Craniovertebral Junction Surgery

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Surgery of the craniovertebral junction (CVJ) still remains a challenge for neurosurgeons. Especially true for who encounter a variety of congenital anomalies at the CVJ despite the scarcity of patients who can provide them with surgical experience.

The CVJ is the anatomical zone extending from the occipital bone to the C2, and encloses the foramen magnum (FM) where the brain stem and spinal cord connect to form the cervicomedullary junction. It is also an anatomically complex transitional zone between the skull base and the cervical spine. This anatomical complexity poses a unique surgical challenge.

This difficulty may best be understood by the particular notion of ‘anatomy’ in this context as having three distinct facets: the first is the developmental aspect consisting of the separation and resegmentation of the spinal column at the CVJ, which requires that the age-dependent ossification process of the cartilagenous part of C1 and C2 be understood to enable a correct diagnosis based on computed tomography (CT) and magnetic resonance imaging (MRI)

The craniovertebral junction (CVJ) has attracted more attention in recent years due to the progress in surgical technologies allowing a direct approach to the CVJ in CVJ tumor patients. The CVJ is the site of numerous pathologies, most originating in bone anomalies resulting from abnormal CVJ development.

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