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Editorial

Clinical Effectiveness of Posterior Cervical Decompression and Fusion in Terms of Reducing OPLL Growth Versus Cervical Motion Preservation

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See the article "Does Ossification of the Posterior Longitudinal Ligament Progress After Fusion?" on page 483.

Spinal ossification of the posterior longitudinal ligament (OPLL) is a serious disorder that causes vertebral ligament calcification and gradual growth, resulting in spinal stenosis and, in severe cases, nerve paralysis due to spinal cord compression. If spinal stenosis is so severe that it is considered dangerous, or if symptoms of spinal cord compression develop, surgical treatment should be considered.

Several surgical methods exist for the treatment of cervical OPLL, including direct removal of the ossified lesion and interbody fusion by the anterior approach, posterior laminoplasty, and posterior laminectomy with or without fusion. Direct removal of OPLL by the anterior approach is appropriate for short, localized cervical OPLL. However, in cases of long OPLL, indirect spinal decompression by the posterior approach is preferred because it preserves neck motion.

This paper highlights some of the disadvantages of anterior cervical surgery. Anterior cervical spine surgery does not damage neck muscles directly, so the patient does not feel excessive pain after surgery. However, in posterior cervical spine surgery for laminoplasty or laminectomy, it is difficult to avoid some extent of muscle or ligament injuries, which is why ligament preservation techniques in laminoplasty[1] have been introduced. Anterior cervical surgery is advantageous because it enables direct removal of anterior lesions and has a high level of clinical effectiveness, preventing further OPLL growth.[2] For cervical OPLL extending for more than three intervertebral disc levels, posterior indirect decompression is usually recommended to preserve cervical motion. The decision of the surgical approach for cervical OPLL depends on the operator's experience and preference, but anterior surgery should be considered if anterior spinal cord compression is severe and localized.

One issue regarding indirect decompression of the spinal canal by the posterior approach is whether OPLL may continue to grow and compress the spinal cord again after surgery. The pathogenesis of OPLL is not yet clear, and some evidence suggests that it may have a genetic component.[3] The authors of this paper reviewed several research articles and suggested that motion stress is one of the nongenetic causes of OPLL growth. Studies have shown that OPLL grows faster in younger patients with a wider cervical range of motion than in older patients, and that OPLL over a mobile level, as in the continuous type, grows faster than the segmental type that is confined to the posterior vertebrae. This review paper is also meaningful in that it summarizes postoperative follow-up results, according to which OPLL does not grow or grows more slowly after posterior laminectomy and fusion than after laminoplasty. Recently, Lee et al.[4] also compared laminoplasty and laminectomy with

fusion, and the laminectomy with fusion group showed less OPLL growth.

Regarding these results, it may be argued that limiting cervical spine mobility reduces OPLL growth, and that decompression with fusion is therefore clinically superior to laminoplasty for preventing OPLL growth. Spine surgeons want to preserve a patient's cervical spine motion. Most laminoplasty procedures do not cause clinical problems because of OPLL growth. As described in this paper, the clinical effects of laminoplasty and decompression with fusion show little difference, and even if OPLL grows more after laminoplasty, there is no significant difference in the probability of reoperation due to spinal cord compression. Indeed, most laminoplasty surgeons rarely see a significant risk of reoperation as OPLL grows throughout their lengthy surgical experience and scientific communications with other spine surgeons.[5] In addition to preserving cervical spine movement, a benefit of laminoplasty is that it prevents soft tissue scars from squeezing into the spinal canal and compressing the spinal cord. If OPLL progresses more slowly after posterior laminectomy and fusion, it may be reasonable to try laminoplasty and fusion. However, we should consider whether the limitation of neck motion following cervical fusion is worth preventing the low risk of spinal cord compression from OPLL growth.

In some special cases, spinal cord compression may progress even after cervical laminoplasty because of OPLL growth. In such cases, laminectomy with fusion or laminoplasty with fusion should be considered for the initial surgery. Therefore, further studies are needed to propose appropriate preoperative evaluations and criteria to detect which cases are more likely to progress to spinal cord compression and reoperation due to OPLL growth after cervical laminoplasty.

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Title: The Dream (Le Rêve)
Artist: Pablo Picasso
Year: 1932
e Rêve (The Dream in French) is a 1932 oil painting (130×97 cm) by Pablo Picasso, then 50 years old, portraying his 24-year-old mistress Marie-Thérèse Walter. It is said to have been painted in one afternoon, on January 24, 1932. It belongs to Picasso's period of distorted depictions, with its oversimplified outlines and contrasted colors resembling early Fauvism.
More information: https://www.pablopicasso.org/the-dream.jsp