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Image Report

Pharyngeal perforation: A rare complication of occipitocervical injury

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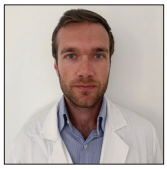

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ABSTRACT

Background: Atlantoaxial dislocation is a rare injury following high-energy trauma. We report an undescribed complication of atlantoaxial dislocation.

Case Description: A 75-year-old man presented with atlantoaxial dislocation and Jefferson C1 fracture after a high-energy trauma. Occipitoaxial stabilizations were performed the day after. A nasopharyngeal fistula was identified at day 5 causing a persistent epistaxis.

Conclusion: Nasopharyngeal fistulization of C1 bony fragment is a rare complication of complex occipitocervical injury. Combined treatment with ENT surgeon should be considered.

Keywords: Atlantoaxial dislocation, Craniocervical junction, Craniocervical stabilization, Jefferson fracture, Rhinopharyngeal fistulizations

IMAGE REPORT

A 75-year-old man was the victim of a high-energy road accident. When emergency medical services arrived, he was in cardiac arrest (CA) and presented bilateral nonreactive mydriatic pupils. A rigid cervical collar was applied, and cardiopulmonary resuscitation (CPR) was initiated. CPR was discontinued after 12 min when spontaneous circulation returned. A Glasgow Coma Scale of 3 was described. The patient was intubated, fully sedated on site and airlifted to our emergency room.

When we performed the neurological evaluation, he presented with symmetric miotic nonreactive pupils and a preserved oculocardiac reflex and a polytrauma CT scan showed a Jefferson fracture of C1 with anterior atlantoaxial dislocation [Figure 1a and b]. Cerebrocervical magnetic resonance imaging (MRI) confirmed the atlantoaxial dislocation with a complete bilateral lesion of the alar ligaments and articular capsule. Avulsion of the left periosteal insertion of the transverse ligament (Dickman's *et al.*, Type Ib injury)[1] was reported.

A prevertebral hematoma from C2 to C5 was also present, with a suspicion of pharyngeal perforation from the anteriorly displaced C1 fragment [Figure 1c]. Otorhinolaryngologist (ENT) endoscopic evaluation showed a mucosal bulging over the bony fragment without any visible perforation.

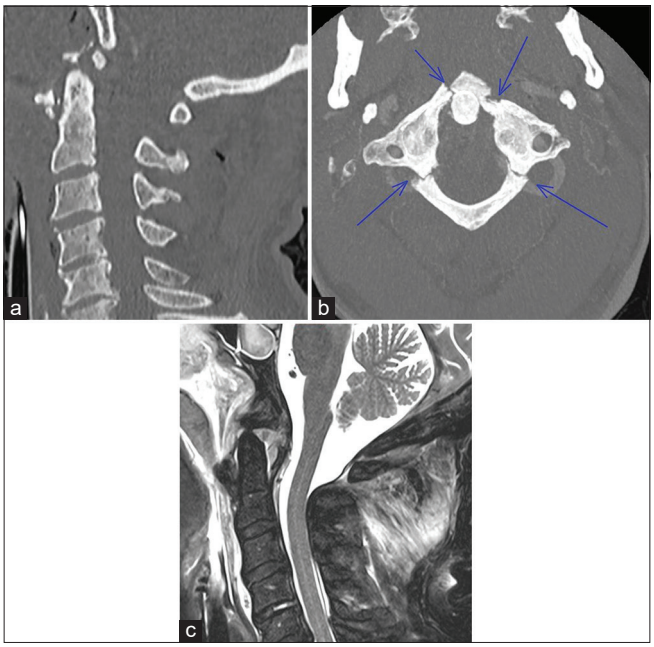

Figure 1: (a) Sagittal bone CT sequence showing anterior dislocation of C2, with a basion density interval of 16 mm and multifragmented fracture of the anterior C1 arc. (b) Axial bone CT sequence showing a Jefferson fracture of C1: bilateral fracture of the anterior and posterior arcs pointed by the blue arrows. (c) Sagittal T2-weighted MRI sequence showing the anterior dislocation of C2 associated with prevertebral hematoma and suspicion of pharyngeal perforation from the anterior arc fragments.

Considering the fracture's high instability, the absence of major cerebral lesions at cerebral MRI performed 4 h after the trauma and the presence of brainstem reflexes, occipitoaxial stabilization with an occipital plate, and C2 pars screws was performed the day after the trauma. A postoperative CT scan confirmed a correct placement of the pars screws with no major displacement of the C1 bony fragment [Figure 2].

On postoperative day 5, a second ENT evaluation was performed following an episode of massive epistaxis. A nasopharyngeal fistula of the thin mucosal layer identified preoperatively, with exposure of a bony fragment of C1 [Figure 3]. A therapeutic abstention was decided because of his unfavorable neurological evolution.

Occipitocervical bony and ligamentous lesions are rare fatal injuries following high-energy trauma.[2,4] They are frequently associated with severe neurological impairment and CA. Rhinopharyngeal fistulization of the anterior osteosynthesis material/odontoid screws after surgery is described in the literature,[3,5] while fistulization secondary to displaced bony fragments has not been previously described. Treatment should include fixation of the occipitocervical instability and surgical repair of the pharyngeal defect using a transoral approach, prophylactic antibiotics, and nasogastric tube feeding.

Figure 2: Sagittal bone CT sequence showing postoperative craniocervical junction.

Figure 3: Pharyngeal inspection with a curved laryngoscope showing a perforation in the posterior wall of the pharynx caused by the anteriorly displaced fragment of the C1 fracture.

Declaration of patient consent

Patient's consent not required as patients identity is not disclosed or compromised.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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