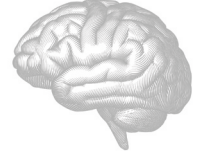


SERVİKAL TRAVMALAR



Alper ALABULUT¹

GİRİŞ

Servikal travmalar, hastanelerin acil servis hizmetlerinde sık karşılaşılan nöroşirürjikal acillerden birisidir. Günümüzde en sık sebebi trafik kazalarıdır (1). Diğer sebepleri arasında yüksekten düşme, spor yaralanmaları ve dalmalar bulunmaktadır (2). Servikal travmaların mortalite ve morbidite oranları yüksek olmakla birlikte gelişen teknoloji ve tıptaki tedavi teknikleri sayesinde günümüzde mortalitede önemli ölçüde azalma gözlenmiştir fakat morbidite oranları halen toplumda iş gücü kaybı ve ekonomik yük oluşmasına devam etmektedir.

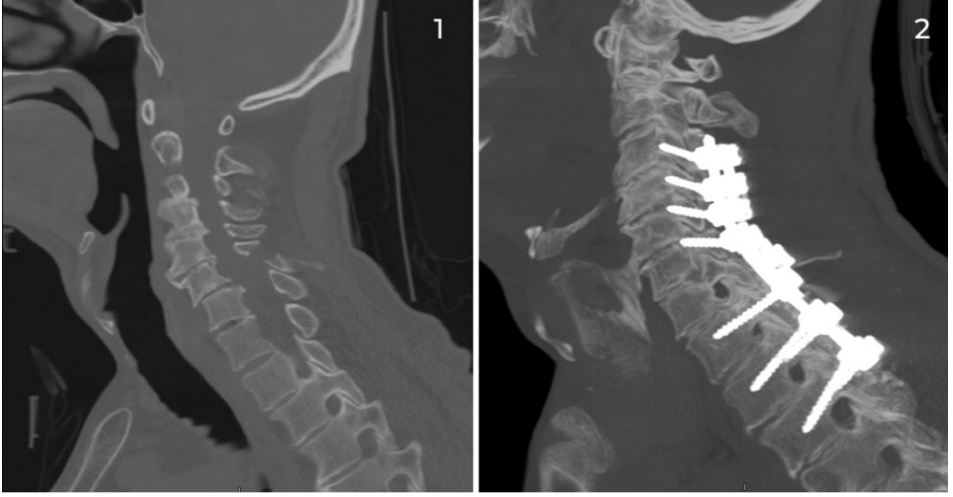
SINIFLAMA

Anatomik varyasyonlar ve kemik – bağ doku yapılarının çeşitliliği sebebiyle travma açısından servikal omurga, üst (oksiput–C2) ve alt (C3–C7) olmak üzere iki farklı başlık altında sınıflandırılmıştır (Tablo 1’de).

TANI

Sebeplerinden ötürü servikal travmaya sahip hastalarda başta kafa travmaları olmak üzere vücudun başka bölgelerinde de travma bulgularına sıklıkla rastlanmaktadır ve multiple vücut travmasına sahip hastalarda servikal omurga yaralanmalarının değerlendirilmesi klinik açıdan zorluk ortaya çıkartabilmektedir (3). Uyanık, asemptomatik hastalarda servikal omurga yaralanmaları genellikle fizik ve nörolojik muayene ile ekarte edilebilir. Belirgin boyun semptom ve bulgula-

¹ Uzm. Dr., VM Medical Park Samsun Hastanesi Beyin ve Sinir Cerrahisi Bölümü
alperalabulut@gmail.com



Şekil 9: Travmatik C6-7 dislokasyonu (1) olan ankilozan spondilit'li hastaya uygulanan posterior uzun segmenter enstrumantasyon cerrahisinin (2) BT görüntüleri

