

An Unusual Cause of Torticollis: Atlantoaxial Rotatory Subluxation

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Abstract

Traumatic rotatory subluxation of the atlantoaxial joint is a rare cause of torticollis. It occurs almost exclusively during childhood when the ligaments stabilizing this joint are more malleable. We present the case of a three-year-old female who was brought to the emergency department by her mother as she was complaining of a twisted painful neck. Her symptoms started three days ago after a trivial trauma. A computerized tomography scan of the cervical spine showed persistent asymmetry of the distance between the odontoid process and the lateral masses of the atlas suggestive of rotatory subluxation type I. A soft neck collar was applied, and the neurosurgery team admitted the patient for observation and pain management. She made a spontaneous recovery and was discharged three days later with a follow-up appointment. This child's case highlights the importance of being vigilant of rare causes of torticollis in children.

Keywords: Rotatory Subluxation; Atlantoaxial Joint; Neck Trauma; Torticollis

Introduction

Rotary movements of the neck are mostly dependent on the pivot joint between the first two vertebrae, which is mainly stabilized by the transverse and alar ligaments, and the facet joints capsules. Instability may occur as a result of either a bony or a ligamentous pathology that disrupts this complex articulation. Traumatic rotatory subluxation, which is a form of instability in this joint, is a relatively rare cause of pediatric torticollis [1,2].

Case Report

A three-year-old female was brought to the emergency department complaining of a twisted painful neck for three days after she jumped from a one-meter-high bed and landed on her feet. The pain was of a gradual onset and mild to moderate degree. It was exacerbated by movement and mitigated by immobilization. There was no history of fever, headache, altered mental status, nausea or vomiting. Her review of systems was unremarkable except for the presenting complaint. The patient didn't have a significant past medical history.

Her vitals upon arrival were as follows: Temperature (tympanic) 36.7 Celsius, pulse 155 beats per minute, respiratory rate 25 per minute, oxygen saturation 99% on room air. Her physical exam was unremarkable except for a reduced range of motion in the neck.

A computed tomography scan of the cervical spine without contrast showed asymmetry of the distance between the odontoid process and the lateral masses of the atlas suggestive of rotatory subluxation type 1. There was no evidence of fracture or dislocation. Her blood tests were unremarkable except for mild microcytic hypochromic anemia.



Figure 1: Computed tomography scan of cervical spine showing asymmetry of the distance between the odontoid process and the lateral masses of C1.

A soft neck collar was applied, and the child received oral analgesia. The neurosurgery team reviewed the patient and admitted her for further evaluation and management. She continued to receive regular simple analgesia during her stay in the hospital. As her symptoms improved, no more imaging studies were warranted, and she was discharged three days later with an appointment for follow-up in the neurosurgery clinic. After one week, she was found to have no more neck pain or stiffness, so the parents were reassured, and no more follow-up appointments were given.

Discussion

Torticollis describes a rotation of the head towards either side of the body with the neck tilted laterally in the other direction. It can be either a sign or a presenting complaint of various pathologies (congenital or acquired). Traumatic rotatory subluxation of the atlantoaxial joint is a relatively rare cause of this condition, which occurs mostly during childhood when the ligaments and the facet joints capsules are more elastic, and the paraspinal muscles are less developed [3].

A delay in presentation is not uncommon as the condition is sometimes confused with a pure muscle strain, especially when the causative incident is a minor trauma like in our case. It has been reported that some patients presented about five months after the onset of symptoms [3].

Rotatory subluxation of the atlantoaxial joint occurs when the joint gets fixed in malrotation. This malrotation can be classified into four categories based on the displacement degree. A simple rotatory displacement is categorized as type I. An anteroposterior displacement in the range between three to five 5 millimeters is considered type II, while an anteroposterior displacement of more than 5 millimeters is considered type III. Type IV refers to a posterior displacement [1,4].

While plain radiographs may be considered initially in the evaluation of this condition, a dynamic or three-dimensional computed tomography scan is the best diagnostic modality as it helps to make an accurate classification of instability. Magnetic resonance imaging, on the other hand, is helpful in the evaluation of the ligaments and the spinal cord [2,3,5].

Management is mostly conservative utilizing analgesics and either a hard or a soft cervical collar. Most cases resolve spontaneously, but in some cases, more advanced measures such as traction with halo immobilization or internal fixation may be required [3,5].

Conclusion

Since a delay in the diagnosis may complicate the clinical course, atlantoaxial subluxation shall always be considered in the differential diagnosis of pediatric torticollis, and a computed tomography scan (preferably a dynamic one) may be invaluable in the work-up. Management is mostly conservative with analgesics and a soft collar, while surgical interventions may be considered when non-surgical measures fail.

Conflict of Interest

The authors declare no conflict of interests.

Bibliography

1. Escobar LEM., *et al.* "Traumatic atlantoaxial rotatory subluxation in an adolescent: a case report". *Journal of Medical Case Reports* 6 (2012): 27.
2. Hawi N., *et al.* "Case Report of a Traumatic Atlantoaxial Rotatory Subluxation with Bilateral Locked Cervical Facets: Management, Treatment, and Outcome". *Case Reports in Orthopedics* (2016): 7308653.
3. Powell EC., *et al.* "Atlantoaxial Rotatory Subluxation in Children". *Pediatric Emergency Care* 33.2 (2017): 86-91.
4. Bagouri E., *et al.* "Atlantoaxial rotatory subluxation as a cause of torticollis in a 5-year-old girl". *BMJ Case Reports* (2014): bcr2013202990.
5. Crook TB and Eynon CA. "Traumatic atlantoaxial rotatory subluxation". *Emergency Medicine Journal* 22.9 (2005): 671-672.

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