

Reply to Letter to Editor Regarding “Multilevel Anterior Lumbar Interbody Fusion Combined with Posterior Stabilization in Lumbar Disc Disease – Prospective Analysis of Clinical and Functional Outcomes”

Resposta à carta ao editor referente ao artigo “Artrodese lombar intersomática anterior multinível combinada com estabilização posterior em discopatia lombar – Análise clínico-funcional prospectiva”

Diogo Lino Moura^{1,2}  David Lawrence³ Josue Pereira Gabriel³

¹ Orthopedic Service, Hospital and University Center of Coimbra, Coimbra, Portugal

² Fellow at Spine Institute of Ohio, Grant Medical Center, Columbus, Ohio, United States

³ Spine Institute of Ohio, Grant Medical Center, Columbus, Ohio, United States

Address for correspondence Diogo Lino Moura, MD, Rua Fonseca Pinto, Coimbra, 3000-075, Portugal (e-mail: dflmoura@gmail.com).

Rev Bras Ortop 2020;55(5):649–650.

First, I would like to thank you for the letter to the editor regarding the prospective study “Multilevel Anterior Lumbar Interbody Fusion Combined with Posterior Stabilization in Lumbar Disc Disease – Prospective Analysis of Clinical and Functional Outcomes.”¹

One of the points presented in the letter, in which articles on scoliosis rather than degenerative disco-arthropathy are cited, are the risk of spinal manipulation being associated with complications.^{2,3} We agree, and it is clearly documented that spinal manipulation, especially in the correction of deformities with very pronounced curvatures, may be associated with loss of intraoperative potentials and risk of spinal cord injury. However, our work refers to degenerative discoarthropathies without relevant scoliosis, and there is no relevant manipulation of the spine other than elevating the disc spaces by applying the lumbar interbody cages.¹

Given the clinical and imaging results obtained in our sample of unilateral and multilevel anterior lumbar interbody arthrodesis, and the minimal incidence of complications obtained, we found that, even in the significant presence of non-union risk factors and previous lumbar spine surgery, this option guarantees excellent clinical, functional and radiographic results in degenerative discoarthropathy.¹

As stated in the original article, in terms of morbidity, unlike the posterior approaches, which involve extensive dissection of the paravertebral muscles, and the lateral pathway, which involves crossing the psoas muscle, the anterior lumbar spine path does not interfere with any spinal muscle and does not include muscle disinsertions. Thus, in theory, it is an approach with less bleeding, which may allow faster recovery in terms of pain (with less need for painkillers) and functional postoperatively (with a shorter hospital stay) and an earlier more stable spine because it does not interfere with the stabilizing muscles. In addition, the anterior approach does not imply removal of posterior elements of the spine, nor entry into the spinal canal or manipulation of spinal roots to access the disc space, thus decreasing the risk of iatrogenic injury and complications in these important structures, in comparison with the posterior approach.^{4–8}

We also consider that, if we respect the surgical technique of anterior lumbar interbody arthrodesis, as described in the original article, and if it is performed by a trained and experienced surgeon, complications can be almost eliminated, and it is even possible to have a reduction in complications compared to usual posterior approaches. These data are confirmed by several works related to this technique mentioned also in the

received
October 27, 2019
accepted
October 30, 2019

DOI <https://doi.org/10.1055/s-0040-1701284>.
ISSN 0102-3616.

Copyright © 2020 by Sociedade Brasileira de Ortopedia e Traumatologia. Published by Thieme Revinter Publicações Ltda, Rio de Janeiro, Brazil

License terms



original article.^{1,4,5,7,9,10} Above all, we consider, as the original article indicates, that the biomechanical advantages and excellent clinical-functional and radiographic results of this technique justify its more frequent use by spine surgeons, and the risk of some rare complications should not be a reason to avoid it. We emphasize that, as with any other surgical technique, it should naturally be performed by surgeons with training and experience in the approach to obtain the best results and minimize complications.¹¹⁻¹⁴

As indicated in the original article, this technique allows to avoid direct manipulation of the canal or roots, being based primarily on indirect decompression, it has a quite solid stability at the expense of interbody cages with integrated screws, further reinforced by a percutaneous pedicular fixation, as it is also confirmed in the work by Yeager et al cited in the letter to the editor.^{1,15} In short, given our results and their confirmation by several other studies, including the issue of the approach and possible complications, we are convinced and maintain the final conclusion regarding the technique described.¹

Conflict of Interests

The authors have no conflict of interests to declare.

