

GENERAL POSTERS

GP57. WOULD BI-CORTICAL SCREWS PLATING SYSTEM IMPROVE THE STABILITY OF LATERAL LUMBAR INTER BODY CAGE

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INTRODUCTION: Low back pain is one of the main reasons for disability, and treatment options range from conservative to instrumented fusion. Lateral approach has advantages like less muscle retraction, decreased injury to the nerve roots while preserving the anterior annulus fibrosis and ALL for enhanced stability. The purpose of this study is to evaluate the stability provided by the Aegis "four screw plate system" with uni-cortical and bi-cortical screws in conjunction with lateral cages as compared to pedicle screw system.

MATERIAL AND METHODS: Seven fresh-frozen ligamentous spines (L1-S1) were used, the cranial (L1) and caudal (S1) ends were potted using bondo. Pure moments (up to 8 Nm) were applied at the cranial end while the caudal end was fixed. Motion (ROM) of all vertebrae with respect to the fixed vertebra was tracked using the Optotrak motion system. All of the spines were tested sequentially under five conditions;

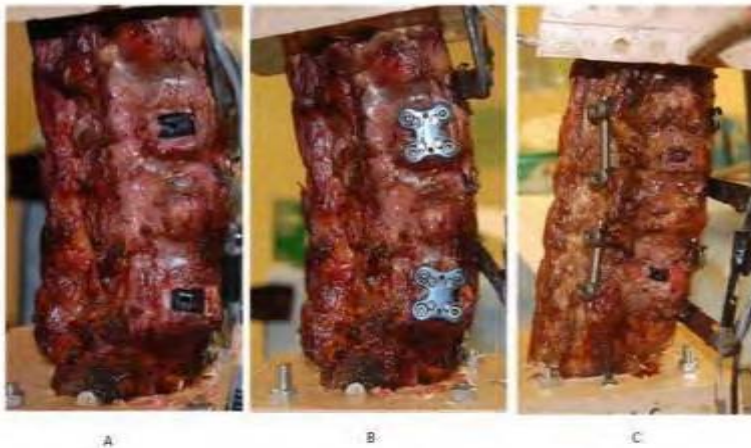


Figure 1. Spine implanted with A) cages, B) APSWC, and C) EPSSWC at L2-L3 and L4-L5

intact, L2-L3 and L4-L5 levels received lateral stand alone cage, thereafter were randomized to Aegis plate with uni-cortical fixation (APSWC), Aegis plate with bicortical fixation, followed by the removal of the Aegis plate and fixation using Expedium pedicle screw and rod system (EPSSWC) (Figure 1).

RESULTS: APSWC using unicortical and bicortical screws provided comparable stabilization in all loading modes as compared to posterior fixation EPSSWC, Figure 2. Stabilization was significant in all cases compared to intact. Statistically, there was no significant difference in motion between unicortical and bicortical screws in lateral fixation. (cont'd)

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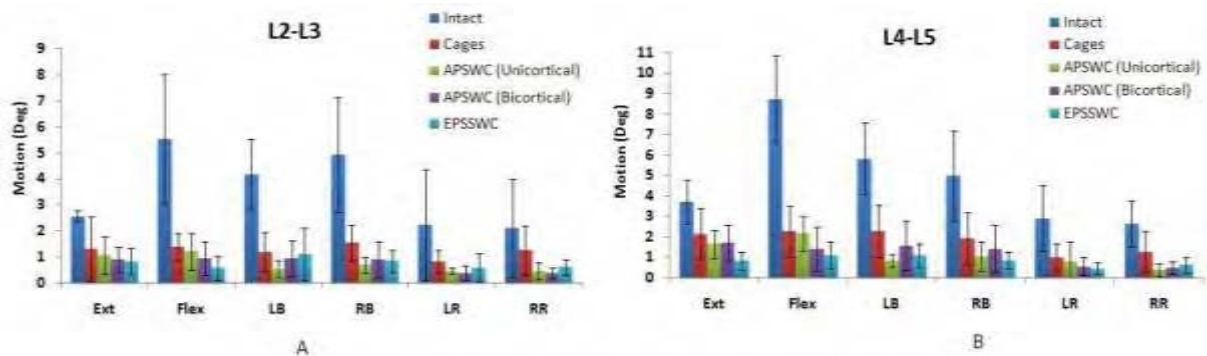


Figure 2. Mean and SD motion of A) L2-L3, and B) L4-L5 at 8 Nm for all the cases tested

DISCUSSION: The biomechanical stability provided by the lateral lumbar interbody fusion with a four screws lateral plating system might be adequate for arthrodesis and should be further clinically investigated as an alternative to supplemental pedicle screw fixation while attaining the benefits of same incision approach with shorter OR time and faster recovery.