


Hybrid Anterior Cervical Discectomy and Fusion and Cervical Disc Arthroplasty: An Analysis of Short-Term Complications, Reoperations, and Readmissions

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I read with great interest the paper by Boddapati et al.¹ investigating the incidence of perioperative complications in patients who underwent hybrid surgery (HS) and 2-level anterior cervical discectomy and fusion (ACDF) for multi-level cervical disc disease (MLCDD). This study analyzed a retrospective cohort of prospectively collected data, between 2011 and 2018, by the American College of Surgeons National Surgical Quality Improvement Program of 390 and 27 340 patients treated with HS and 2-level ACDF, respectively. Patients were followed up 30 days after discharge. The authors found no significant difference in complication rate and operative duration between groups. Interestingly, the hospital length of stay was significantly shorter in the HS patients compared to 2-level ACDF ones.

HS integrates ACDF and cervical disk arthroplasty (CDA) at different levels to combine the advantages of both techniques in terms of vertebral stability and spine motion preservation.² Therefore, the leading role of HS is to restore motion and promote fusion where indicated by the extent of the degenerative changes and hypermobility.³ Accordingly, HS should provide a balance between ACDF and CDA in terms of both intraoperative and postoperative results.

The authors' conclusions further support the role of HS as a reliable and safe procedure for the treatment of MLCDD. These results are in accordance with our team's prospective 2-year follow-up study published in 2015.⁴ Contrary to the results achieved by Boddapati et al., we showed that surgery duration was significantly shorter for ACDF than HS and CDA. The visual analog scale, 36-Item Short Form Survey, Japanese Orthopedic Association, and Neck Disability Index scores improved significantly after surgery in all patients without significant differences among the groups. Cervical range of motion increased significantly in CDA and HS groups compared with the ACDF group. The disc height index at the treated level was significantly restored after

surgery in all the groups. Moreover, the HS group returned to work in a shorter period (30 days) compared with both ACDF (62 days) and CDA (65 days) groups. Recently, we analyzed the health-related quality of life (HRQoL) of MLCDD-affected patients for up to five years following HS.⁵ This surgical approach has been shown to provide a long-term postoperative improvement on pain levels and HRQoL, consequently proving to be a safe alternative to other surgical methods.

Further, the authors are to be commended for investigating the short-term morbidity profile of HS. Preserving or restoring the cervical kinematics and improving the quality of life of affected patients are the main targets of this type of surgery.⁶ The introduction of innovative cages in anatomic shapes and considering cervical biomechanics have enhanced the rate of success of the anterior cervical approach for disc disease through a tailored medicine.⁷⁻⁹

Although ACDF is still considered the gold standard to treat MLCDD, hopefully future large randomized controlled trials will fully define the effectiveness of the hybrid construct in this setting.

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References

1. Boddapati V, Lee NJ, Mathew J, et al. Hybrid anterior cervical discectomy and fusion and cervical disc arthroplasty: an analysis of short-term complications, reoperations, and readmissions. *Global Spine J.* 2021;11(8):1183-1189. doi:10.1177/2192568220941453.
2. Grasso G. Role of hybrid construct in cervical spondylosis. *Spine J.* 2018;18(11):2164-2165. doi:10.1016/j.spinee.2018.06.351.
3. Cardoso MJ, Mendelsohn A, Rosner MK. Cervical hybrid arthroplasty with 2 unique fusion techniques. *J Neurosurg Spine.* 2011;15(1):48-54. doi:10.3171/2011.3.SPINE10385.
4. Grasso G. Clinical and radiological features of hybrid surgery in multilevel cervical degenerative disc disease. *Eur Spine J.* 2015; 24(suppl 7):842-848. doi:10.1007/s00586-015-4281-7.
5. Grasso G, Salli M, Torregrossa F. Does hybrid surgery improve quality of life in multilevel cervical degenerative disk disease? Five-year follow-up study. *World Neurosurg.* 2020;140:527-533. doi:10.1016/j.wneu.2020.03.097.
6. Grasso G, Leone L, Torregrossa F. Dysphagia prevention in anterior cervical discectomy surgery: results from a prospective clinical study. *World Neurosurg.* 2019;125:e1176-e1182. doi:10.1016/j.wneu.2019.01.273.
7. Grasso G, Giambartino F, Tomasello G, Iacopino G. Anterior cervical discectomy and fusion with ROI-C peek cage: cervical alignment and patient outcomes. *Eur Spine J.* 2014;23(suppl 6): 650-657. doi:10.1007/s00586-014-3553-y.
8. Canseco JA, Schroeder GD, Patel PD, et al. Regional and experiential differences in surgeon preference for the treatment of cervical facet injuries: a case study survey with the AO spine cervical classification validation group. *Eur Spine J.* 2021;30(2): 517-523. doi:10.1007/s00586-020-06535-z.
9. Grasso G, Landi A. Long-term clinical and radiological outcomes following anterior cervical discectomy and fusion by zero-profile anchored cage. *J Craniovertebr Junction Spine.* 2018;9(2):87-92. doi:10.4103/jcvjs.JCVJS_36_18.