

Atlantoaxial Dislocation after Hyperextension of Neck: A Rare Case Report

D. B. Katikar^I, R. D. Jaykar^{II}, R. R. Ghule^{III*}

^IAssistant Professor and Neurosurgeon, ^{II}Associate Professor, ^{III}Resident, Department of General Surgery
Dr. V. M. Government Medical College, Solapur, Maharashtra, INDIA.

*Corresponding Address:

ghulerahul1234@rediffmail.com

Case Report

Abstract: 24 years female patient had sudden onset quadriparesis without any significant trauma, so the diagnosis of Guillain-Barre syndrome was considered. On repeated questioning, she told that, she was taking clothes off the rope when she suddenly lost her power. After investigation it turned out to be a case of sudden onset quadriparesis secondary to fracture dens due to hyperextension of neck. Patient was operated for surgical decompression and stabilization.

Keywords: Atlanto-axial dislocation, craniovertebral junction.

Introduction

Atlanto-axial dislocation (AAD) is an injury involving a dislocation between the first two cervical vertebrae which may result from the rupturing of the stabilizing ligaments, a fracture in one of the two vertebrae or a combination injury. Atlanto-axial joint (AAJ) is the most complex joint of the body and includes four joints. As this joint is kept stable by only joint capsule and ligaments, it is more prone to dislocation. Ventral translatory atlantoaxial dislocation and rotational atlantooccipital dislocation are two types of dislocation. Acquired AAD commonly develops following acute cervical trauma or due to slow erosion around the joints in diseases like tubercular arthritis, rheumatoid arthritis, ankylosing spondylitis. Congenital atlanto-axial dislocation (CAAD) is the commonest craniovertebral junction (CVJ) anomaly encountered in clinical practice.

Case Report

24 Yrs female came to casualty with complaint of sudden onset of weakness of all four limbs with neck pain, painful & restricted neck movements and urinary incontinence. She had no history of insect or unknown bite, fever, breathlessness, similar episodes in past, no history of tuberculosis in past. Patient got admitted to medicine ICU as case of acute onset quadriparesis. Her provisional diagnosis was Guillain-Barre syndrome. On physical examination, her vitals were stable and power was grade III in both upper limbs and grade II in both lower limb, reflexes were normal and Babinski's sign was positive. Rest of systemic examination was normal. On investigation complete blood count and electrolytes were

within normal limits. On imaging, X ray neck true lateral view was suggestive of widening of the predentate space, disruption in the smooth curve of the imaginary line connecting the spinolaminar white lines of the vertebral bodies, Congenital fusion of bodies of C5, C6, C7. CT SCAN showed fracture of base of odontoid process at its junction with body of axis with mild anterior displacement of fracture fragments.

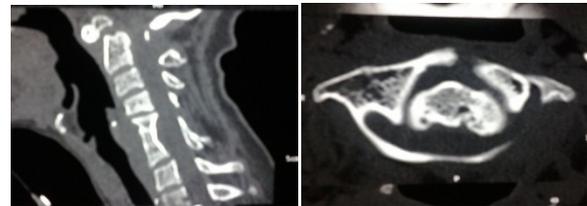


Figure 1: CT scan showing fracture dens with anterior displacement



Figure 2: MRI cervical spine –showing small hematoma of size 8mm thickness seen along side of dens, cervical cord edema (from lower medulla to C3 level) about 4cm.

Patient was operated for surgical decompression and stabilization. Post operatively her power has improved.

Discussion

Congenital atlanto-axial dislocation (CAAD) constitutes an important group of craniovertebral junction (CVJ) anomalies frequently requiring emergency decompression and stabilization of joint to prevent morbidity and mortality resulting from compression of neurovascular structures at CVJ. Although present at birth it often manifests at a later date (usually by the third decade) often following trauma. The injury at times may be minor

and hence forgotten by the patient as well as doctors. When present, the severity of neurological symptoms and its progression have no relation to the degree of injury sustained by the patient. Rupture of the transverse ligament allowing anterior atlanto-axial dislocation without fracture could be diagnosed only indirectly from radiographs showing an atlantodental interval of 5 mm or more. These radiographic measurements may be misleading because they depend on head position; flexion/extension views are not advisable in a patient with an acute neurological injury. This patient had sudden onset quadriplegia without any significant trauma, so the diagnosis of Guillain-Barre syndrome was considered. On repeated questioning, she said, she was taking clothes off the rope when she suddenly lost power in all four limbs and had a fall. High index of suspicion is needed for the diagnosis of acute onset quadriplegia due to cervical trauma.



Figure 3: post operative neck X ray (lat. view) shows significant reduction in prevertebral space.

Conclusion

High index of suspicion is needed for the diagnosis of acute onset quadriplegia due to cervical trauma.

References

1. Clark Cr, Goetz DD, Menezes AH: Arthrodesis of the cervical spine in rheumatoid arthritis. *J Bone Jt Surg* 71(Am) 1998, 381-392.
2. Crockard HA: Midline ventral approach to the craniocervical junction and upper cervical spine, in Sheek HH (Ed): *The Cervical Spine. An Atlas of Surgical Procedures*. JB Lippincott Company Philadelphia 1994 pp 93-112.
3. Ramani PS, Sharma A: A standard protocol for the management of craniocervical junction anomalies in India: experience at L.T.M. Medical College & Hospital, Mumbai, in Jain VK, Behari S (eds): *Craniocervical anomalies: Indian experience*. Sanjay Gandhi post Graduate Institute of medical Sciences, Lucknow, 1997, pp 97-105.
4. Sherk HH, Snyder B: Posterior fusions of the upper cervical spine. Indications, technique and prognosis. *Orthop Clin North Am* 1979; 9: 1091-1099.
5. Shukla R, Nag D, Gupta NN, et al: Congenital atlantoaxial dislocation: A clinical and radiological study. *J Assoc Physicians India* 1984; 32 :697-700.
6. Singh G: Congenital atlanto-axial dislocation. *NeuroIndia*, 1976; 24:69-76.
7. PVS Rana, Mohit P. Shetti, Lekhjung Thapa: Cervical Myelopathy due to Congenital Atlanto-axial Dislocation, *Nepal Journal of Neuroscience*. 2005;2:71-76.
8. Norbert Boos, Rabi Khazim, Robert W. Kerslake, John K. Webb, Hossein Mehdian: Atlanto-Axial Dislocation Without Fracture *J. Bone Joint Surg [Br]* 1997; 79-B: 204-5.