

# Interbody Fusion in Degenerative Surgery

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**INNOV<sup>Δ</sup>YSIS**  
INNOVATE / INVOLVE / INVENT

⊗ **SPINE SYMPOSIUM**

AN EVIDENCE-BASED APPROACH TO THE  
MANAGEMENT OF SPINAL DISORDERS

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MONTAGE HOTEL AND RESORT  
DEER VALLEY, UTAH



# Lumbar spondylosis

- mechanical back pain
- disc & facet disease
- radicular or claudicant symptoms
- reduced mobility
- poor quality of life

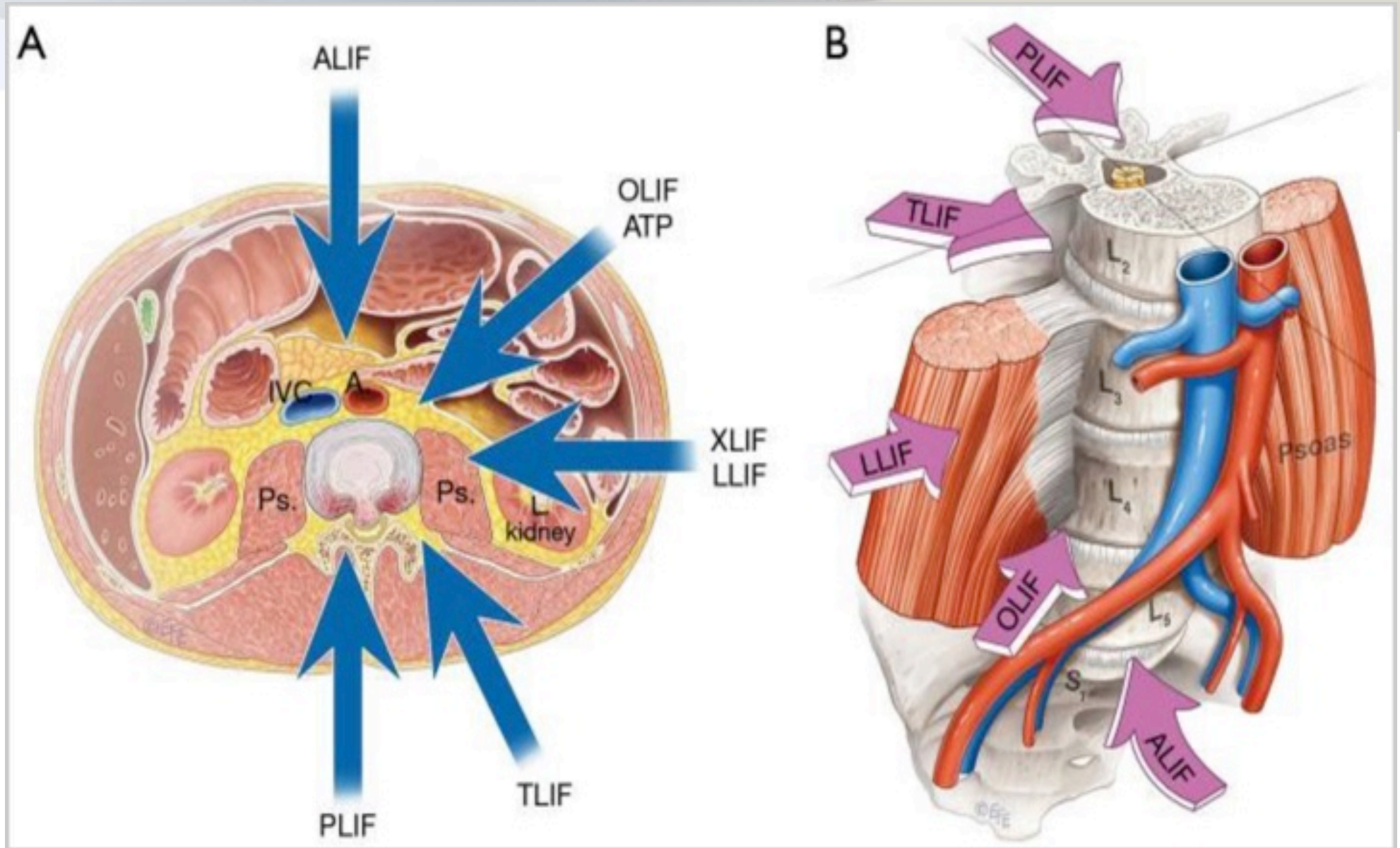
## Interbody Fusion

- stabilize painful motion segment
- indirect neural decompression
- restore lordosis & correct deformity

## Interbody Fusion vs Posterolateral Fusion

- lower rate of post-op complications (DK Resnick *J NS Spine* 2005)
- higher fusion rate (JC Eck et al. *JAAOS* 2007)

