lumbar disc. Group B included 20 patients who underwent a decompression and instrumented fusion for lumbar spinal stenosis. Patients were followed up for a mean of 26.7 months. From these 40 patients, three in Group A and five in Group B had positive intraoperative cultures for bacteria. However, no patient with a positive intraoperative culture developed any clinical signs of superficial or deep post-operative spinal infection and no additional antibiotic treatment was given. There were three patients with negative cultures who later developed a post-operative infection. CRP and ESR levels were significantly elevated in complex procedures (Group B)

than in simple ones (Group A). The results of this study demonstrate that intraoperative contamination can occur during both simple and complex spinal procedures. In the absence of post-operative signs of infection in patients with intraoperative contamination, there is no need to continue antibiotic treatment. Higher levels of inflammatory markers were noted in complex spinal procedures where instrumentation was applied.⁵ Interesting work, thinks 360. There is no doubt that spinal surgery is a risky subspecialty at times.

Fusing the subaxial cervical spine

■ Fusion of the subaxial cervical spine may be undertaken in various ways, although lateral mass fusion and transfacet mass fixation are two. So writes a team from **Istanbul (Turkey)** as part of a literature review. The transfacet method is perhaps less commonly used but is said to give better biomechanical stability. However, what is clear is that the potential advantages of rigid fixation are early mobilisation, faster healing, earlier fusion and better fusion rates. Lateral mass screws provide rigid fixation and high fusion rates in patients with healthy bone. Complications are rare when a patient's anatomy is well documented and a proper surgical technique is used. The authors conclude that a lateral mass fusion provides excellent three-dimensional fixation from C3 to C7, and is also the most common method of posterior fixation currently being performed.⁶

Minimally invasive surgery and osteoporotic vertebral fractures

■ A significant part of some spinal surgeons' workload is the management of the osteoporotic vertebral fracture. There are many ways this can be treated but one is by using minimally invasive surgery. A team from **Bologna (Italy)** has undertaken a retrospective review of 32 patients with a mean age of 64.8 years. The surgeons had undertaken an

innovative technique that employed an expandable system inserted by a percutaneous minimally invasive approach into the vertebral body. All patients were mobilised on the first post-operative day with no external immobilisation and all were discharged from hospital on the second post-operative day. 360 notes that the clinical results appear somewhat sketchy but there is no doubt that this technique has significant potential, particularly as it provides mechanical support for the vertebral plate, partially reduces the fracture, allows immediate mobilisation, while reducing disability and costs.⁷ More to follow perhaps?

Minimally invasive surgery and metastatic disease

■ Minimally invasive spinal surgery is clearly attracting increasing interest although 360 notes that comparisons with open surgery seem few and far between. This also appears to be the view of a team from **Baltimore (USA)** that undertook a systematic review of the role of minimally invasive spinal surgery in the management of metastatic spine disease. The authors state that although increasingly aggressive decompression and resection methods have resulted in improved outcomes for patients with metastatic spine disease, these procedures are not always feasible for patients with comorbidities. For such patients minimally invasive spine surgery may be suitable. The authors undertook a systematic review of the literature with the goal of evaluating the clinical efficacy and safety of minimally invasive spinal surgery for metastatic spine disease. Their results suggested that minimally invasive surgery is a good way of achieving neurological improvement and alleviating pain. In

addition, data suggest that the technique offers decreased blood loss, a reduced operating time, as well as decreased complication rates when compared with open spinal surgery. However, because of the paucity of studies and the low class of available evidence, the ability to draw comprehensive conclusions is limited.⁸ 360 agrees that any future investigations should be conducted by prospectively comparing standard surgery with minimally invasive techniques.

