

Chapter 6

UPPER CERVICAL TRAUMA

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The most common cause of cervical trauma is traffic accidents. This is followed by high falls, dives and sports accidents. Approximately 25-35% of cervical vertebral fractures in adults are related to the first three vertebrae (1). Although the upper cervical region is the most frequently traumatized region, the comorbid neurological injury rate is 45-60% (2)

OCCIPITAL CONDYL FRACTURES

Occipital condyle fractures are rare fractures that occur after high energy trauma. They are vital fractures due to their relationship with foramen magnum and the risk of instability in the cranioservical region. It usually occurs after axial trauma and is mostly affected by a single condyle. Lower cranial nerve paralysis has also been reported with pain in the cervical region in such patients (3).

Anderson and Montesano have identified three types.

Type 1: Occurs after axial trauma. An uncoupled fracture is observed in the condyle. On the fracture side, the alar ligament may be damaged, but the alar ligament of the opposite side and the toriorial membrane are intact.

Type 2: An extension of the head base fractures. The broken line extends to the foraman magnum. There is no damage to the Tectorail membrane and alar ligament.

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Effendi et al. Recommended external immobilization to patients with type 1 fractures. They reported that 50% of patients with type 2 fractures treated conservatively (10). Levine and Edwards reported that they used non-surgical methods primarily in type 1, type 2 and type 2a fractures (11,12,13.). Verheggen and Jansen recommended that surgery be performed in patients with effendi types 2 and 3 (13).

REFERENCES

1. Anderson LD, D' Alanzo R: Fractures of the odontoid proces of the axis. J Bone joint Surg Am. 1974; 56: 1663-74
2. Çağlar Ş. Aydın Z. Tuna H. Üst servikal bölge travmaları in Aksoy K. (ed.) Temel Nöroşirürji.2005;2:1164-1173
3. Byström O, Jensen TS, and Poulsen FR: Outcome of conservatively treated occipital condylar fractures – A retrospective study.J Craniovertebr Junction Spine. 2017;8(4):322-327. doi: 10.4103/jcvjs.JCVJS_97_17.
4. Anderson PA, Montesano PX: Morphology and treatment of occipital condyle fractures. Spine 1988 ;13:731–736.
5. Dalbayrak S. Yaman O. Erişkin Üst Servikal Travma Yönetimi. Türk Nöroşir Derg 2015; 25: 201-215.
6. Bucholz RW, Burkhead WZ. The pathological anatomy of fatal atlanto-occipital dislocations. J Bone Joint Surg Am.1979;61:248-250.
7. Ehlinger M, Charles YP, Adam P, et al. Survivor of a traumatic atlanto-occipital dislocation. Orthop Traumatol Surg Res: OTSR. 2011;97:335–40. doi: 10.1016/j.otsr.2010.10.001
8. Curtis AD, Tanfir FC, Jürgen H, Trauma Surgery : occipitocervical junction in Benzel EC. (ed) .: Techniques, Complication Avoidance And Management ,Spine Surger.2005;2: 512-525.
9. Panjabi MM, Oda T, Crisco JJ III, Oxland TR, Katz L, Nolte LP: Experimental study of atlas injuries: Part I - Biomechanical analysis of their mechanisms and fracture patterns. Spine. 1991;10: 460–465
10. Effendi B, Roy D, Cornish B, Dussault RG, Laurin CA: Fractures of the ring of the axis, A classification based on the analysis of 131 cases. J Bone Joint Surg Br. 1981; 63: 319-27.
11. Levine AM, Edwards CC: Fractures of the atlas. J Bone Joint Surg Am. 1991; 73: 680–691
12. Levine AM, Edwards CC: The management of traumatic spondylolisthesis of the axis. J Bone Joint Surg Am. 1985; 67:217– 226.
13. Verheggen R, Jansen J: Hangman's fracture: Arguments in favor of surgical therapy for type II and III according to Edwards and Levine. Surg Neurol. 1990;49:253–262.
14. Hadley MN, Browner CM, liu S, Sonntag VK: New Subtype of acute odontoid fractures (type II A). Neurosurgery 22: 67 -71, 1988