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Which is better for cervical laminoplasty, HA spacer or titanium spacer?

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Background: Laminoplasty (LP) for cervical spondylotic myelopathy (CSM) is a common surgical procedure. The spacer was put on expanding lamina to prevent it re-closing. Titanium spacers are considered to have strong fixation and excellent bone compatibility. The purpose of this study was to investigate whether titanium spacers are superior to HA spacers.

Research question: What is the best implant for cervical laminoplasty?

Design: Retrospective study

Methods: 30 patients with CSM who underwent LP with HA spacers (HA, n=15) and titanium spacers (Ti, n=15) were investigated and compared in imaging evaluations. Dislocation of the spacer was investigated using functional X-rays, and osteolysis at the spinous process, bone fusion, and lamina depression at the groove were evaluated using postoperative CT. Neurogenic disturbance, reoperation, and surgical site infection caused by implants were investigated.

Results: The dislocation of the spacer was observed in 6 cases (HA) and 2 cases (Ti). Osteolysis of the spinous process was observed in 1 case (HA) and 7 cases (Ti) and the bone fusion of the hinge was 3 cases (HA) and 7 cases (Ti), respectively. Depression of the lamina was shown 0 case (HA) and 3 cases (Ti). There were no complications requiring reoperation due to neuropathy or surgical site infection.

Discussion: Although there are several surgical styles in LP, there are no differences in clinical outcomes. In this study, we found that the loosening of Ti was less than it of HA. One year postoperatively, osteolysis of the spinous processes was observed in the Ti, but this event was not related to plate loosening. The depression of the hinge and dislocation of the plate were caused by the failure of bony bridge formations at the hinge. However, Ti spacer was able to maintain the postoperative decompression range without dislocation. This fact suggests that LP using Ti is more safety technique that maintains reliable decompression width than HA.