Multiple-Level Anterior cervical discectomy and fusion

- Support or constraint? A comprehensive analysis of postoperative cervical bracing practices: insights from the Italian society of neurosurgery (SINch) survey and a systematic review of the literature
- Comparative analysis of the biomechanics of anterior cervical discectomy and fusion with multiple segmental plates fixation versus single multilevel plate fixation: a finite element study
- No Significant Differences in Postoperative Complications Between Outpatient and Inpatient Single-level or Multiple-level Cervical Disk Replacement for Cervical Radiculopathy
- Clinical and Radiological Comparison of Hybrid Surgery and Fusion Application with Peek Cage in Patients Undergoing Three-Level Anterior Cervical Discectomy
- Anterior Approach to the Cervical Spine: Elegance Lies in Its Simplicity
- Recurrent laryngeal nerve injury following single- and multiple-level anterior cervical discectomy and fusion: a meta-analysis
- Dysphagia rates in single- and multiple-level anterior cervical discectomy and fusion surgery: a meta-analysis
- Safety and Efficacy of the VariLift-C Cervical Standalone Interbody Fusion Device with Emphasis on Multiple-level and Prior Fusion Cases

Anterior cervical discectomy and fusion involving three or more vertebrae (e.g., C4-C6).

Considerations for Multiple-Level ACDF

Increased Surgical Complexity: More levels increase operative time and risk.

Biomechanics:

Altered spinal mechanics post-surgery.

Risk of adjacent segment disease (ASD).

Fusion Rates:

Lower fusion rates compared to single-level ACDF.

Use of adjuncts like bone morphogenetic protein (BMP) may improve outcomes.

Implant Choices:

Plate and cage combinations may vary depending on levels involved.

Custom implants may be used for long constructs.

Retrospective cohort Studies

Rivas Palacios et al. from the Department of Neurosurgery, Misericordia International Clinic, Barranquilla. University El Bosque, Bogota, Colombia, evaluated and compared the anterior cervical discectomy and fusion prognosiss and anterior cervical corpectomy and fusion with iliac crest graft in patients with ≥3 level degenerative cervical myelopathy (DCM).

Methods: Following the STROBE statement, a retrospective enrollment from records of patients who underwent anterior cervical discectomy and fusion (CDF) and/or CCF between June 2015 and June 2022. Linear mixed models were applied to establish the effects of the type of surgery according to the follow-up time (mo).

73 patients met the inclusion criteria, of which 21 (28.8%) were included in the CDF group and 52 (71.2%) in the CCF group. Twenty surgeries were performed at 3 cervical levels and 53 at 4 levels. There was an improvement in the NDI and VAS score, with an Odom mean of 1.63±0.67 at 12 months of follow-up, with no differences between CDF and CCF. In the CDF group, it was reported a greater C2-7 Cobb angle at the third month of follow-up. In the CCF group, the C2-7 Cobb angle had a negative correlation with the NDI and VAS scales, and a positive correlation with the mJOA scale. Intraoperative estimated blood loss (EBL), surgical time, and postoperative hospital stay were shorter in CDF. There were no differences between the 2 groups in medical complications and other radiologic findings.

Surgery for multilevel DCM using an anterior approach with CDF or CCF showed good clinical outcomes without significant differences between the 2 groups, and equivalent results in medical complications and radiologic parameters. The CDF group had better perioperative results and shorter postoperative hospitalization time [1)].

Rivas Palacios et al. contribute valuable insights into the comparison of CDF and CCF for multilevel DCM. While their findings suggest comparable outcomes with better perioperative metrics for CDF, the study's retrospective nature, group size imbalance, and limited generalizability highlight the need for more rigorous, prospective research. Despite these limitations, the study serves as a useful reference for clinicians evaluating surgical options for this complex condition.

1)
Rivas Palacios CA, Barbosa MM, Escobar MA, Garcia-Ballestas E, García C, Mattar SM, Mattar S. Anterior Cervical Discectomy and Fusion Versus Cervical Corpectomy With Iliac Crest Graft and Fusion in Multilevel Degenerative Myelopathy: A Single Center Experience. Clin Spine Surg. 2025 Jan 6. doi: 10.1097/BSD.0000000000001754. Epub ahead of print. PMID: 39760402.