KAYNAKLAR

1. Sonntag, V. K., Hadley, M. N. (1996). Management of upper cervical spinal instability. *Neurosurgery*, 2915-2926.
2. Aslantaş, A., Özkara, A. (2007). Üst servikal bölge travmaları: Sınıflama ve klinik, omurga ve omurilik yaralanmaları. *Türk Nöroşirürji Derneği Spinal ve Periferik Sinir Cerrahisi Grubu Yayınları*, 57-62.
3. Caspar, W., Barbier, D. D., Clara, P. M. (1989). Anterior cervical fusion Caspar plate stabilization for cervical trauma. *Neurosurgery*(25), 491-502.
4. Walters, B. C. (2013). Methodology of the guidelines for the management of acute cervical spine and spinal cord injuries. *Neurosurgery*(72 (Suppl 2)), 17-21.
5. Gallii, R. L., Spaite, D. W., Simmon, R. R. (1989). The cervical spine. *Emergency Orthopedics*, 96-99.
6. Çağlar, Ş., Aydın, Z., Tuna, H., et al. (2005). Üst servikal bölge travmaları. *Temel Nöroşirürji, Cilt 2*, 1164-1173.
7. Ryken, T. C., Hadley, M. N., Walters, B. C., et al. (2013). Radiographic assessment. *Neurosurgery*(72 (Suppl 2)), 54-72.
8. Noble, E. R., Smoker, W. R. (1996). The forgotten condyle: the appearance, morphology, and classification of occipital condyle fractures. *AJNR Am J Neuroradiol*(17:507), 13.
9. Freeman, B. J., Behensky, H. (2005). Bilateral occipital condyle fractures leading to retropharyngeal haematoma and acute respiratory distress. *Injury*(36:207), 12.
10. Anderson, P. A., Montesano, P. X. (1988). Morphology and treatment of occipital condyle fractures. *Spine*(13-731), 6.
11. Goldberg, W., Mueller, C., Panacek, E., et al. (2001). Distribution and patterns of blunt traumatic cervical spine injury. *Ann Emerg Med*(38(1)), 17-21.
12. Theodore, N., Aarabi, B., Sanjay, S. D., et al. (2013). The diagnosis and management of traumatic atlanto-occipital dislocation injuries. *Neurosurgery*(72(Suppl 2)), 114-126.
13. Przybylski, G. J., Clyde, B. L., Fitz, C. R. (1996). Craniocervical junction subarachnoid hemor-

rhage associated with atlanto-occipital dislocation. *Spine*(21(15)), 1761-1768.

