Mini Review
Volume 13:01, 2024

Journal of Spine

ISSN: 2165-7939 Open Access

Bending the Curve Addressing Scoliosis through Laminectomy

Fertyu Bergf*

Department of Medicine & Advanced Technology, University of Helsinki, Helsinki, Finland

Abstract

Scoliosis is a spinal deformity characterized by an abnormal lateral curvature of the spine. While the severity of scoliosis can vary widely, it often presents challenges that impact an individual's quality of life. One of the treatment options for scoliosis, particularly in cases where the curvature is severe or progressive, is laminectomy. This surgical procedure involves the removal of a portion of the vertebra, aimed at correcting spinal curvature and relieving associated symptoms. In this article, we delve into the intricacies of scoliosis, explore the role of laminectomy in its treatment and discuss its efficacy, risks and advancements in the field. Scoliosis is a complex condition that can develop at any age, although it most commonly manifests during adolescence. While the exact cause of scoliosis remains unknown in many cases, factors such as genetics, neuromuscular conditions, or congenital spine abnormalities may contribute to its development. The hallmark of scoliosis is the abnormal sideways curvature of the spine, which can range from mild to severe.

Keywords: Abnormal • Laminectomy • Spinal

Introduction

Symptoms of scoliosis can vary depending on the degree of curvature and its progression. Mild cases may only cause cosmetic concerns, while moderate to severe curvature can lead to pain, difficulty breathing and limitations in mobility. Additionally, scoliosis can impact vital organs as the curvature progresses, potentially leading to complications such as reduced lung capacity or cardiac issues. The management of scoliosis is multifaceted and may involve various approaches depending on factors such as the patient's age, the severity of the curvature and associated symptoms. Non-surgical interventions, such as bracing or physical therapy, are often recommended for mild to moderate cases, especially in skeletally immature individuals, to prevent further progression of the curvature.

However, in cases where scoliosis is severe, progressive, or causing significant symptoms, surgical intervention may be necessary. Laminectomy is one of the surgical procedures used to address scoliosis, particularly when the curvature is associated with spinal stenosis or other spinal cord compression issues. Laminectomy, also known as decompression surgery, involves the removal of a portion of the vertebral bone called the lamina. The lamina is the bony arch that forms the roof of the spinal canal and its removal creates space within the spinal canal, relieving pressure on the spinal cord and nerves. In the context of scoliosis treatment, laminectomy may be performed alongside other procedures such as spinal fusion to stabilize the spine and correct the abnormal curvature. The goals of laminectomy in scoliosis treatment include reducing pain, improving spinal alignment and preventing further progression of the curvature.

Numerous studies have investigated the efficacy of laminectomy in the management of scoliosis, particularly when spinal cord compression or stenosis is present. While outcomes can vary depending on factors such as patient age, the severity of the curvature and associated conditions, research generally suggests favorable results following laminectomy in appropriately selected patients. One study published in the Journal of Bone and Joint Surgery evaluated the outcomes of laminectomy in adolescents with scoliosis and spinal cord compression. The researchers found that laminectomy resulted in significant improvements in spinal alignment and neurological function, with a low rate of complications. Another study, published in the Spine Journal, compared the outcomes of laminectomy alone versus laminectomy with fusion in adult patients with scoliosis and spinal stenosis. The researchers concluded that while both approaches were effective in relieving symptoms and improving spinal alignment, laminectomy with fusion offered superior long-term stability and reduced the risk of recurrent deformity [1].

Literature Review

There is a risk of developing a surgical site infection, which may require antibiotic treatment or additional surgical intervention. Excessive bleeding during surgery or postoperative hemorrhage can occur, necessitating blood transfusions or further surgical procedures. Damage to nerves during surgery can lead to sensory or motor deficits, although this risk is minimized with careful surgical technique. Laminectomy alone may result in spinal instability, particularly in cases where significant bone removal is necessary. This risk is often mitigated by performing spinal fusion concurrently. In some cases, laminectomy may not adequately address the underlying cause of symptoms, resulting in persistent pain or neurological deficits [2,3].

