

Craniovertebral Junction Anomalies: The Good, The Bad, The Ugly

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Introduction: CV junction is the most complex area of spinal column. CV junction anomalies are very technically challenging cases. Due to the anatomical structures involved, surgery at the CV junction can result in devastating complications. The spinal surgeons venturing into CV junction surgery require to have a thorough knowledge of anatomy and newer technologies in order to succeed in the surgical plan.

Aims and Objectives: To elucidate various CV Junction anomalies and their prompt management. We have subdivided our study cohort into good, bad and ugly cv junction cases depending upon the level of anatomical and surgical challenges.

Materials and Methods: At our institute (GGMC & Sir JJH , Mumbai) a retrospective study was conducted to study total 162 patients operated for AAD over a period of 12 years (2009 – 2021) with following investigations: Dynamic CT study, CT vertebral angiography, MRI CV junction and 3D bone models.

Results: Neck pain (94%) with motor (75%) and sensory (40%) abnormalities were the common clinical features in our study group. C1 lateral mass and C2 Pedicular/pars screw technique (61%) was the most commonly performed surgical procedure. We have encountered complications like vertebral artery injuries, worsening of myelopathy, implant infections/failures, re explorations and revisions and few deaths too.

Conclusions: Surgery at CV junction poses a physical and mental challenge to the operating surgeon. A thorough knowledge of the anatomy and pathology plays a pivotal role in management of these anomalies. Advanced imaging techniques, use of operating microscope and fluoroscopy allows a safe and uneventful exposure of CV junction. 3D imaging has paved the way to make spinal surgeons more confident in handling this complex area of spine. Finally, one procedure cannot fit all patient, the procedure has to be tailored as per patient's requirement.

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