Cervical interbody zero-profile stand-alone cage

- Revision Surgery after Single Level Anterior Cervical Discectomy and Fusion With Plate vs Stand-Alone Cage over 2 to 5 Year Follow-Up
- The Outcomes of Revision Anterior Cervical Decompression and Fusion Using a Stand-Alone Implant Versus Traditional Interbody Polyetheretherketone Cage, Titanium Plate, and Screw Instrumentation
- Zero-Profile Anchored Spacer (ROI-C) in the Treatment of Cervical Adjacent Segment Disease
- Efficacy comparison of zero-profile intervertebral fusion and stand-alone interbody cage combined with cage-titanium plate construct in treatment of two-segment skip cervical spondylosis
- The ROI-C zero-profile anchored spacer for anterior cervical discectomy and fusion: biomechanical profile and clinical outcomes
- A new zero-profile, stand-alone Fidji cervical cage for the treatment of the single and multilevel cervical degenerative disc disease
- Minimally invasive cervical spine surgery
- A comparison of a new zero-profile, stand-alone Fidji cervical cage and anterior cervical plate for single and multilevel ACDF: a minimum 2-year follow-up study

These anteriorly placed devices incorporate holders for screw placement into an interbody cage without the need for a separate anterior plate. Most often used in the cervical spine.

1. PROS:

a) Are often easier to place adjacent to a previously placed anterior plate (because the plate will often cover too much of the VB to provide enough room for another plate on the same VB)

b) Avoids plates that are not parallel to the long axis of the spine

c) Posterior migration of the cage is prevented once the screws are placed

2. CONS: Biomechanical stability is less than that with a plate (4-screw devices are more stable than 3-screw devices)

The Cervical interbody zero-profile stand-alone cage was primarily developed aiming to reduce the morbidity associated with the traditional anterior cervical plate. During the past decade, many

authors have reported the use of Zero-P spacers for anterior cervical discectomy and fusion (ACDF) of one or two segments [1].

Classification

4web medical Stand Alone Cervical Spine Truss System.

DePuy Synthes Zero-P.

Elite Surgical Cervical interbody fusion cage STACC.

Genesys spine AIS-C 3DP Stand-Alone Cervical Cage.

Globus Medical Coalition MIS.

Kyocera Tesera SC Stand-Alone Cervical Interbody System.

Orthofix Lonestar Cervical Stand Alone (CSA) System.

Precision Spine Vault C.

Stryker AVS Anchor-C.

Zimvie ROI-C® Cervical Cage With VerteBRIDGE® Plating Technology.

In a systematic review and meta-analysis, of zero-profile implant versus conventional cage-plate construct in anterior cervical discectomy and fusion for the treatment of single-level degenerative cervical spondylosis the Zero-p group reduced operative time, intraoperative blood loss, and JOA score at follow-up and reduced the incidence of dysphagia and postoperative ASD, but the two devices had the same efficacy in restoring the cervical curvature, preventing the cage subsidence, and in postoperative VAS, NDI, LOS, PSTT, SF-36, fusion rate, implant failure, and hoarseness in single-level ACDF. The use of Zero-p in single-level ACDF was recommended [2]

In a meta-analysis, the application of the ZP device in ACDF had a lower rate of postoperative dysphagia and ASD than the CP construct. Both devices were safe in anterior cervical surgeries, and they had similar efficacy in correcting radiologic outcomes. However, as the last follow-up time increased, the ZP group showed greater changes in cervical alignment. In order to clarify the specific significance of LOC, additional large clinical studies with longer follow-up periods are required [3].

Anterior cervical discectomy and fusion. with either Zero-profile cage or standalone cages turns out to be a dependable strategy for two-level ACDF in terms of clinical results. However, compared with the ST, the ZP cage may achieve a significantly lower loss of disc height [4].

1)
Guo J, Jin W, Shi Y, Guan Z, Wen J, Huang Y, Yu B. Is the Zero-P Spacer Suitable for 3-Level Anterior Cervical Discectomy and Fusion Surgery in Terms of Sagittal Alignment Reconstruction: A Comparison Study with Traditional Plate and Cage System. Brain Sci. 2022 Nov 19;12(11):1583. doi: 10.3390/brainsci12111583. PMID: 36421907; PMCID: PMC9688593.
2)
Kahaer A, Chen R, Maitusong M, Mijiti P, Rexiti P. Zero-profile implant versus conventional cage-plate construct in anterior cervical discectomy and fusion for the treatment of single-level degenerative cervical spondylosis: a systematic review and meta-analysis. J Orthop Surg Res. 2022 Nov 24;17(1):506. doi: 10.1186/s13018-022-03387-9. PMID: 36434694.
3)
Liu Z, Yang Y, Lan J, Xu H, Zhang Z, Miao J. Changes in cervical alignment of Zero-profile device versus conventional cage-plate construct after anterior cervical discectomy and fusion: a meta-analysis. J Orthop Surg Res. 2022 Nov 24;17(1):510. doi: 10.1186/s13018-022-03400-1. PMID: 36434715.
4)
Mu G, Chen H, Fu H, Wang S, Lu H, Yi X, Li C, Yue L, Sun H. Anterior cervical discectomy and fusion with zero-profile versus stand-alone cages for two-level cervical spondylosis: A retrospective cohort study. Front Surg. 2022 Nov 2;9:1002744. doi: 10.3389/fsurg.2022.1002744. PMID: 36406351; PMCID: PMC9666491.