ALIF  
OLIF  
XLIF  
TLIF  
PLIF



## TLIF

### J Harms 1982

- less neural retraction than traditional PLIF (PC McAfee *Spine* 2005)  
and can retain midline ligamentous structures
- open or MIS

### limitations:

- restoration of lordosis (SC Humphreys *Spine* 2001)
- paraspinal muscle iatrogenic injury (PC Hsieh *J NS Spine* 2007)

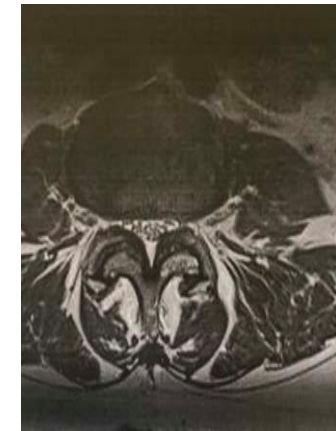
### contraindications:

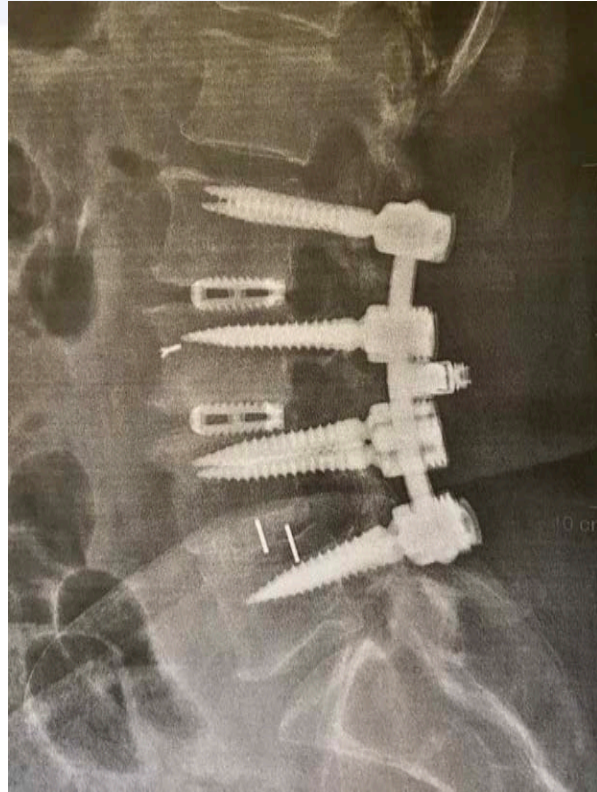
- extensive epidural scarring
- arachnoiditis
- conjoined nerve roots

## 75yo female

-2yr s/p L4-5 TLIF

-LBP & leg pain, claudication





TLIF L2-3 & L3-4



## XLIF (LLIF)

-retroperitoneal, transpsoas

Pimenta 2001

High fusion rate, minimal exposure (BM Ozgur *Spine J* 2006)

Limitations:

-L5-S1 iliac crest

Risks:

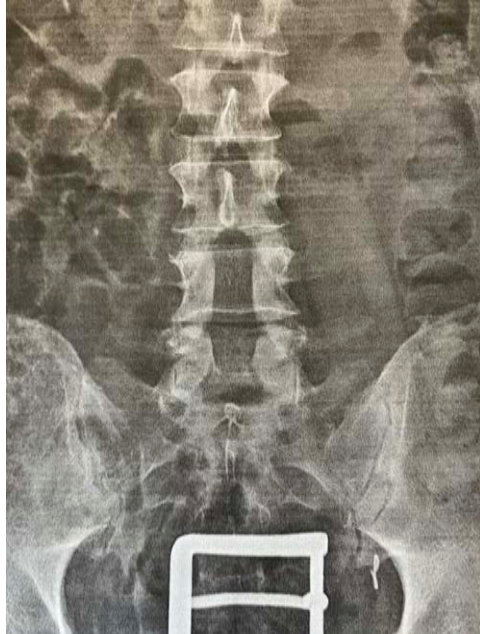
-L4-5 lumbar plexus & iliac vessels (difficult to control if injured)

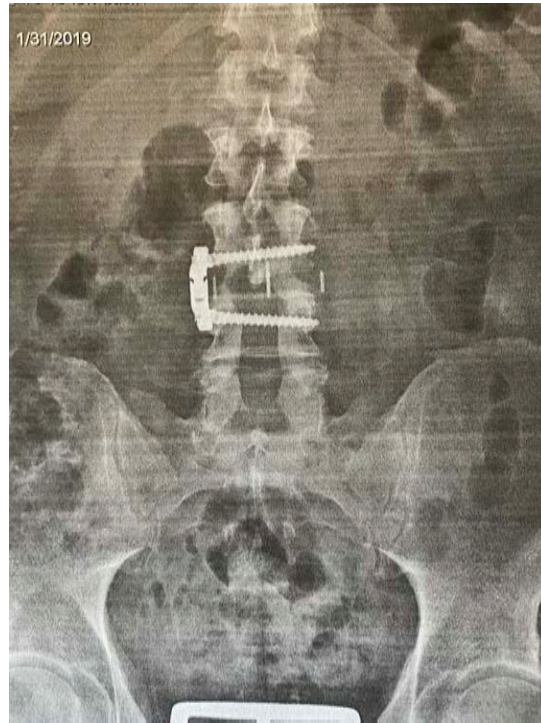
As Standalone:

