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Spine surgery—approach size does matter

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We read the article on minimally invasive spine surgery by Richard Mannion (Spine surgery: Minimally invasive spinal surgery—does size matter? *Nat. Rev. Neurol.* 8, 363–365) with great interest.[1] We appreciate the clear discussion on some aspects of minimally invasive spine surgery (MISS), but feel that there is considerable literature that has not been referenced.

The rationale for adoption of MISS techniques is to lessen muscle injury and improve subsequent rehabilitation. Maintaining the integrity of the multifidus muscle is particularly important. During a midline approach to the spine, if the multifidus is dissected or displaced lateral to the facet (for example when instrumenting the spine with pedicle screws), then the neurovascular supply to the facet joints may be infringed.[2] Although such damage may be mitigated by using a posterolateral approach to the spine,[3] less damage is incurred by inserting tubular retractors between the multifidus fascicles traversing a given segment and those arising from the adjacent spinous process.[2]

Mannion's assessment that minimally invasive discectomy offers few advantages over microdiscectomy is only correct if the comparison is against tubular dilators inserted via the same interlaminar route of access. However, muscle damage and scarring may be minimized by either introducing an endoscope from the midline into the interlaminar space[4] or, more safely, using a transforaminal endoscopic approach through the triangular working zone.[5] In the latter technique, using 6.5 mm endoscopes linked to high-definition video, the surgeon may widen the intervertebral foramen and gain full access to the spinal canal, enabling decompression for stenosis.[6–8] Such procedures are now routinely performed on patients under sedation or local anaesthesia.[9]

Four randomized or quasi-randomized trials[10–13] showed that patients treated endoscopically were more likely to return to work (95% versus 72%), returned earlier (25 days versus 49 days) and had a shorter duration of postoperative disability with less need for analgesia than those treated using conventional open microsurgical techniques. Furthermore, MISS reduced operating times, care costs and scarring.

Our recent review on transforaminal endoscopic spinal surgery (TESS) identified 49 case series of this surgery, including more than 6,000 patients.[14] The outcomes for TESS compare favourably with microdiscectomy. In 2006, a randomized controlled trial was set up to compare the outcomes of TESS and microdiscectomy at the Royal Infirmary of Edinburgh, UK. Analysis of 48 patients with 2-year follow-up revealed similar outcomes in both groups, but inpatient stay was lower in the TESS group, with the majority of patients recruited later in the study treated as day cases (mean hospital stay: TESS 0.8 ± 0.5 days, microdiscectomy 1.8 ± 1.4 days). From our own experience, concerns associated with long learning curves are unfounded, and we find that fewer complications are seen with MISS than with open surgery.[15]

A substantial number of reports now support endoscopic spinal surgery, particularly the use of the transforaminal approach. Evidence shows that outcomes are probably better than those from microdiscectomy, with potential for cost savings in terms of shorter hospital stay, faster return to work, and less need for analgesia.

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Competing interests
J. N. A. Gibson declares associations with the following companies: Biomet Spine, joimax GmbH, Simpirica Spine. S. Merck and M. Iprenburg declare associations with the following company: joimax GmbH. See the article online for full details of the relationships.

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