An oblique approach to the lumbar spine: what we know so far

As people get older, lower back and leg pain is a common and often debilitating problem, preventing simple tasks including walking. Unfortunately it is unavoidable because of simple wear-and-tear of the discs and joints that make up the spine. Fusion surgery is an effective management option where conservative therapy has failed. An implant is placed between two lumbar vertebrae to allow fusion of the lower spine where the pain originates.

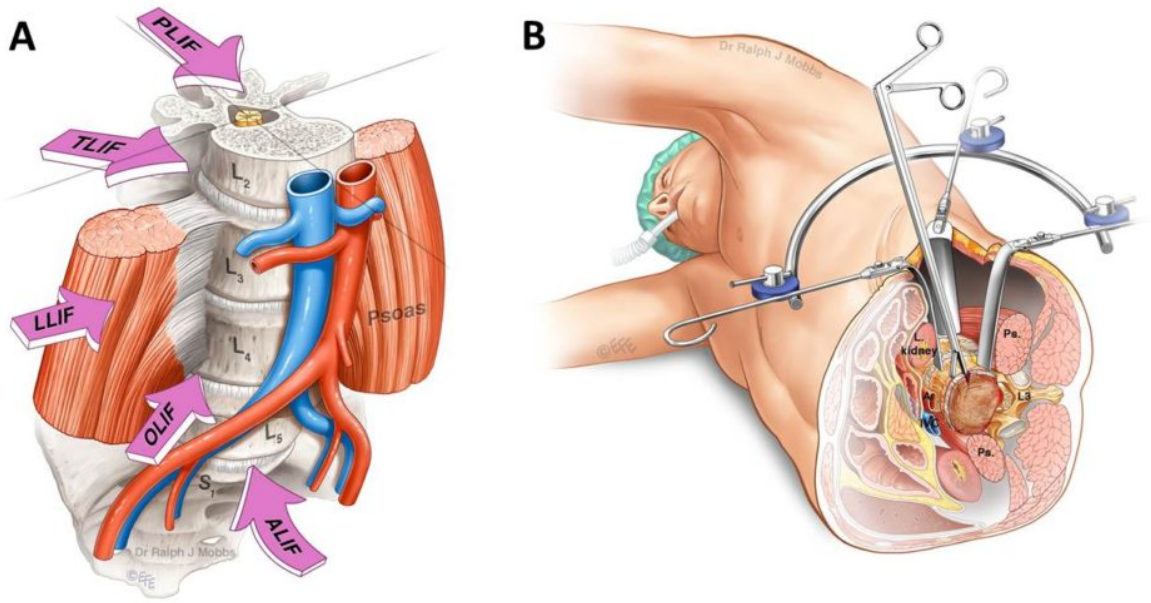

Fig. 1. A. The various approaches to the lumbar spine for fusion surgery. ALIF = anterior lumbar interbody fusion. LLIF = lateral lumbar interbody fusion. OLIF = oblique lumbar interbody fusion. PLIF = posterior lumbar interbody fusion. TLIF = transforaminal lumbar interbody fusion. B. The OLIF approach uses a natural corridor between the major blood vessels overlying the spine and the psoas muscle on the side, which avoids the disadvantages of ALIF and LLIF.

There are many approaches to the lower spine for fusion surgery, each with their own advantages and disadvantages (Fig. 1A). An approach from the front through the abdomen called ALIF and an approach from the side through the flank called LLIF are two commonly used techniques. However the ALIF approach requires manipulation of the bowels and the large vessels that run on top of the lower spine. As a result there is the danger of perforating the bowel or catastrophic bleeding from injury to the major vessels. While the LLIF was developed to address these concerns, cutting through an important muscle mass adjacent to the lower spine, in which a number of nerves to the

leg run through, has its own disadvantages. Thigh pain and weakness are commonly reported complications of this approach.

The oblique approach, called OLIF, is the proposed solution to the disadvantages of ALIF and LLIF (Fig. 1B). This technique uses a natural corridor that occurs between the major vessels running over the spine and the psoas muscle mass which lies on the side of and adjacent to the lower spine. A handful of studies have been conducted, reporting on the complications and outcomes of the OLIF technique, however these are few in number and of low level evidence to drastically change the standard of care.

A systematic review of the literature was undertaken in this study to collate the existing knowledge of OLIF, its technical aspects, complications and effectiveness. A total of 16 studies were selected, from which promising results were demonstrated in aspects of operative blood loss, operative time, success of surgery and risk of complications. The most common complication identified was thigh pain/numbness (3.0% patients) and thigh weakness (1.2% patients). However the studies available, from which these results were derived from, provide low quality evidence, with the absence of controls and randomization in the studies limiting definitive conclusions to be drawn.

What this study demonstrates however is that the early results on the OLIF technique are promising. Further investigation in the form of well-designed studies is warranted to establish the role of the OLIF technique in spinal fusion surgery.

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