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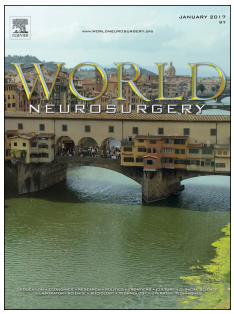

C2 body as the 'keystone' in management of C1-C2-C3 dislocation secondary to congenital absence of posterior element: a case report

Sushanta Sahoo, pravin salunke, Mch Neurosurger

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C2 body as the 'keystone' in management of C1-C2-C3 dislocation secondary to congenital absence of posterior element: a case report

Introduction

Congenital absence of C2 posterior arch with C2-C3 dislocation is a less commonly reported anomaly in craniovertebral junction [1]. C2-3 dislocation in such cases may be associated with C1-C2 dislocation. The surgical procedure to achieve anatomical alignment at both the levels with best possible way to maintain long term biomechanical stability of the construct is desirable. However the management is complicated by the absence of C2 posterior elements that makes inclusion of C2 in the construct difficult. We describe here a case of congenital atlanto axial dislocation (AAD) with C2-3 dislocation and absence of C2 posterior elements. The patient underwent direct posterior reduction and fusion of C1-C2-C3 using C1 lateral mass, C2 pedicle and C3 lateral mass screws. The nuances in these complex craniovertebral anomalies have been discussed.

Case report

. A 37 year male presented with complains of gradually progressive spastic quadriparesis for 5years. On clinical examination the Japanese Orthopedic Association Score (JOAS) was 11. X-ray cervical spine showed C2 –C3 dislocation with absence of C2 posterior arch. In addition there was C1-2 dislocation. CT CVJ revealed poorly formed inferior C2 facets, absence of lamina and spinous process. There was angulation of the C2 and the dens had invaginated within the C1 arch. CT angiogram showed normal course of vertebral artery on both sides. On MRI there was significant cord compression at the level of C2-C3 (Fig.1 A-F).

On traction there was realignment of C1-C2-C3. Occiput to C4 was exposed through posterior midline incision. C1-C2 joints were drilled to make the surfaces raw and packed with bone chips and spacers. The C2 posterior elements were absent and C2 inferior facets were rudimentary. The C3 superior facets were long and appeared to articulate directly with postero-lateral surfaces of C2 body (Fig. 2A & B). The rudimentary C2 inferior facets made it impossible to place a caudally directed C2-C3 transarticular screws. The C2 pedicle was intact and stout. The isthmus