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Commentary

Commentary on "Perioperative Clinical Features and Long-term Prognosis After Oblique Lateral Interbody Fusion (OLIF), OLIF With Anterolateral Screw Fixation, or OLIF With Percutaneous Pedicle Fixation: A Comprehensive Treatment Strategy for Patients With Lumbar Degenerative Disease"

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See the article "Perioperative Clinical Features and Long-term Prognosis After Oblique Lateral Interbody Fusion (OLIF), OLIF With Anterolateral Screw Fixation, or OLIF With Percutaneous Pedicle Fixation: A Comprehensive Treatment Strategy for Patients With Lumbar Degenerative Disease" via https://doi.org/10.14245/ns.2244954.477.

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Till now, lumbar interbody fusion remains an effective surgical treatment option for a variety of lumbar spinal disorders including degenerative spinal disease, deformity, trauma, infection, and neoplasia. In particular, recently, various surgical methods such as the posterior lumbar interbody fusion, transforaminal lumbar interbody fusion (TLIF), anterior lumbar interbody fusion, oblique lumbar interbody fusion (OLIF), and the minimal endoscopic approach have been introduced.

The OLIF was first introduced by Mayer[1] in 1997 as a surgical method called the prepsoas approach, and in 2012, Silvestre et al.[2] used the term OLIF for the first time and reported it as a new minimally invasive surgical technique. They analyzed complications and morbidity in 179 patients undergoing OLIF surgery, and initial data showed that bleeding, operative time, and postoperative recovery were favorable compared to conventional surgery.[3] Today, this approach is being extended to include minimally invasive surgical treatment of spinal deformities and is used to treat a variety of degenerative spinal diseases.[4]

As with other minimally invasive spinal surgeries, OLIF has advantages such as minimal exposure of the surgical site, less soft tissue damage, less intraoperative bleeding and postoperative pain, as well as shorter operation time, faster recovery, and shorter hospital stay.[5,6]

However, like minimally invasive surgery, OLIF also has its disadvantages. A narrow and small surgical field of view does not allow a full vision of the surrounding anatomy, which can lead to complications such as disorientation, unintentional damage to anatomy, and wrong level of surgery. In addition, surgery in a narrow space makes it difficult to operate, if not much experience, the operation time and learning curve may be prolonged.

Therefore, these minimally invasive surgeries require accurate surgical site orientation and rely more frequently on fluoroscopic guidance for confirmation.[7]

Fortunately, these problems are becoming possible to be solved by advanced surgical equipment being introduced in spinal surgery. And, among them, representative ones are the introduction of navigation systems and robotic surgery.

Pham et al.[8] reported that the use of robotic guidance for bilateral iliac fixation in a single lateral position as a way to gain advantages in terms of time savings and efficiency could significantly reduce surgical and anesthesia time without the need to turn the patient over.

Overall rates and types of complications after OLIF surgery were relatively low and within the expected range for an OLIF procedure. These results suggest that navigation-assisted OLIF is safe and effective with the benefit of significantly reducing radiation exposure.

In addition, Bae et al.[9] reported that using the method using transumbilical retroperitoneal lumbar interbody fusion, although technically difficult, both the treatment of degenerative spinal diseases and satisfactory cosmetic results could be achieved.

Zhang et al.[10] reported, compared with minimally invasive TLIF radiographically, OLIF was more effective in restoring disc height (DH) and better in the subsidence. Also, the fusion rate, improving the disc angle and lumbar lordosis was similar in both groups.

However, like any other surgery, complications associated with OLIF are inevitable. For example, cage subsidence has been one of the most commonly reported complications in several studies, leading to loss of DH and recurrence of neuromuscular impingement.[11]

Zhang et al.[12] reported the posterior DH, forminal height and subsidence rate of OLIF with percutaneous pedicle screw fixation were better than that of OLIF with anterolateral screw fixation and OLIF, but fusion rate was no significant. This indicates that OLIF- posterior percutaneous pedicle screw internal fixation may be superior at fostering fusion and maintaining intervertebral stability. Among other methods, additional posterior percutaneous pedicle screw internal fixation after OLIF surgery effectively maintains the stability of the 3 pillars, limits flexion and extension of the surgical segment, dissipates the stress of the fusion device, and provides a stable exterior for bone graft fusion.

For successful surgical results of OLIF, it is very important to reduce the cage subsidence and increase the fusion rate. To achieve this goal, internal factors such as the patient's bone mineral density are also important, but the surgical method is also an important factor. Considering that the screw fixation method can also be an important factor along with the cage insertion method.

Clinically, the results reported by Zhang et al.[12] that OLIF with percutaneous pedicle fixation can be better for promoting union and maintaining intervertebral stability make it possible to expect more successful surgery of OLIF in the future.

- **Conflict of Interest:** The author has nothing to disclose.

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