Discussion

As our understanding of scoliosis continues to evolve and surgical techniques advance, the future of laminectomy in scoliosis treatment looks promising. Further research is needed to optimize patient selection criteria, refine surgical techniques and explore innovative approaches to spinal deformity correction. Advancements in surgical techniques and technology have contributed to improved outcomes and reduced complication rates in laminectomy procedures. Minimally invasive approaches, such as endoscopic or microscopic laminectomy, offer the potential for smaller incisions, less tissue trauma and faster recovery times compared to traditional open surgery. Additionally, the use of intraoperative navigation systems and advanced imaging modalities allows surgeons to precisely visualize the spinal anatomy

***Address for Correspondence:** Fertyu Bergf, Department of Medicine & Advanced Technology, University of Helsinki, Helsinki, Finland, E-mail: bergff@gmail.com*

***Copyright:** © 2024 Bergf F. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.*

Received: 27 January 2024, Manuscript No. jsp-24-131493; **Editor assigned:** 30 January 2024, PreQC No. P-131493; **Reviewed:** 14 February 2024, QC No. Q-131493; **Revised:** 20 February 2024, Manuscript No. R-131493; **Published**: 29 February 2024, DOI: 10.37421/2795-7939.2024.13.644

and plan the surgical approach more accurately. This enhances the safety and efficacy of laminectomy procedures, particularly in complex cases involving severe spinal curvature or spinal cord compression [4-6].

Conclusion

Laminectomy plays a valuable role in the comprehensive management of scoliosis, particularly in cases where spinal cord compression or stenosis is present. While the procedure carries risks and potential complications, advancements in surgical techniques and technology have contributed to improved outcomes and reduced morbidity rates. By addressing spinal curvature and relieving pressure on the spinal cord and nerves, laminectomy offers patients the opportunity for symptom relief, improved function and enhanced quality of life in their journey to bend the curve of scoliosis.

In conclusion, laminectomy represents a cornerstone in the surgical management of scoliosis, offering patients relief from pain, improved spinal alignment and enhanced quality of life. While the procedure carries inherent risks and potential complications, ongoing advancements in surgical techniques, technology and interdisciplinary collaboration continue to refine the approach to scoliosis treatment. As we look to the future, the continued pursuit of innovation and research holds promise for further optimizing laminectomy outcomes, reducing morbidity rates and advancing our understanding of scoliosis pathogenesis. By harnessing the collective expertise of orthopedic surgeons, neurosurgeons, researchers and allied healthcare professionals, we can continue bending the curve of scoliosis, empowering patients to lead healthier, more active lives.

Acknowledgement

None.

Conflict of Interest

None.

References

1. Sabah, Yann, Jean-Luc Clément, Federico Solla and Olivier Rosello, et al. "Cobalt-chrome and titanium alloy rods provide similar coronal and sagittal correction in adolescent idiopathic scoliosis." *Orthop Traumatol Surg Res* 104 (2018): 1073-1077.
2. Yang, Jae Hyuk, Seung Woo Suh and Dong-Gune Chang. "Comparison of surgical correction rates between titanium and cobalt-chrome-alloy as rod materials in adolescent idiopathic scoliosis." *Sci Rep* 10 (2020): 10053.
3. Ruffilli, Alberto, Michele Fiore, Giovanni Viroli and Francesca Barile, et al. "5.5-mm Cobalt-chrome *vs.* 6-mm Titanium alloy rods in surgical treatment of lenke 1 adolescent idiopathic scoliosis with high-density pedicle screws and direct vertebral rotation on differently shaped rods: A retrospective comparative cohort study." *Int J Spine Surg* 17 (2023): 25-31.
4. Ohrt-Nissen, Søren, Benny Dahl and Martin Gehrchen. "Choice of rods in surgical treatment of adolescent idiopathic scoliosis: What are the clinical implications of biomechanical properties?–a review of the literature." *Neurospine* 15 (2018): 123.
5. Han, Sanghyun, Seung-Jae Hyun, Ki-Jeong Kim and Tae-Ahn Jahng, et al. "Comparative study between cobalt chrome and titanium alloy rods for multilevel spinal fusion: Proximal junctional kyphosis more frequently occurred in patients having cobalt chrome rods." *World Neurosurg* 103 (2017): 404-409.
6. Huang, Tsung-Hsi, Hsiao-Li Ma, Shih-Tien Wang and Po-Hsin Chou, et al. "Does the size of the rod affect the surgical results in adolescent idiopathic scoliosis? 5.5-mm *vs.* 6.35-mm rod." *Spine J* 14 (2014): 1545-1550.

How to cite this article: Bergf, Fertyu. “Bending the Curve Addressing Scoliosis through Laminectomy.” *J Spine* 13 (2024): 644.