14. Gire, J. D., Roberto, R. F., Bobinski, M., et al. (2013). The utility and accuracy of computed tomography in the diagnosis of occipitocervical dissociation. *Spine J.*(13), 510-519.
15. Benzel, E. C. (2005). *Spine surgery 2nd ed.* Philadelphia: Elsevier Churchill Livingstone.
16. Chirossel, J. P., Passagia, J. G., Gay, E., et al. (2000). Management of craniocervical junction dislocation. *Childs Nerv Syst*(16(10-11)), 697-701.
17. White, A. A., Panjabi, M. M. (1990). *Clinical biomechanics of the spine, 2nd ed.* Philadelphia, PA: JB Lippincott.
18. Hadley, M. N., Dickman, C. A., Browner, C. M., et al. (1988). Acute traumatic atlas fractures: management and long term outcome. *Neurosurgery*(23(1)), 31-35.
19. Jefferson, G. (1919). Fracture of the atlas vertebra. Report of four cases, and a review of those previously recorded. *BJS*(7), 407-422.
20. Dickman, C. A., Greene, K. A., Sonntag, V. K. (1996). Injuries involving the transverse atlantal ligament: classification and treatment guidelines based upon experience with 39 injuries. *Neurosurgery*(38(1)), 44-50.
21. Ryken, T. C., Aarabi, B., Dhall, S. S., et al. (2013). Management of isolated fractures of the atlas in adults. *Neurosurgery*(72(Suppl 2)), 127-131.
22. Ochoa, G. (2005). Surgical management of odontoid fractures. *Injury*(36(Suppl 2)), 54-64.
23. Anderson, L. D., D'Alanzo, R. I. (1974). Fractures of odontoid proces of axis. *J Bone Joint Surg*(56 A), 1663-1674.
24. Wang, S., Wang, C., Yan, M., et al. (2013). Novel surgical classification and treatment strategy for atlantoaxial dislocations. *Spine*(38(21)), 1348-1356.
25. Sasso, R. C. (2001). C2 dens fractures: treatment options. *J Spinal Disord*(14(5)), 455-463.
26. Wang, G. J., Mabie, K. N., Whitehill, R., et al. (1984). The nonsurgical management of odontoid fractures in adults. *Spine*(9), 229-230.
27. Grauer, J. N., Shafi, B., Hilibrand, A. S., et al. (2005). Proposal of a modified, treatment- oriented classification of odontoid fractures. *Spine J*(5(2)), 123-129.
28. Lapsiwala, S. B., Anderson, P. A., Oza, A., et al. (2006). Biomechanical comparison of four C1 to C2 rigid fixative techniques: Anterior transarticular, posterior transarticular, C1 to C2 intralaminar screws. *Neurosurgery*(58), 516-521.
29. Subach, B. R., Morone, M. A., Haid, R. W., et al. (1999). Management of acute odontoid fractures with single-screw anterior fixation. *Neurosurgery*(45), 812-820.
30. Greenberg, M. S. (2020). *Handbook of Neurosurgery. Ninth ed.* New York: Thime Med. Publishers, Inc.
31. Wood-Jones, F. (1913). The ideal lesion produced by judicial hanging. *Lancet*(181), 53.
32. Schneider, R. C., Livingston, K. E., Cave, A. J., et al. (1965). "Hangman's fracture" of the cervical spine. *J Neurosurg*(22), 141-154.
33. Levine, A. M., Edwards, C. C. (1985). Management of traumatic spondylolisthesis of the axis. *J Bone Joint Surg Am*(67A), 217-226.
34. Ryken, T. C., Hadley, M. N., Aarabi, B., et al. (2013). Management of isolated fractures of the axis in adults. *Neurosurgery*(72(Suppl 2)), 132-150.
35. German, J. W., Hart, B. L., Benzel, E. C. (2005). Nonoperative management of vertical C2 body fractures. *Neurosurgery*(56(3)), 516-521.
36. Apostolides, P. J., Theodore, N., Karahalios, D. G., et al. (1997). Triple anterior screw fixation of an acute combination atlas-axis fracture. Case report. *J Neurosurg*(87), 96-99.
37. Gleizes, V., Jacquot, F. P., Signoret, F., et al. (2000). Combined injuries in the upper cervical spine: clinical and epidemiological data over a 14 year period. *Eur Spine J*(9), 386-392.
38. Guiot, B., Fessler, R. G. (1999). Complex atlantoaxial fractures. *J Neurosurg*(91), 139-143.
39. Dalbayrak, S., Yaman, O. (2015). Erişkin üst servikal travma yönetimi. *Türk Nöroşir Derg*(25(2)), 201-215.
40. Dickman, C. A., Hadley, M. N., Browner, C., et al. (1989). Neurosurgical management of acu-

