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Traumatic Posterior Dislocation of Atlanto-axial Joint with Anterior Arch Fracture in the Patient of Atlanto-occipital Assimilation

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Background: Traumatic atlanto-axial dislocation (AAD) is relatively uncommon and can pose life-threatening risks.

Research question: In this case, we describe a patient with a combination of AAD, an anterior arch fracture of the atlas, and a rare congenital anomaly known as atlanto-occipital assimilation (AOA).

Design: A case report.

Methods: A 70-year-old man presented with posterior neck pain and right-sided torticollis, following an accident that collision with a car while riding an electric scooter. Radiographic findings confirmed posterior AAD with anterior arch fracture of C1, in the inherent setting of AOA. Patient showed no neurologic deficit, so a closed reduction technique using Gardner-Wells tongs was attempted in an awakened state, and successful reduction was confirmed without neurologic deficit.

Results: After about 3 months of rigid brace application, head and neck motion was allowed, and no recurrence of dislocation or cervical pain occurred during the follow-up period of about 1 year.

Discussion: Because the AAD was accompanied by anterior arch fracture of atlas, transverse atlantar ligament remained intact. So nonoperative management after manual reduction was possible. The presence of a C1 anterior arch fracture observed in our case can be regarded as an indicator predicting the success of closed reduction of AAD. Our case highlighted the successful nonoperative management of traumatic posterior AAD with an accompanying anterior arch fracture of atlas in a peculiar inherent combination of AOA through the closed reduction technique and rigid cervical brace application.

Fig. 1

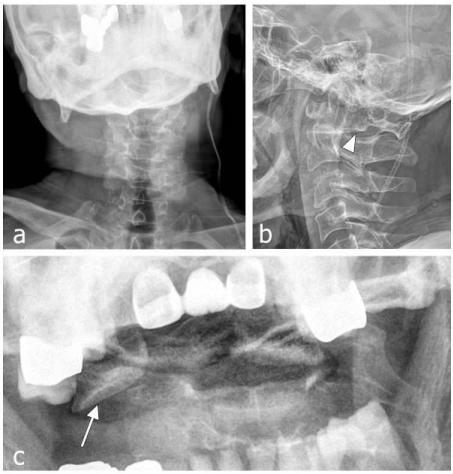

Fig. 2

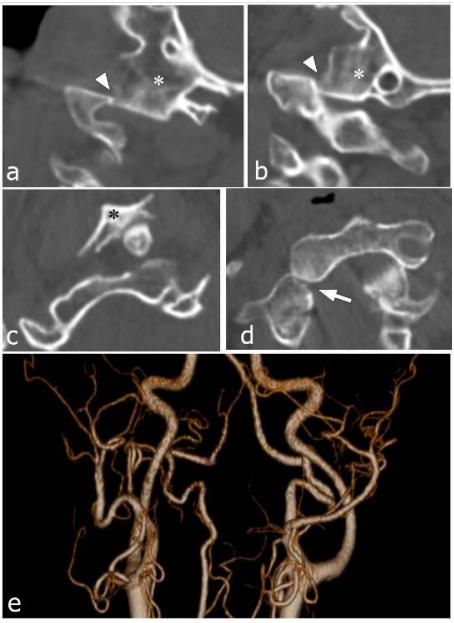

Fig. 3