

# Opening Side of Unilateral Open-door Laminoplasty Doesn't Affect Spinal Cord Space or Arm Pain Improvement

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## Introduction

Unilateral open-door laminoplasty is a surgical procedure commonly performed to relieve pressure on the spinal cord caused by conditions such as cervical spondylotic myelopathy and ossification of the posterior longitudinal ligament. This procedure involves creating a hinged door-like opening on one side of the lamina, allowing for decompression of the spinal cord. One of the questions that arise during this surgery is whether the side on which the door is opened affects the overall outcomes, particularly in terms of spinal cord space and arm pain improvement. This article delves into the details of this surgical technique, its outcomes, and the findings that the opening side does not significantly affect spinal cord space or arm pain improvement. Unilateral open-door laminoplasty is indicated for patients with cervical myelopathy or radiculopathy due to spinal stenosis or ossification of the posterior longitudinal ligament. The goal is to decompress the spinal cord and nerve roots while maintaining the structural integrity of the spinal column [1-3].

## Description

The primary objective of laminoplasty is to decompress the spinal cord. The effectiveness of decompression is assessed by the increase in the spinal canal diameter and the space available for the spinal cord. Studies have shown that the side on which the door is opened does not significantly impact the overall increase in spinal canal space. Both left-sided and right-sided openings result in sufficient decompression. The hinge mechanism allows the lamina to pivot open, increasing the space within the spinal canal. The actual direction of the opening (left or right) does not alter the fundamental mechanics of this process. The increase in space is determined by the extent of the opening and the integrity of the hinge, not the side of the opening. Arm pain in patients undergoing laminoplasty is typically due to nerve root compression or irritation. The relief of arm pain post-surgery is a crucial measure of the procedure's success. The opening side's influence on arm pain improvement is negligible because both left-sided and right-sided openings achieve similar decompression of the nerve roots. The decompression is symmetrical in nature, relieving pressure on the nerve roots regardless of the side. Clinical studies comparing left-sided and right-sided unilateral open-door laminoplasty have found no significant difference in the improvement of arm pain between the two groups. Patient-reported outcomes, such as pain scores and functional improvement, are similar irrespective of the opening side. A retrospective study conducted at a major spinal surgery center analyzed the outcomes of 120 patients who underwent unilateral open-door laminoplasty.

The study divided patients into two groups based on the side of the door

opening. Radiographic measurements showed that the increase in spinal canal diameter was comparable between the two groups, with no statistically significant difference. In another study involving 80 patients with cervical myelopathy, researchers compared the preoperative and postoperative arm pain scores using a visual analog scale. The results indicated significant improvement in arm pain in both left-sided and right-sided laminoplasty groups, with no significant difference between the two. The average improvement in VAS scores was 4.5 in the left-sided group and 4.3 in the right-sided group. A multicenter prospective study assessed functional outcomes using the Japanese Orthopaedic Association for cervical myelopathy. The study included 150 patients and found that both left-sided and right-sided unilateral open-door laminoplasty resulted in significant improvements in JOA scores. The mean improvement was 3.8 points in the left-sided group and 3.7 points in the right-sided group, with no statistically significant difference [4,5].

## Conclusion

Unilateral open-door laminoplasty is an effective surgical technique for decompressing the spinal cord in patients with cervical myelopathy or radiculopathy. The side of the door opening does not significantly affect the increase in spinal cord space or the improvement in arm pain, as demonstrated by multiple clinical studies. The choice of the opening side should be guided by surgical considerations and patient-specific factors. Meticulous surgical technique and appropriate management of complications are essential for achieving optimal outcomes. Advances in imaging, navigation, and minimally invasive approaches hold promise for further enhancing the safety and efficacy of this procedure. Ultimately, the goal of unilateral open-door laminoplasty is to provide effective decompression while preserving spinal stability and improving patients' quality of life.

## Acknowledgement

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## Conflict of Interest

None.

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