- teatlas- axis combination fractures. . A review of 25 cases. *J Neurosurg*(70), 45-49.
41. Hadley, M. N., Browner, C., Sonntag, V. K. (1985). Axis fractures: A comprehensive review of management and treatment in 107 cases. *Neurosurgery*(17), 281-290.
 42. Dağtekin, A., Avcı, E., Hamzaoğlu, V., et al. (2018). Management of occipitocervical junction and upper cervical trauma. *J Craniovertebr Junction Spine*(9(3)), 148-155.
 43. Goel, A., Laheri, V. (1994). Plate and screw fixation for atlanto-axial subluxation. *Acta Neurochir (Wien)*(129), 47-53.
 44. Harms, J., Melcher, R. P. (2001). Posterior C1-C2 fusion with polyaxial screw and rod fixation. *Spine (Phila Pa 1976)*(26), 2467-2471.
 45. Carreon, L. Y., Glassman, S. D., Campbell, M. J. (2004). Pediatric spine fractures: a review of 137 hospital admissions. *J Spinal Disord Tech*(17(6)), 477-482.
 46. Martinez-Lage, J. F., Martinez Perez, M., Fernandez Cornejo, V., et al. (2001). Atlanto-axial rotatory subluxation in children: early management. *Acta Neurochir (Wien)*(143(12)), 1223-1228.
 47. Bailitz, J., Starr, F., Beecroft, M., et al. (2009). CT should replace three-view radiographs as the initial screening test in patients at high, moderate, and low risk for blunt cervical spine injury: A prospective comparison. *J Trauma*(66(6)), 1605-1609.
 48. Dorward, I. G., Wright, N. M. (2011). Seven years of experience with C2 translaminar screw fixation: Clinical series and review of the literature. *Neurosurgery*(68), 1491-1499.
 49. Elliot, R. E., Tanweer, O., Boah, A., et al. (2013). Atlantoaxial fusion with transarticular screws: Meta-analysis and review of the literature. *World Neurosurgery*(80), 627-641.
 50. Goel, A., Desai, K. I., Muzumdar, D. P. (2002). Atlantoaxial fixation using plate and screw method: A report of 160 treated patients. *Neurosurgery*(51), 1351-1357.
 51. Haid, R. W. (2001). C1-C2 transarticular screw fixation: Technical aspects. *Neurosurgery*(49), 71-74.
 52. Hao, D. J., He, B. R., Xu, Z. W., et al. (2011). Comparative results between C1 pedicle screw and C1 lateral mass screw. *Zhonghua Gu Ke Za Zhi*(31), 1297-1303.
 53. Henriques, T., Cunningham, B. W., Olerud, C., et al. (2000). Biomechanical comparison of five different atlantoaxial posterior fixation techniques. *Spine (Phila Pa 1976)*(25), 2877-2883.
 54. Joaquim, A. F., Lawrence, B., Daubs, M., et al. (2011). Evaluation of the subaxial injury classification system. *J Craniovertebr Junction Spine*(2(2)), 67-72.
 55. Patel, A. A., Anderson, P. A., Vaccaro, A. R. (2012). Subaxial cervical injuries: Current concepts in classification and treatment. In: Benzell EC (ed). *The Cervical Spine 5nd ed.*, 665.
 56. Aebi, M. (2010). Surgical treatment of upper, middle and lower cervical injuries and non-unions by anterior procedures. *Eur Spine J*(19 (Suppl 1)), 33-39.
 57. Vaccaro, A. R., Hulbert, R. J., Patel, A. A., et al. (2007). Spine Trauma Study Group: The subaxial cervical spine classification system; a novel approach to recognize of the disco-ligamentous complex. *Spine*(32), 2365-2374.
 58. Theodore, N., Hadley, M. N., Aarabi, B., et al. (2013). Prehospital cervical spinal immobilization after trauma. *Neurosurgery*(72 (Suppl 2)), 22-34.
 59. Gelb, D. E., Aarabi, B., Dhall, S. S., et al. (2013). Treatment of subaxial cervical spinal injuries. *Neurosurgery*(72 (Suppl 2)), 187-194.
 60. Fehlings, M. G., Vaccaro, A., Wilson, J. R., et al. (2012). Early versus delayed decompression for traumatic cervical spinal cord injury: results of the Surgical Timing in Acute Spinal Cord Injurt Study (STASCIS). *PLoS ONE*(7(2)), e32037.