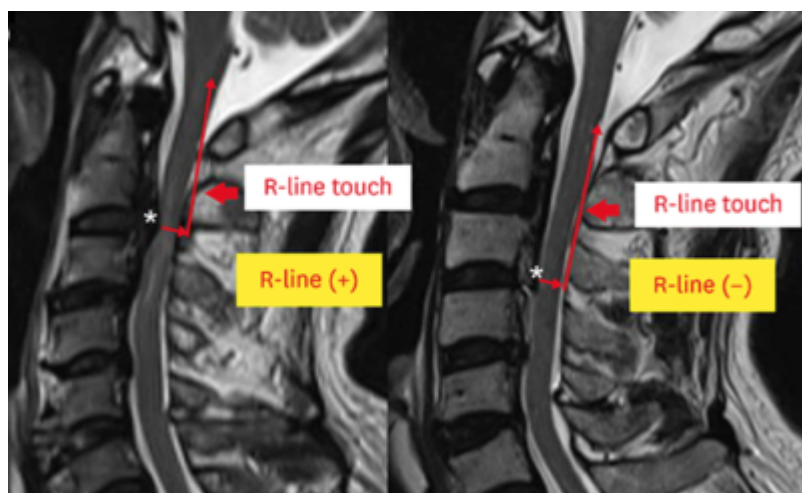


R-Line

Moon et al. developed a new [index](#) to determine the degree of [decompression](#) in [cervical ossification of the posterior longitudinal ligament](#)-the [rostral line \(R-line\)](#).

The R-line was defined as a line drawn through the posterior spinal canal parallel to the line connecting the center points of the [C2](#) and [C3 vertebral body](#) at the level of maximum [spinal cord compression](#)



If the R-line touches the upper half of the posterior [C2 lamina](#), total [C2 laminectomy](#) is necessary (R-line positive). In the R-line positive group, postoperative cord compression-only through C2 [undercutting](#) results in neurologic deterioration due to incomplete decompression.

A total of 79 consecutive patients who underwent posterior decompression of cervical OPLL were included in this study. Mean age at the time of operation, the C2-C7 [cervical lordotic angle](#) and OPLL thickness at the most stenotic level of the spinal canal, and preoperative/postoperative Japanese Orthopedic Association score was checked in these group. They compared the correspondence between the degree of C2 lamina decompression using the R-line and the actual degree of decompression.

In all patients, the R-line touched the upper half of the C2 lamina on preoperative magnetic resonance imaging (MRI). The C2-C3 local segment lordotic angle and maximal degree of spinal cord compression by OPLL were independently correlated to postoperative C2 cord shifting. This result indicates that the R-line is a valid indicator to determine the degree of C2 lamina decompression in OPLL extending to the C2 level.

The results showed that [undercutting](#) the [C2 lamina](#) can result in incomplete spinal cord decompression and poor clinical outcome if the R-line touches the upper half of the C2 lamina on preoperative MRI ¹⁾.

Lee et al. sought to evaluate the usefulness of the [rostral line \(R-line\)](#) as a new [index](#) for determining the degree of [C2 lamina decompression](#) in the context of [ossification of the posterior longitudinal](#)

ligament (OPLL) extending to the C2 level.

The R-line was devised based on the mechanism by which the cord is shifted backward following cervical posterior decompression. According to their R-line status, 36 patients with cervical OPLL extending to the C2 level were divided into two groups of R-line (+) and R-line (-) cases, where the R-line touched the upper half of the posterior C2 lamina in the R-line (+) group and the inferior half of the posterior C2 lamina in the R-line (-) group, respectively.

Eighteen patients were classified as R-line (+) and 18 patients were classified as R-line (-). Total laminectomy of the C2 lamina was more common in the R-line (+) group, while dome-shape C2 laminectomy was more common in the R-line (-) group. All patients requiring reoperation were included in the R-line (+) group. Only the operation type showed a statistically significant difference according to the need for reoperation in the R-line (+) group; specifically, all patients who underwent reoperation in the R-line (+) group had dome-shape C2 laminectomy. It was determined that the risk factor for reoperation in the R-line (+) group was a history of dome-shape C2 laminectomy.

If the R-line touches the upper half of the posterior C2 lamina, total decompression of the C2 lamina should be performed ²⁾.

References

¹⁾

Moon EJ, Lee BJ, Lee S, Jeon SR, Roh SW, Park JH. The R-line: A New Imaging Index for Decision Making Regarding C2 Lamina Decompression in Cervical Ossification of the Posterior Longitudinal Ligament. Korean J Neurotrauma. 2020 Apr 13;16(1):60-66. doi: 10.13004/kjnt.2020.16.e7. PMID: 32395452; PMCID: PMC7192802.

²⁾

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