Spinal surgery in the over 65s

■ The frequency of spinal surgical procedures has been increasing in recent years, particularly in patients aged 65 years and over. Unfortunately, yet perhaps understandably, multiple overlapping comorbidities increase the risks of surgery. So writes an author from **New York and Mineola (USA)**. In a review of the literature and reanalysis of data from earlier studies, the paper



focusses on the increasing number of operations offered to these elderly patients. 360 feels that these results do not make happy reading. The researchers showed that the frequency of spinal operations, particularly instrumented fusions, had markedly increased in this elderly age group. Specifically, in a 2010 report, a 28-fold increase in anterior discectomy and fusion was seen. There were higher post-operative complication rates and costs. One study showed a 10% complication rate for decompression alone, a 40% complication rate for decompression/limited fusion and a 56% complication rate for full curve spinal fusions.⁹ Oh dear, thinks 360, when will we ever learn?

Pain relief after spinal surgery – is local anaesthetic

infiltration worthwhile?

■ Pain relief after spinal surgery can be a formidable challenge, so work from **Glostrup (Denmark)** has been helpful. In a systematic review, the authors evaluated double-blind, randomised and controlled trials on the effect of wound infiltration with local anaesthetics compared with the effect of placebo on post-operative pain after surgery to the lumbar spine. They found nine trials, including 12 comparisons; 529 patients met the inclusion criteria. There were ten comparisons that presented data on pain scores but in only three of these (30%) was a reduction in pain score seen when local anaesthetic infiltration was used. In six of the 12 comparisons, local anaesthetic infiltration significantly reduced supplemental opioid consumption after surgery. Interpretation of the results was difficult because of the diversity of the studies. However, only a few trials showed a modest reduction in pain intensity, which was mainly observed immediately after surgery.¹⁰ What to do, asks 360? The jury is clearly still out but perhaps keep going with the infiltration until more definitive results appear?

REFERENCES

1. **Tilbrook HE, Cox H, Hewitt CE, et al.** Yoga for chronic low back pain: a randomized trial. *Ann Intern Med* 2011;155:569-578.
2. **Zhang H, Huang S, Guo H, et al.** A clinical study of internal fixation, debridement and interbody thoracic fusion to treat thoracic tuberculosis via posterior approach only. *Int Orthop* 2011;(Epub ahead of print) PMID: 22202960.
3. **El-Sharkawi MM, Said GZ.** Instrumented circumferential fusion for tuberculosis of the dorso-lumbar spine: a single or double stage procedure? *Int Orthop* 2011;(Epub ahead of print) PMID: 22072401.
4. **Street JT, Lenehan BJ, Dipaola CP, et al.** Morbidity and mortality of major adult spinal surgery: a prospective cohort analysis of 942 consecutive patients. *Spine J* 2011;(Epub ahead of print) PMID: 22209243.
5. **Gelalis ID, Arnaoutoglou CM, Politis AN, et al.** Bacterial wound contamination during simple and complex spinal procedures: a prospective clinical study. *Spine J* 2011;11:1042-1048.
6. **Aydogan M, Enarcan M, Hamzaoglu A,**

Alanay A. Reconstruction of the subaxial cervical spine using lateral mass and facet screw instrumentation. *Spine (Phila Pa 1976)* 2012;(Epub ahead of print) PMID: 22218298.

7. Bròdano GB, Colangeli S, Babbi L, et al. Osteoporotic vertebral fractures: a disabling and

expensive disease of our century: a minimally invasive surgical technique to reduce the pain, the hospitalization, and restore the function. *Eur Rev Med Pharmacol Sci* 2011;15:1473-1477.

8. Molina CA, Gokaslan ZL, Sciubba DM. A systematic review of the current role of minimally

invasive spine surgery in the management of metastatic spine disease. *Int J Surg Oncol* 2011;(Epub ahead of print) PMID: 22312514.

9. Epstein NE. Spine surgery in geriatric patients: sometimes unnecessary, too much, or too little. *Surg Neurol Int* 2011;2:188.

10. Kjaergaard M, Møiniche S, Olsen KS. Wound infiltration with local anesthetics for post-operative pain relief in lumbar spine surgery: a systematic review. *Acta Anaesthesiol Scand* 2012;56:282-290.