

Were There Relationship between Ankylosis in the Occipito-Cervical-Junction, Thoracic Kyphosis, and C2 High Riding VA in Patients with Ankylosing Spondylitis?

Background:

Ankylosing spondylitis (AS) affects the axial skeleton and leads to progressive ankylosis of all spinal segments. Even though commonly observed, the relationship between progress of the ankylosis in the upper cervical spine, thoracic kyphosis, and HRVA is not well-documented. The aim of this study is to describe radiographical features of the relationship between hyper thoracic kyphosis, HRVA, and the occipito-cervical (OC) junction in AS patients using a novel measure, the X-angle.

Research Question :

Were There Relationship between Ankylosis in the Occipito-Cervical-Junction, Thoracic Kyphosis, and C2 High Riding VA in Patients with Ankylosing Spondylitis?

Design :

Retrospective study

Material and Methods:

Patients with AS treated in a single institution for a cervical spinal fracture were followed prospectively. The integrity of the C0-C1-C2 joints and HRVA was determined and classified into fused & non-fused joints and HRVA+ & HRVA- groups. By determining the angle between C0-C1 and C1-C2 joints in the coronal view of the CT-scan (X-angle) the progressive degeneration of these joints was described.

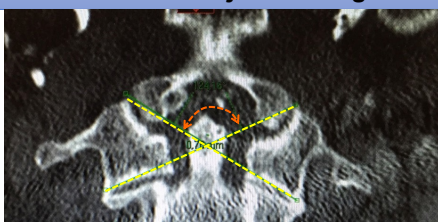
Results:

86 patients with surgically treated cervical fracture related to AS had a complete facet joint ankylosis between C3 and T1 due to their pathology. The most common level of fracture was at C6. The patients with HRVA were older than without it. The patients with C1-2 fused joint had more HRVA. The C0-C1 fused joint patients had hyper thoracic kyphosis compared with non fused group. The X-angle was 125 in not fused patients and 136 in fused patients. OC ankylosis was not related to the level of fracture.

Conclusions:

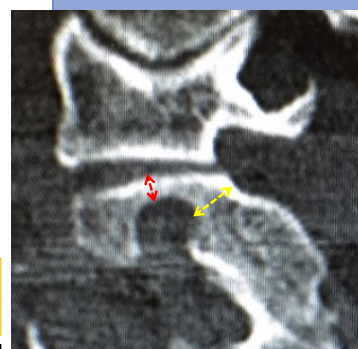
Hyper thoracic kyphosis was highly related with fused OC junctional joint in patients with AS. HRVA was related with C1-2 joint change.

X-angle:
for C0-C1-C2 joint change



The progressive degeneration of Occipito-atlanto-axial joints was evaluated using our New indicator "X-angle".
The angle formed by lines drawn from occipito-atlantal to atlanto-axial joints on contralateral side in coronal CT reconstructions.

HRVA



Isthmus height < 5mm

Internal height < 2mm

- ✓ The Relationship between the Occipitocervical Junction and Thoracic Kyphosis in AS: Asian Spine Journal: 2018
- ✓ The importance of the occipitocervical area in patients with ankylosing : Journal of Craniovertebral Junction and Spine 2017: N.Manabe, Augusto Covaro, Lukas Bobinski, Yohan Robinson, T. Shimizu, Claes Olerud