Solis Cage (PEEK) for Anterior Cervical Fusion: Preliminary Radiological Results with Emphasis on Fusion and Subsidence


RETROSPECTIVE RADIOLOGICAL review of first 15 consecutive cases of single-level anterior cervical interbody fusion using the PEEK –based Solis cage for cervical spondylotic radiculopathy or myelopathy; anteroposterior and lateral radiographs taken immediately post-surgery and again at 3, 6, 12, and 24 month intervals.

Methods:
Post-surgical follow-up range of 12 to 35 months (average 18 months), Anteroposterior and lateral radiographs obtained immediately post-surgery and at subsequent intervals of 3, 6, 12, and 24 months to measure anterior disc height (ADH), posterior disc height (PDH), interbody height ratio (IBHR), distance between the posterior margin of the cage and the posterior wall of the vertebral body (D-CPW), and interbody angle (IBA). Trabecular continuity, bone bridging across disc space, and sclerosis at the vertebral end plates on both sides were evaluated to assess fusion. Time for fusion, subsidence, segmental sagittal alignment of the operated segment, and presence/absence of migration of the cage were the assessment parameters. Data analyzed using the Mann-Whitney nonparametric test.

Results and Discussion:
Fusion was evident at 3-6 months post-surgery in all cases except one (93.33% fusion rate at 6 months); as of the last follow-up, fusion was maintained in all cases. Significantly greater than their respective preoperative values, immediate postoperative ADH and PDH values measured immediately post op were maintained through follow-up; when the follow-up radiographs were compared with the immediate postoperative X-rays significant subsidence was noted. No migration or extrusion of the cage was found as of last follow up.

Conclusions:
High fusion rate, low subsidence, stability, and facilitation of radiological assessment are attributable to the physical properties of the PEEK material as well as cage design.
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