

AUTHOR'S REPLY

Spine surgery—approach size does matter

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As described in the original News & Views article (Spine surgery: Minimally invasive spinal surgery—does size matter? *Nat. Rev. Neurol.* 8, 363–365)¹ and highlighted in the letter from Gibson and colleagues (Spine surgery—approach size does matter. *Nat. Rev. Neurol.* doi:10.1038/nrneuro.2012.113-c1),² one of the potential advantages of minimally invasive posterior approaches to the thoracolumbar spine comes from a reduction in morbidity to paravertebral muscles in general, and the multifidus muscle in particular. Gibson *et al.* reference a number of studies that demonstrate a reduction in muscle morbidity, and indeed there are many more cadaveric, MRI and clinical studies that purport to show this outcome when comparing minimally invasive and open techniques in the spine.

The purpose of the News & Views article was not to provide a comprehensive review of the clinical and preclinical literature on minimally invasive spine surgery but to point out that, despite the existence of these techniques for over a decade, only a minority of surgeons perform such techniques in routine practice. Of the two most common lumbar spine surgeries in the UK and further afield—namely, microdiscectomy and lumbar canal decompression—the vast

majority are performed through an open approach. Imagine open cholecystectomy or open-knee washout being the preferred surgical technique over their minimally invasive counterparts owing to surgeon preference!

The proponents of minimally invasive spine surgery—of which I am one—have to accept that the wider spine-surgery community is yet to be convinced that minimally invasive approaches offer a marked advantage to their patients. The literature is full of observational studies and small randomized or quasi-randomized studies to which Gibson and colleagues refer, and it is these studies that, thus far, have not convinced this community that minimally invasive approaches should be adopted.

Although Gibson and colleagues present their arguments in favour of the muscle-sparing tubular approach to lumbar discectomy, the truth is that the only large (>150 patients in each arm), multicentre, prospective randomized controlled trial that compared minimally invasive tubular microdiscectomy with open microdiscectomy reported no benefit of the minimally invasive approach.³ In fact, the study suggested that the incidence of postoperative back pain may be higher in this group.

Evidence in favour of minimally invasive spine surgery is accumulating and it is highly likely that the landscape will change in favour of these approaches over the next decade. Accusations from the sceptics that these techniques are a fad or a fashion that will fade with time must be disproven by a scientifically rigorous assessment of both the safety and long-term efficacy of minimally invasive approaches, through large, well designed, prospective trials and meta-analyses. It is our duty as proponents of any new technique to do so.

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Competing interests

The author declares associations with following companies: Medtronic and Pfizer. See the article online for full details of the relationships.

1. Mannion, R. Minimally invasive spinal surgery—does size matter? *Nat. Rev. Neurol.* 8, 363–365 (2012).
2. Gibson, J. N. A., Merck, S. & Ipreburg, M. Spine surgery—approach size does matter. *Nat. Rev. Neurol.* <http://dx.doi.org/10.1038/nrneuro.2012.113-c1>.
3. Arts, M. P. *et al.* Tubular discectomy vs conventional microdiscectomy for sciatica: a randomized controlled trial. *JAMA* 302, 149–158 (2009).