

Considerations on the treatment of lumbar disc and vertebral disc degeneration

Consideraciones sobre el tratamiento de la degeneración discal y vertebral lumbar

Ernesto Enrique Horta Tamayo^{1,2*} <https://orcid.org/0000-0002-1292-1689>

Luis César Acosta González^{1,3} <https://orcid.org/0000-0002-6463-4243>

¹Universidad de Ciencias Médicas de Holguín. Facultad “Mariana Grajales Coello”. Holguín, Cuba.

²Hôpital de Référence de Maradi. Niger.

³Hospital Clínico Quirúrgico “Lucía Iñiguez Landín”. Holguín. Cuba.

*Autor para la correspondencia: ernestoht@infomed.sld.cu

Recibido: 08/02/2023

Aceptado: 04/03/2023

Mr. Editor:

We have reviewed with great interest the comments made by Dr. Horacio Tabares-Neyra in the Letter to the Editor published in volume 36 number 2 of *Revista Cubana de Ortopedia y Traumatología*.⁽¹⁾ We appreciate his observations and consider it appropriate to present some details.

Treatment of symptomatic lumbar spinal stenosis, with decompression, or

decompression plus fusion, is an old controversy. The World Federation of Neurosurgical Societies Spine Committee prepared in 2020 the recommendations for fusion in degenerative lumbar stenosis, based on the review of 48 studies with level 1 and 2 evidence, that compared both forms of surgical treatment. In this sense, they propose single decompression in patients without clinical data of instability, even in cases with associated stable spondylolisthesis, reserving fusion for those cases with evidence of pre-surgical instability, or with discectomy or facetectomy (more than 50 % of a facet joint, or bilateral) simultaneous to decompression.⁽²⁾

On the other hand, the North American Spine Society practice guidelines recommend that in the absence of associated scoliosis or spondylolisthesis, single decompression is suggested for patients with predominant crural symptoms without instability.⁽³⁾

As is evident, a common denominator of both schemes is the concept of stability, initially handled from the biomechanical point of view by White and Panjabi, and clinically according to Kirkaldy-Wills and Farfan.⁽⁴⁾ However, clinical studies generally evaluate “radiological instability”, a concept that currently does not show consensus.⁽⁵⁾ It is generally defined as a displacement of at least 2-4 mm (3 mm is the most accepted value as a cut-off point) in dynamic view, or in the presence of spondylolisthesis. On occasion, the presence of an “empty” disc (Knutsson’s sign), reactive changes of the vertebral body, narrowing of the interspace,⁽⁴⁾ and angular changes of a segment above 10-15 degrees have been added.⁽⁶⁾

Although various schemes have emerged in recent years, based on experimental (mostly cadaveric) or imaging studies (5) (including patterns of disc degeneration),⁽⁷⁾ to predict post-decompression or iatrogenic instability, its clinical significance seems limited.

In systematic reviews, the incidence of postoperative instability after decompression has been 5.5 %, and the need for a second surgery for this cause in only 1.8 % of cases.⁽⁸⁾ In addition, there is a poor clinical correlation between the referred symptoms and radiological instability.⁽⁴⁾ Even in lumbar stenosis due to degenerative spondylolisthesis, a systematic review, published in 2018 by Dijkerman et al.⁽⁹⁾, which evaluated data from 11 studies and a sample of 3119 patients in total, showed no differences in clinical results, between decompression with or without fusion.

However, despite the fact that the results appear similar, there may be

subgroups of patients who would benefit from the combination of decompression and fusion. Such is the case of foraminal stenosis, whose adequate treatment requires a more extensive resection of the facet joint (more than 50 %), which increases the risk of iatrogenic instability.⁽⁶⁾ It is in the process of identifying these groups of patients where predictive models (including those based on the degree of disc degeneration⁽⁷⁾) could play a role, in addition to those already established.

Only prospective studies, without variability in stability criteria and with standardization of functional disability questionnaires, will be able to issue clear recommendations.⁽¹⁰⁾ Meanwhile, the dilemma in question will continue to be present.

References

1. Tabares H. Degeneración discal y vertebral lumbar: Caracterización y consideraciones sobre su tratamiento. Rev Cub Ortop Traumatol. 2022 [acceso 27/02/2023];36(2). Disponible en: http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S0864-215X2022000200015
2. Sharif S, Shaikh Y, Bajamal AH, Costa F, Zileli M. Fusion surgery for lumbar spinal stenosis: WFNS Spine Committee Recommendations. World Neurosurg X. 2020;7:100077. DOI: <https://doi.org/10.1016/j.wnsx.2020.100077>
3. Peul WC, Moojen WA. Fusion for lumbar spinal stenosis-safeguard or superfluous surgical implant? N Engl J Med. 2016;374(15):1478-9. DOI: <https://doi.org/10.1056/nejme1600955>
4. Mosenthal WP, Dickherber JL, Saitta BH, Lee MJ. Post laminectomy instability. Semin Spine Surg. 2019;31(3):100713. DOI: <https://doi.org/10.1053/j.semss.2019.04.007>
5. Wang Y, Huang K. Research progress of diagnosing methodology for lumbar segmental instability. Medicine (Baltimore). 2022;101(1):e28534. DOI: <https://doi.org/10.1097%2FMD.00000000000028534>
6. Kwon J, Moon SH, Park SY, Park SJ, Park SR, Suk KS, *et al.* Lumbar Spinal Stenosis: Review Update 2022. Asian Spine J. 2022;16(5):789-98. DOI:

<https://doi.org/10.31616%2Fasj.2022.0366>

7. Cornaz F, Widmer J, Farshad-Amacker NA, Spirig JM, Snedeker JG, Farshad M. Intervertebral disc degeneration relates to biomechanical changes of spinal ligaments. *Spine J.* 2021;21(8):1399-407. DOI:

<https://doi.org/10.1016/j.spinee.2021.04.016>

8. Guha D, Heary RF, Shamji MF. Iatrogenic spondylolisthesis following laminectomy for degenerative lumbar stenosis: systematic review and current concepts. *Neurosurg Focus.* 2015;39(4):E9. DOI:

<https://doi.org/10.3171/2015.7.focus15259>

9. Dijkerman ML, Overvest GM, Moojen WA, Vleggeert-Lankamp CLA. Decompression with or without concomitant fusion in lumbar stenosis due to degenerative spondylolisthesis: a systematic review. *Eur Spine J.* 2018;27(7):1629-43. DOI: <https://doi.org/10.1007/s00586-017-5436-5>

10. Tamayo EEH, Acosta LC. Laminectomía convencional en la estenosis del canal lumbar: ¿en el pasado? *Rev Cub Ortop Traumatol.* 2022 [acceso 27/02/2023];36(2). Disponible en:

http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S0864-215X2022000200014

Conflict of interests

The authors declare that there is no conflict of interest.