References

- Moura DL, Lawrence D, Gabriel JP. Multilevel Anterior Lumbar Interbody Fusion Combined with Posterior Stabilization in Lumbar Disc Disease-Prospective Analysis of Clinical and Functional Outcomes. *Rev Bras Ortop (Sao Paulo)* 2019;54(02):140-148
- Grabala P, Latalski M. Rare abdominal complications after undergoing posterior spinal fusion for progressed idiopathic scoliosis – case series and a literature review. *Case Study Case Rep* 2019;9(03):30-41
- Elsamadicy AA, Koo AB, Kundishora AJ, et al. Impact of patient and hospital-level risk factors on extended length of stay following spinal fusion for adolescent idiopathic scoliosis. *J Neurosurg Pediatr* 2019;1-7
- Burkus JK, Gornet MF, Schuler TC, Kleeman TJ, Zdeblick TA. Six-year outcomes of anterior lumbar interbody arthrodesis with use of interbody fusion cages and recombinant human bone morphogenetic protein-2. *J Bone Joint Surg Am* 2009;91(05):1181-1189
- Truumees E, Majid K, Brkaric M. Anterior lumbar interbody fusion in the treatment of mechanical low back pain. *Semin Spine Surg* 2008;20(02):113-125
- Mummaneni PV, Haid RW, Rodts GE. Lumbar interbody fusion: state-of-the-art technical advances. Invited submission from the Joint Section Meeting on Disorders of the Spine and Peripheral Nerves, March 2004. *J Neurosurg Spine* 2004;1(01):24-30
- Strube P, Hoff E, Hartwig T, Perka CF, Gross C, Putzier M. Stand-alone anterior versus anteroposterior lumbar interbody single-level fusion after a mean follow-up of 41 months. *J Spinal Disord Tech* 2012;25(07):362-369
- Zhang JD, Poffyn B, Sys G, Uyttendaele D. Are stand-alone cages sufficient for anterior lumbar interbody fusion? *Orthop Surg* 2012;4(01):11-14
- Rao PJ, Loganathan A, Yeung V, Mobbs RJ. Outcomes of anterior lumbar interbody fusion surgery based on indication: a prospective study. *Neurosurgery* 2015;76(01):7-23, discussion 23-24
- Sasso RC, Kitchel SH, Dawson EG. A prospective, randomized controlled clinical trial of anterior lumbar interbody fusion using a titanium cylindrical threaded fusion device. *Spine* 2004;29(02):113-122, discussion 121-122
- Chiriano J, Abou-Zamzam AM Jr, Urayeneza O, Zhang WW, Cheng W. The role of the vascular surgeon in anterior retroperitoneal spine exposure: preservation of open surgical training. *J Vasc Surg* 2009;50(01):148-151
- Mobbs RJ, Phan K, Daly D, Rao PJ, Lennox A. Approach-related complications of anterior lumbar interbody fusion: results of a combined spine and vascular surgical team. *Global Spine J* 2016;6(02):147-154
- Wood KB, Devine J, Fischer D, Dettori JR, Janssen M. Vascular injury in elective anterior lumbosacral surgery. *Spine* 2010;35(9, Suppl):S66-S75
- Quraishi NA, Konig M, Booker SJ, et al. Access related complications in anterior lumbar surgery performed by spinal surgeons. *Eur Spine J* 2013;22(Suppl 1):S16-S20
- Yeager MS, Dupre DA, Cook DJ, Oh MY, Altman DT, Cheng BC. Anterior lumbar interbody fusion with integrated fixation and adjunctive posterior stabilization: A comparative biomechanical analysis. *Clin Biomech (Bristol, Avon)* 2015;30(08):769-774