

Occipito-thoracic Fusion in Incidental Dystrophic Os Odontoideum in a patient suspected with Osteogenesis Imperfecta: A Case Report

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Abstract

Introduction: Os odontoideum is a rare lesion of the axis. Described as an ossicle, consisting of smooth and separate caudal portions of the odontoid process wherein its etiology has remained controversial. Os odontoideum complicating a possible osteogenesis imperfecta has not been reported before in the literature. **Methods:** We report the case of a 14-yr male patient presented with progressive weakness of both lower and upper extremities after a head trauma 10 months prior to admission, which presented as transient quadraparesis. **Results:** Magnetic resonance imaging of cervical spine showing cervicomedullary junction compression. Patient underwent surgical intervention and 3 months post operation, patient was reported to have steady gait and muscle grading of 5/5 on all extremities. **Conclusion:** Surgical fixation and fusion in patients with instability may prevent catastrophic neurologic insult after minor trauma in the future.

Keywords: Dystrophic Os Odontoideum, Osteogenesis imperfect, Occipito-thoracic fusion, Suboccipital craniectomy

INTRODUCTION

Os odontoideum is a rare lesion of the axis described in 1886 by Giacomini as an ossicle, consisting of smooth and separate caudal portions of the odontoid process wherein its etiology has remained controversial.^{1,2} To the best of our knowledge, Os odontoideum complicating a possible osteogenesis imperfecta³⁻⁵ has not been reported before in the literature.

CASE REPORT

We report a case of a 14-year-old male presented with progressive weakness of both lower and upper extremities. He reported an unsteady gait requiring assistance associated with lack of fine motor coordination in his hands. He had a trauma of his head and neck 10 months prior to admission resulting to a transient

quadriparesis. Physical examination revealed limited cervical spine flexion and extension. On neurological examination, his gait was wide-based, unsteady and spastic. Both lower and upper extremities had a muscle weakness grade 3 of 5. Sensory deficits are present in both upper and lower extremities. He had a symmetrical hyperreflexia, as well as positive Hoffman sign, Babinski sign and clonus bilaterally. Radiographs of the cervical spine showed atlantoaxial instability from a dystrophic Os odontoideum with associated cervicomedullary compression (Figure 1).

CT scan studies demonstrated a displaced ossicle located near the basion. The bodies of C3 to T1 are deformed with areas of nonfusion (Figure 2).

The patient underwent suboccipital craniectomy, C1 laminectomy, occipito-thoracic fusion using rods and screws (Figure 3 and 4). At the time of the latest follow-up at 3 months, his unsteady gait had fully recovered and the muscle grade has improved to 5 of 5.

DISCUSSION

Os odontoideum is rare and an important cervical spine abnormality that can be associated with significant

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Figure 1: Noncontrast computed tomography of cervical spine demonstrates the ossicle displaced near the basion and deformed bodies of C3 to T1



Figure 2: Magnetic resonance imaging of cervical spine showing cervicomedullary junction compression

spinal cord injury and should be considered when a young patient has symptoms consistent with upper cervical spine compression.^{6,7} Surgical fixation and fusion in patients with instability may prevent catastrophic neurologic insult after minor trauma in the future.

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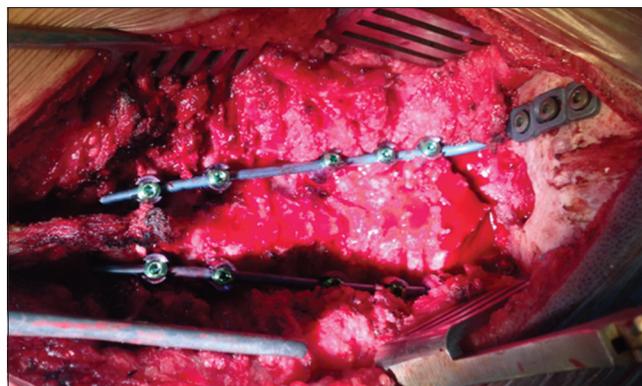


Figure 3: Intraoperative Occipito-thoracic fixation and fusion using rods and screws

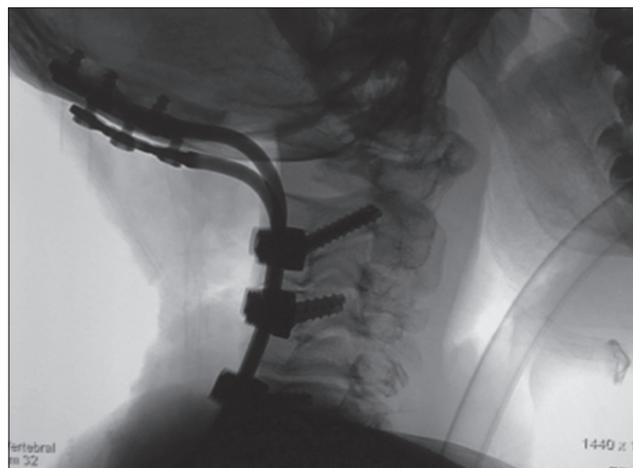


Figure 4: Postoperative lateral radiograph showing Occipito-thoracic fixation and fusion using rods and screws

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