-one level only, not adjacent to prior fusion (GM Malham *J Spine Dis* 2014)

## 52yo male

- 5 yrs s/p L4 to S1 laminectomy
- worsening LBP & leg pain
- temporary benefit w L3-4 injections





**XLIF** L3-4 w plate

## 55yo chiropractor

- large HNP L3-4
- left microdiscectomy



## 2 years later:

- recurrent left leg pain





**XLIF** L3-4 and posterior ISP

# ALIF

BH Burns *Lancet* 1933

- restore lordosis & foraminal height (PJ Rao *Neurosurgery* 2015)
- maximizes implant size & surface area (K Phan *J Clin Neurosci* 2015)
- spares posterior musculature

risks:

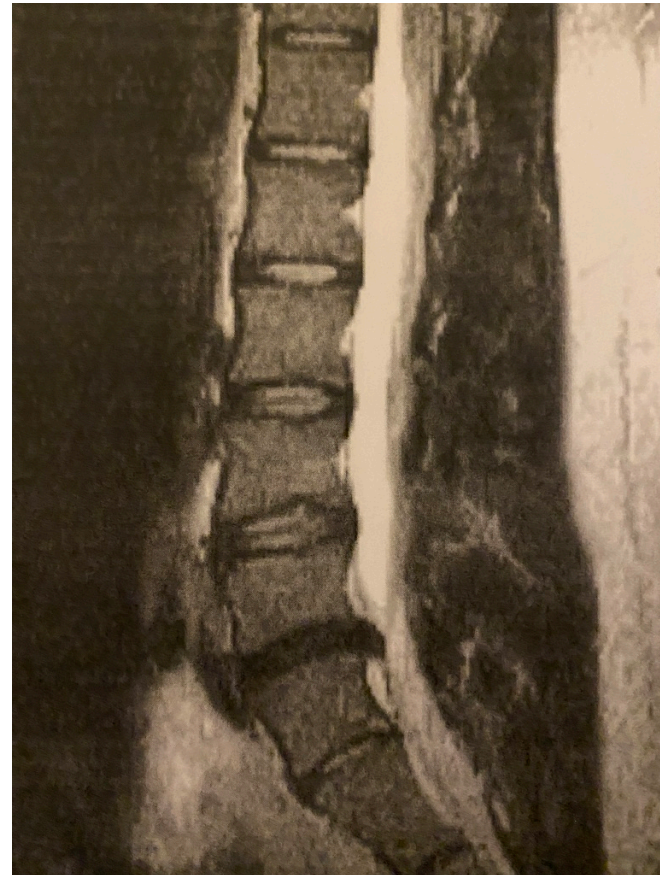
- retrograde ejaculation (Phan et al *BrJNS* 2015) (1-3%)
- visceral & vascular injury (Malham *JNS* 2014, Mobbs *Gl Sp J* 2015) (1-6%)
- prolonged ileus

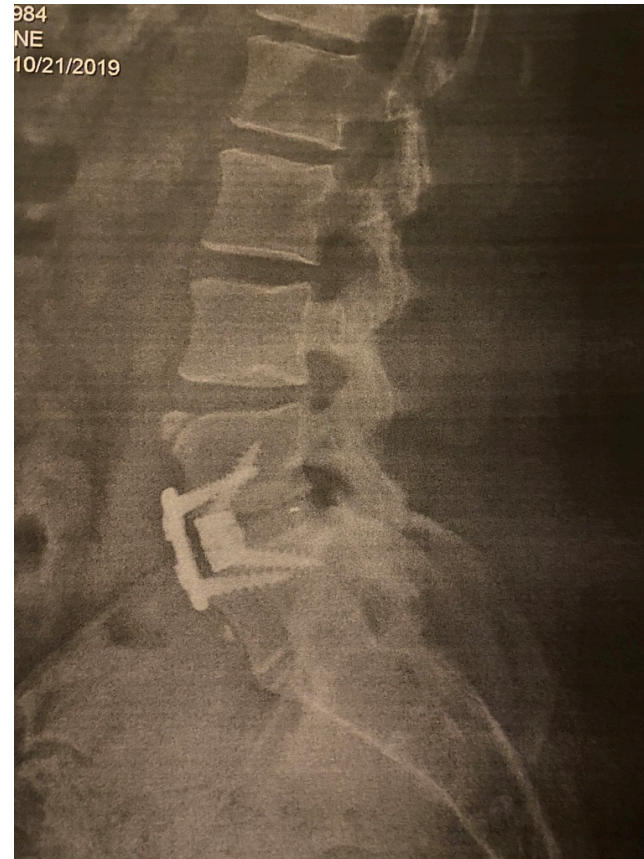
contraindications:

- prior anterior surgery
- severe peripheral vascular disease
- solitary kidney on side of exposure (RJ Mobbs *Global Spine* 2015)

## 45yo male truck driver

- 10yr h/o chronic low back pain
- Bilat radiculopathy
- LBP > leg pain





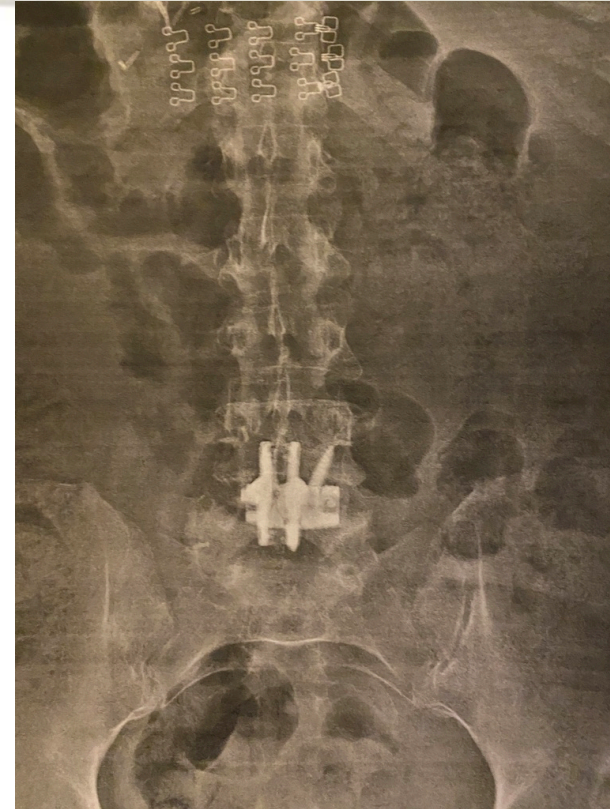
**ALIF** stand alone w plate



## 55yo female accountant

- 5yr h/o chronic low back pain
- bilat leg pain (80/20 LBP/leg pain)

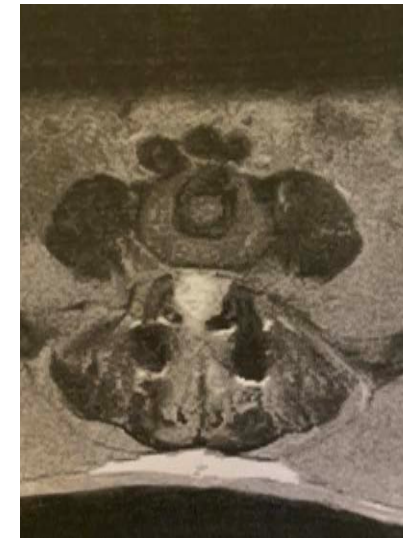


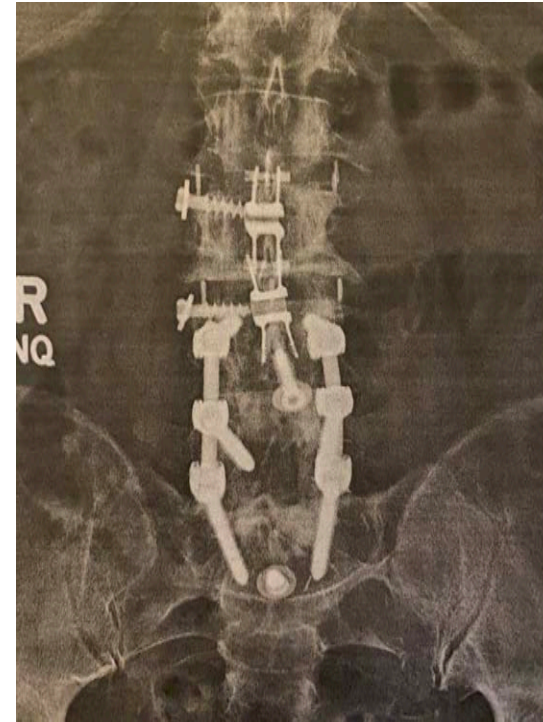


**ALIF** L4-5 with posterior clamp

# 75yo male

- 20yrs s/p L4-S1 fusion
- claudication
- LBP & bilat leg pain





**XLIF** L2-3 & L3-4 and partial laminectomy & coflex



Thank you