

Editorial

Why Should We Perform Endoscopic Spine Surgery?



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See the article "Technique of Biportal Endoscopic Transforaminal Lumbar Interbody Fusion" via <https://doi.org/10.14245/ns.2040178.089>.



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The field of minimally invasive spine surgery (MISS) has seen remarkable growth over the last 30 years and is a main field of spinal surgery that will continue to advance. Spinal surgery has been performed for a long time, but many problems have risen due to surgical procedures, complications, and postoperative sequelae. However, the introduction of MISS overcomes this problem in many aspects and opens a new field in spinal surgery. With the recent increase in human life expectancy, the number of elderly patients increases along with those that need surgery and the surgical morbidity that follows. The main goal of MISS is to reduce approach-related tissue injury and complications, and thereby reduce postoperative pain, blood loss, and recovery time while still achieving the same clinical results.

Endoscopic spine surgery was introduced by Parviz Kambin and brought to much development by Anthony Yeung. Kambin and Sampson¹ reported the effective removal of herniated disc material with suction and devices through a novel extraforaminal endoscopic visualization technique. Kambin also radiographically described a safe triangular working zone providing access to the posterolateral annulus. Kambin's accomplishments were followed by Yeung with the development of the YESS (Yeung Endoscopic Spine System) endoscope and his "inside-out" technique.² As more surgeons became interested in and began to perform minimally invasive endoscopic surgery through the 1990s, many advancements were made in approaches and devices, expanding surgical indications. With the introduction of the interlaminar approach, endoscopic surgery has been able to provide many spinal surgical fields. Further developments in the resolution of endoscopic devices have also greatly improved the surgical view of the operation, and the development of various surgical instruments has made it possible to perform a variety of surgeries, even if previously contraindicated. In particular, the introduction of surgical procedures using a biportal system may gradually replace classic open surgery. Indications for biportal endoscopic surgery have reached the point in which they are virtually identical to open surgery, including degenerative lumbar stenosis and low-grade spondylolisthesis.^{3,4}

Of course, the answer to why endoscopic surgery is necessary has already been answered; it provides the patient with the advantages of traditional open surgery while reducing damage to surrounding tissues. Less tissue damage means the faster return to daily activities, which is obviously due to enhanced pain relief after surgery. In addition, hemostasis by continuous irrigation and hydrostatic pressure clears the field of vision during the operation. Sufficient irrigation throughout the procedure may also reduce postoperative infection by washing away microorganisms. Heo and Park⁴ have reported significantly lower perioperative visual analogue scale scores and lower incidences of postoperative complications after endoscopic transforaminal lumbar interbody fusion, while achieving similar rates of spinal fusion. Reduced recovery time and lower rates of complication equates to reduced

hospital stay and faster return to work or daily life; in other words, endoscopic surgery may be more cost-effective than conventional open surgery.⁵

But endoscopic spine surgery is not a common procedure that any spine surgeon can easily perform. Endoscopic spine surgery is known for its steep learning curve and requires a comprehensive understanding of the biomechanics and anatomy of the spine. In addition, in order to increase the accuracy of the surgical techniques and solve the biomechanics involved, many modern engineering equipment must be further developed in the field of surgery. Therefore, a successful endoscopic procedure requires a lot of practice and the development of various equipment. The current evolution of biportal endoscopic surgery is promising for up and coming spine surgeons, in that this procedure has a shorter learning curve period with lower complication rates during the early learning period.⁶ Korean Minimally Invasive Spine Surgery Society (KOMISS) holds cadaver and dummy workshops to learn procedures and techniques more than 2 times a year, and has regular KOMISS congress meetings to discuss new endoscopic surgical techniques.

In the not too distant future, artificial intelligence-based medicine, high-resolution 3-dimensional endoscopy systems, safe bone resection equipment utilizing ultrasonic cutting, accurate locating and positioning using image-guided navigation will surely be developed. Instrument fixation using robotic systems

and advanced graft material will ensure biological bone fusion. With such technology at our grasp, endoscopic spine surgery will truly flourish in the MISS field.

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Title: The Dream
Artist: Pablo Picasso
Year: 1932

Le 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. The erotic content of the painting has been noted repeatedly, with critics pointing out that Picasso painted an erect penis, presumably symbolizing his own, in the upturned face of his model.

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