Standing radiograph

No differences in total cervical lordosis were noted between cervical asymptomatic volunteers with or without low back pain. Most cervical lordosis occurred at the C1-C2 level in stance, whereas only 6 degrees (15%) occurred at the lowest three cervical levels (C4-C7). Changes in cervical lordosis correlated inversely with changes in thoracic alignment [1].

Cervical spine surgery may affect sagittal alignment parameters and induce accelerated degeneration of the cervical spine.

It is correlated with myelopathy severity and used by spinal surgeons for surgical planification. Magnetic resonance imaging (MRI) is the gold standard for the evaluation of cervical myelopathy but may not be for the assessment of cervical sagittal balance compared to X-rays. The objective of a study was to assess the correlation of Cervical spine alignment between supine MRI and standing radiographs in patients with cervical spondylotic myelopathy (CSM).

Cobb, Jackson and Harrison methods were used to measure cervical sagittal alignment on supine MRI and standing radiographs of CSM adults. Cervical spine alignment was divided based on Cobb angle values on lordotic (> 4°), kyphotic (< - 4°) and rectitude (- 4° to 4°). Correlations between radiographic and MRI measurements were determined. Intra- and interobserver reliability were assessed and MRI and X-Ray-measured angles were compared.

One hundred and thirty patients with CSM were reviewed. Correlations of cervical lordosis measures between radiographs and MRI were strong using the Cobb (0.65) and Jackson (0.63) methods, and moderate using the Harrison (0.37) method. Mean cervical lordosis angle was significantly lower on supine MRI compared to standing radiographs for all methods (Cobb 11.6 Rx vs. 9.2 MRI, Jackson 14.6 vs. 11.6, Harrison 23.5 vs. 19.9). Eighteen patients (15.4%) without lordosis on supine MRI presented lordosis on standing radiographs.

A substantial proportion of patients has sagittal alignment discrepancies between supine MRI and standing radiographs. Therefore, standing radiographs of the cervical spine should always be included in surgical planning of CSM patients [2].

1)
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2)
Boudreau C, Carrondo Cottin S, Ruel-Laliberté J, Mercier D, Gélinas-Phaneuf N, Paquet J. Correlation of supine MRI and standing radiographs for cervical sagittal balance in myelopathy patients: a cross-sectional study. Eur Spine J. 2021 Apr 21. doi: 10.1007/s00586-021-06833-0. Epub ahead of print. PMID: 33881642.