Clinical and radiographic characteristics of increased signal intensity of the spinal cord at the vertebral body level in patients with cervical myelopathy

Objective: Increased signal intensity (ISI) is usually recognized at the disc level of the responsible lesion in the patients with cervical myelopathy. However, it is occasionally seen at the vertebral body level, below the level of compression. We aimed to investigate the clinical significance and the radiographic characteristics of ISI at the vertebral body level.

Methods: This retrospective study included 135 patients with cervical spondylotic myelopathy who underwent surgery and with local ISI. We measured the local and C2-7 angle at flexion, neutral, and extension. We also evaluated the local range of motion (ROM) and C2-7 ROM. The patients were classified into group D (ISI at disc level) and group B (ISI at vertebral body level).

Results: The prevalence was 80.7% (109/135) and 19.3% (26/135) for groups D and B, respectively. Local angle at flexion and neutral were more kyphotic in group B than in group D. The local ROM was larger in group B than in group D. Moreover, C2-7 angle at flexion, neutral and extension were more kyphotic in group B than in group D. There was no significant difference of clinical outcomes 2 years postoperatively between both groups.

Conclusions: Group B was associated with the kyphotic alignment and local greater ROM, compared to group D. As the spinal cord is withdrawn in flexion, the ISI lesion at vertebral body might be displaced towards the disc level, which impacted by the anterior components of the vertebrae. This should be different from the conventionally held pincer-mechanism

concept.