Classification and Management of Odontoid Fractures

An Essay

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أنواع والوسائل المستخدمة لعلاج كسور السنة العظمية في الفقرة العنقية الثانية

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Introduction

Traumatic injuries remain the leading cause of Morbidity and Mortality in children and in adult. Traumatic injuries to the spinal column are common events, with more than 50,000 fractures to the spinal column occurring annually in the United States (268). Cervical spine (C-spine) injuries are the most feared of all spinal injuries because of the potential for significant deleterious sequelae, Correlation is noted between the level of injury and morbidity/mortality i.e., the higher the level of the C-spine injury, the higher the morbidity and mortality. Craniocervical junction injuries are the deadliest , As many as 10% of unconscious patients who present to the emergency department following a motor vehicle accident (MVA) have C-spine pathology. MVAs and falls are responsible for the bulk of C2 fractures. The odontoid process (the dens) of the axis is commonly fractured, accounting for up to 20% of all acute cervical spine fractures (269).

Certain types of odontoid process fractures can lead to gross instability of the atlantoaxial complex and present a significant risk for a potentially catastrophic spinal cord injury (270).

Anderson and D'Alonzo (71): classified fractures of the odontoid process into three types

Type I is a fracture of the apical portion of the odontoid process. These fractures are rare, and whether they contribute to instability of the atlantoaxial complex is controversial. If instability is suspected in a patient with a type I fracture, dynamic imaging may reveal whether there is abnormal motion of the atlantoaxial joint.

Type II fractures involve the neck of the odontoid. These are the most common odontoid fractures and are unstable.

Type III fractures extend into the body of C2. Some type III fractures are comminuted at the base of the dens and are associated with free fracture fragments. type III fractures are typically managed with external immobilization, which is often successful; however, high odontoid process type III fractures are also amenable to surgery.

The clinical manifestations range from asymptomatic to frank paralysis. So the treatment of the a patient with cervical spine injury should be started at the scene of the injury .without exception, all victims of the trauma suspected to have a cervical injury until proven the otherwise(5). The treatment of odontoid process fractures remains controversial and ranges from external orthosis to internal fixation techniques that vary significantly.so well known of the anatomy of craniocervical junction , biomechanical movement of cranicervical junction and types of odontoid fractures which is the management of the odontoid fractures depend on , ranging from external orthosis to internal fixation techniques is so important in early diagnosing and well management of this cases which will decrease the mortality and morbidity of polytraumatised patients(271).

Aim of the Work

This work is aiming to outline and revise the anatomy of the craniocervical junction and Biomechanics of cranicervical junction and to review the classification of the odontoid fracture and recent trends for the management of the odontoid fractures.