Unstable Os Odontoideum

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A 24-year-old male Marine presented to a direct-access physical therapy clinic with a chief complaint of bilateral hand paresthesia secondary to a parachuting accident when his neck was forced into lateral flexion. He was cleared by an on-site medic the day of the injury, and presented to physical therapy 3 months later without further medical evaluation. Physical examination revealed full, pain-free cervical range of motion, hyperreflexia throughout the right upper extremity, and a positive Hoffmann sign in the right hand. End-range cervical flexion provoked bilateral hand paresthesia, which eased within seconds of changing position. All other exam findings were benign.

Due to the positive neurologic findings and history of trauma, the physical therapist ordered cervical spine imaging. Radiographs and computed tomography were performed. The odontoid was not adequately visualized on the radiographs (FIGURE 1), but computed tomography revealed an os odontoideum (FIGURE 2). The patient was referred to an orthopaedic spine surgeon, and magnetic resonance imaging revealed myelopathy with possible myelomalacia at the C1-2 level (FIGURE 3). He underwent C1-2 posterior fusion 1 month later. Following 4 months of rehabilitation, he was asymptomatic and returned to unrestricted military duties.

Os odontoideum is a condition in which the odontoid process is an osicle, detached from the body of the axis, which can lead to instability of the atlantoaxial joint. It is usually an incidental finding but has been associated with severe spinal cord and vertebral artery injury. This case also exemplifies the standard of care for utilizing advanced imaging in patients with a history of trauma and neurologic changes, even if the trauma was remote and even in the presence of optimal radiographic anatomy.

References

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