Minimally Invasive Direct Lateral Interbody Fusion (MIS-DLIF): Proof of Concept and Perioperative results

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Methods

Surgical Technique

**MIS-DLIF**

1. **Step 1**
   - Approach aided by A/P and Lat Fluoro + Electrophysiology
   - Enter a 8mm blunt canulated probe through an incision on posterior axillary line.
   - Walk probe along the rib inside the pleural space and position on disk of interest.
   - Insert K-wire into disk space and working tube over K-wire, creating sealed access to disk space.

2. **Step 2**
   - Discectomy performed through working tube
   - Remove disk material with drill, rotating curette, ring curette, and rongeur
   - Prepare endplates by dilating rotating curette
   - Pack disk space with Tricalcium Phosphate soaked in autologous bone marrow aspirate

3. **Step 3**
   - Cage entry
   - Insert cage over K-wire under biplanar Fluoroscopic monitoring
   - Enter space into disk space
   - Remove insertion devices, suture pleural space

**OLLIF**

1. **Step 1**
   - OLLIF combines advantages of MIS + lateral
   - Fusion through 10mm incision
   - Approach without direct visualization: Fluoroscopy & Electrophysiology
   - Access disk via Kambin’s triangle

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4. **Step 4**
   - Cage entry
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   - Remove insertion devices, suture pleural space

5. **Step 5**
   - Perform MI Posterior Pedicle Screw Fixation

**Problem:** OLLIF is difficult in L4-L5 and L5-S1 because sacral ala and iliac crest block the approach

**Solution:** A more lateral approach (MIS-DLIF)

Introduction

Spinal Fusion Approaches

The OLLIF Procedure

OLLIF combines advantages of MIS + lateral
- Fusion through 10mm incision
- Approach without direct visualization: Fluoroscopy & Electrophysiology
- Access disk via Kambin’s triangle

**Conclusion:** In the initial patient group, MIS-DLIF has been a safe and clinically effective procedure. From a surgeon’s perspective, MIS-DLIF is easier to master than comparative MIS fusions, because it does not require direct visualization, facetectomy or laminectomy. Further study is warranted to establish whether MIS-DLIF is clinically efficacious in the long term.

Perioperative Results

![Table: Perioperative outcomes](image)

Patient Reported Results

![Image: 10-point pain scale](image)

![Image: Oswestry Disability Index](image)

Pre-Op Post-Op

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