Abstracts of the WCMSR

01. ANTERIOR ODONTOID SCREW FIXATION IN CONGENITAL OS ODONTOIDEUM: A TWO-CASE SERIES WITH POST-TRAUMATIC SYMPTOMATOLOGY

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BACKGROUND: Os odontoideum (OO) is a rare craniovertebral junction defect where the odontoid process is a distinct ossicle, not attached to the C2 body. It may cause atlantoaxial instability, and it presents a risk of spinal cord injury despite minor trauma. Etiology is controversial, and congenital and post-traumatic hypotheses have been put forward. Arthrodesis of the posterior C1-C2 has traditionally been used as the main type of standard surgical management. Nonetheless, this method comes at the expense of cervical axial rotation of about 50%. Anterior odontoid screw fixation (AOSF) is a motion-preserving fixation type in anatomically appropriate patients.

THE CASE: We report two instances of congenital OO treated with AOSF at our hospital. The initial patient was a 28-year-old man presenting with neck pain and limited cervical range of movement following minor injury. The second was a 54-year-old female who presented with chronic neck pain and less neck movement not due to a recent injury. Both patients did not experience neurological impairment. Both cases were confirmed to have congenital OO with reducible atlantoaxial instability. Both patients met the anatomical requirements of anterior fixation such as a sufficiently large ossicle to fit a screw, presence of an intact transverse ligament, and a large enough C2 body size. Each of them underwent AOSF when a 4.5 mm cannulated cortical screw was inserted under continuous biplanar fluoroscopic guidance. The screw positioning intraoperative was verified in AP, lateral, and open-mouth images. In both cases, the postoperative cervical collar immobilization was used. The recovery of both patients was without neurological deficit.

CONCLUSION: AOSF is a valid motion-preserving surgical procedure to selected patients with congenital OO and post-traumatic symptomatology. When the atlantoaxial alignment is reducible and the anatomy is favorable, it does not cause permanent rotational loss that is associated with an atlantoaxial arthrodesis. These cases add to a small but increasing literature which supports anterior fixation in this uncommon condition. Prospective studies should be extended to larger sizes in order to determine long-term outcomes.

Key Words: Case Reports, Axis, Cervical Vertebra, Congenital.

Figure or Table: None.