

Anatomical landmark to reduce surgical invasiveness to the facet joints in posterior exposure of the cervical spine – A cadaveric and clinical study–

OBJECTIVE: To identify anatomical landmarks to reduce surgical invasiveness to the facet joint in posterior decompression surgery.

METHODS: (1) The lateral border of tendinous insertion of the rotator cervicis muscle (LTRC), which inserts at the most deep and lateral aspect of the lamina among deep extensor muscles, and the medial border of the facet joint were identified in four cadavers, using a surgical microscope (n=6 joints). Other six facet joints were dissected out to histologically assess the dorsal morphology of the facet joints. (2) Consecutive 30 patients who underwent posterior decompression were involved. Spinal cord width was measured on preop MRI. Intraoperatively, the distance between the bilateral LTRCs was measured and defined as rotator-rotator-distance (RRD). Percentage of the spinal cord width to RRD was calculated.

Results: (1) LTRC was always found slightly medial to the medial border of the bilateral facet joint. The space between LTRC and the medial border of facet joint was macroscopically filled with membranous tissue, instead of a capsule-like fibrous structure. Histologically, the lateral half of the facet joint was covered by the fibrous capsule, however, it was completely missing

(n=1) or only a thin fibrous layer was observed in the medial half (n=5). (2) The percentage of the spinal cord width to RRD was 71.1 - 74.3% at each level examined.

Conclusions: LTRC may serve as an anatomical landmark to decide the extent of lateral exposure necessary and sufficient to decompress the spinal cord avoiding unintentional damages to the facet joint.

