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INTRODUCTION: In the treatment of cervical myelopathy due to spondylosis and ossification of posterior longitudinal ligament (OPLL), laminoplasty is common and can obtain good neurological recovery. In general, the patient's cervical spine is immobilized with a collar for several months after this surgery. However, nobody knows how long the patient's cervical spine should be immobilized after cervical laminoplasty. Recently, some authors mentioned the relationship between postoperative neck pain and the duration of cervical immobilization. The objectives of this study were, 1) to compare the results of two groups with different postoperative management, and 2) to evaluate the necessity of collar fixation after cervical laminoplasty.

METHODS: From April 1994 to June 1997, forty-two patients with cervical myelopathy were treated by spinous process-splitting laminoplasty using bioactive ceramic lamina spacers. These patients were prospectively and randomly divided into two groups with different postoperative management. In group A, there were 21 patients whose cervical spine was immobilized with a collar for two months after cervical laminoplasty. Their mean age at surgery was 58. Group B included 21 patients, too. However, they had no postoperative immobilization and they were encouraged to get ROM exercise of cervical spine and isometric paraspinal muscle exercise as early as possible. The mean age at surgery was 59 in this group. Diagnoses in group A were cervical spondylotic myelopathy (CSM) in 10 patients, and OPLL in 11. The average number of enlarged laminae was 6. In group B, there were 11 CSM and 10 OPLL. The average number of enlarged laminae was 5.3. At 2 years after the surgery, each patient was examined with Japanese Orthopaedic Association (JOA) score (full marks = 17 points) and its recovery rate. Neck pain was also evaluated. In radiological examination, cervical lordosis and ROM of the cervical spine were measured periodically after the surgery.

RESULTS: The postoperative follow-up period ranged from 24 to 60 months (mean, 40 months) in group A, and from 24 to 48 months (mean, 31 months) in group B. The mean hospital stay were 27.1 days in group A and 21.9 days in group B, respectively. In group A, mean preoperative JOA score was 7.3, and it increased to 14.0 points after the surgery. In group B, mean JOA score was 9.0
before the surgery and 14.8 after the surgery. It was no statistically significant
difference in the recovery rate of JOA score between two groups. At the follow-
up, severe neck pain was seen in 4 patients of group A. However, no patient
complained with severe neck pain in group B. In the patients of group A, the
decrease of cervical lordosis was greater than that of group B patient.
Statistically significant difference was observed in the decrease of cervical
lordosis between the two groups immediately after the surgery and at 3 months
after the surgery. Moreover, at two years after the surgery, both the decrease of
cervical ROM and the decreasing rate of cervical ROM in group A were
significantly greater than those of group B patient.

DISCUSSION/CONCLUSION: In general, cervical laminoplasty can obtain
satisfactory neurological recovery. However, as for disadvantages of this surgery,
it had been reported that cervical ROM usually decreased and several patients
complained with neck pain for a long time. In order to prevent these problems,
it may be necessary to minimize the damage of the facet joint and muscle, and
to mobilize the cervical spine as early as possible. Recently, a few authors
reported postoperative management with shorter duration of immobilization after
cervical laminoplasty. However, there has been no report about postoperative
management without any immobilization after the surgery. In this study, the
patients without postoperative immobilization obtained good neurological
recovery and had no postoperative neck pain. Moreover, their ROM of the
cervical spine was significantly greater than that of patients with postoperative
collar fixation. The hospital stay of patients without postoperative
immobilization was shorter than that of patients with postoperative
immobilization. Therefore, in conclusion, postoperative immobilization of the
cervical spine is not necessary after cervical laminoplasty, and early ROM
exercise of the cervical spine and isometric neck muscle exercise can lead to
better clinical and radiological outcomes.