



# Minimally Invasive Oblique Lumbar Interbody Fusion (OLIF), Effects on Intraoperative Neuromonitoring, Rates of Vascular Injury, and Postoperative Lumbar Plexus Injury

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## Introduction

Minimally invasive placement of lateral transverse lumbar interbody cages has traditionally been done through retroperitoneal, trans-psoas approaches. These often require extensive use of continuous neuromonitoring during the approach to avoid known complications involving lumbar plexus injury. Mini-open, oblique lumbar interbody fusions in the lateral position have been described as psoas-sparing alternatives to traditional anterior approaches to the spine. We report our initial operative results utilizing long tubular retractors in an oblique, lateral approach to place transverse interbody cages.

## Methods

A retrospective review of cases from 2013 to 2015 performed by the senior author was reviewed for the use of the psoas-sparing oblique approach. All approaches were performed using continuous EMG and stimulating probes. Approaches utilizing open retroperitoneal exposure use of a secondary exposure surgeon, or surgeries performed without continuous neuromonitoring were excluded. Perioperative data, including intraoperative EMG triggering, vascular injuries, postoperative neurological deficits, and adequate placement of interbody devices on postoperative films were recorded.

## Results

24 patients were included for chart review for a total of 48 levels of surgery. There were no EMG triggered responses with initial placement of the stimulator probes and retractors. Two cases of had EMG triggering at a stimulation threshold of 8 mA after retractor opening. There were no vascular or visceral injuries during the surgeries. There was a single patient with a new postoperative sensory deficit and no patients with new motor deficits. All postoperative films showed adequate placement of interbody cages without ventral, dorsal, or lateral migration upon standing.

## Conclusions

Lateral oblique psoas-sparing, placement of transverse lumbar interbody cages is safe and may be associated with a decreased risk of lumbar plexus injury over trans-psoas approaches.

## Learning Objectives

By the conclusion of this session, the participants can discuss possible advantages of the oblique approach to the spine and as an effective and viable minimally invasive option for spine fusion.