Atlantoaxial dislocations: A retrospective study of 35 cases

Arturo Paz-Esquerre

Follow this and additional works at: https://scholarlycommons.henryford.com/hfhmedjournal

Part of the Life Sciences Commons, Medical Specialties Commons, and the Public Health Commons

Recommended Citation
Available at: https://scholarlycommons.henryford.com/hfhmedjournal/vol25/iss3/13

This Article is brought to you for free and open access by Henry Ford Health System Scholarly Commons. It has been accepted for inclusion in Henry Ford Hospital Medical Journal by an authorized editor of Henry Ford Health System Scholarly Commons.
Atlantoaxial dislocations
A retrospective study of 35 cases

Arturo Paz-Esquerre, MD*

Of 35 patients with C1-C2 dislocations, 37% (13 cases) had a history of rheumatoid arthritis, 11% (4 cases) had trauma as well as rheumatoid arthritis, and 25.7% (9 cases) had severe motor deficit quadriparesis or quadriplegia. One patient, representing 2.8% of the total, had a brain contusion related to closed head trauma.

ATLANTOAXIAL dislocation is of major significance because of the close relationship of this area with the upper spinal cord and medulla. The presence of an atlantoaxial dislocation, regardless of the cause, poses a threat to the normal function of the upper levels of the cord or medulla. Early detection of this important condition cannot be overemphasized.

Dislocation should be considered in any case with injury to the head or the cervical spine, and in any unexplained neurological deterioration, even with a history of remote trauma or in a patient with rheumatoid arthritis. When two conditions are superimposed, this dislocation can be easily overlooked, with devastating results to the patient.

Materials and methods

Thirty-five cases with C1-C2 dislocations were reviewed, covering a period from 1962 to 1976. Twenty-six patients were seen by the department of neurosurgery at Henry Ford Hospital; nine were seen in private practice.

Dr. Robert S. Knighton was the surgeon in charge for most of the cases at Henry Ford Hospital. Care of some of the patients was shared by the orthopedic department.

The age of these patients ranged from three years to 95. Most were in the sixth decade. There were 19 males and 15 females.

* Department of Neurosurgery, Henry Ford Hospital

Address reprint requests to Dr. Paz at Henry Ford Hospital, 2799 West Grand Blvd., Detroit, MI 48202
Atlantoaxial dislocations

The most common complaint was pain in the suboccipital area and the upper cervical regions. A few patients had experienced paresthesias in the extremities. Some had experienced vertigo. Six patients reported a main complaint of quadriaparesis or quadraplegia. Duration of symptoms was from a few hours to five years.

A history of rheumatoid arthritis was elicited in 13 cases. Nineteen cases were of traumatic origin. Both rheumatoid arthritis and trauma were present in four cases. There were two reported diving accidents, one fight, five automobile accidents, one fall, four incidents of brain concussion. There was one instance of severe brain contusion with associated intracranial injury. Associated cervical lesions included one instance of compressed C5 vertebral body, one instance of cervical spondylitis, one instance of dislocation of C3-C4 because of rheumatoid arthritis.

Neurological findings showed that motor deficits were represented by one quadraplegia, one transient quadraplegia, a third quadraplegia that was relieved by skeletal traction, six with marked quadraparesis, and one case of isolated deltoid weakness. The deep tendon reflexes were hyperactive in 10 cases. Associated neurological deficits were present in six cases, including bilateral sixth nerve palsy, brachial plexus injury, and diplopia.

Radiologic films showed odontoid fractures in seven cases. Two cases had fractures of the body of C2, one with comminuted fracture and one upper part of C2. A congenital abnormality of the odontoid was present in two cases, with failure of fusion of the base with the upper segment.

The presence of rheumatoid odontoid with erosive changes was seen in seven cases. The transverse atlanto ligament was found incompetent in 25 cases. Of these, nine were felt to be of traumatic origin, 14 were related to rheumatoid arthritis, one was related to Paget’s disease, another one was related to a viral infection in the parotid. Pseudobasilar invagination was seen in three cases with rheumatoid arthritis. The displacement between the anterior arch of the atlas and odontoid varied from a few millimeters to 20 millimeters. The spinal canal varied in its sagittal diameter from no reduction to six millimeters.

Of the patients treated, 18 had posterior cervical fusion with iliac bone graft between the first two or three segments, along with internal fixation with wires. The patients that were operated for myelopathy showed cessation of progression or became better. The pain subsided in the suboccipital region.

One patient died from pulmonary embolism while in a Minerva jacket in the postoperative period. Most of the patients had Minerva jackets, halo, or four-poster brace following the operation. Five children under 11 years of age were treated conservatively with braces with good results.

There were 12 unoperated patients. Eight were rheumatoid arthritis cases, one case showing definite progressive myelopathy as the dislocation worsened in a few years' span. Three were trauma cases, one of whom died three days later in tons as a result of the injury. One had a fractured odontoid and was treated conservatively.

Discussion and summary

The morbidity and mortality of this condition can be a result of the initial injury or a result of a chronic delayed myelopathy. In general, adults should be treated with a posterior cervical fusion and children should be treated conservatively. Patients with rheumatoid arthritis should be followed for their neurological status, although most of these cases do not give rise to neurological deficits. Those who do deteriorate deserve surgery for restabilization of the upper cervical segments.
Paz-Esquerre

References


