



*The South's Leading Center for
Minimally Invasive Spine Surgery*

SHOULD MINIMALLY INVASIVE SURGERY REPLACE TRADITIONAL OPEN LUMBAR FUSION?

Walter W. Eckman, MD, Michelle McMillen, RN, Lynda Hester, PT; Aurora Spine Center, Tupelo, MS, USA
Podium Presentation and Published in Program of the 61st Southern Neurosurgical Society Annual Meeting, February 24-27, 2010

INTRODUCTION:

Minimally invasive spine surgery with reduced muscle trauma results in less pain, less blood loss, and minimal infection risk. Most patients can return home on the day of surgery. Data is needed to evaluate results in a diverse large series of patients undergoing single level lumbar fusion.

METHODS:

Surgery: The subject procedure was single level Minimally Invasive Transforaminal Lumbar Interbody Fusion (MITLIF) through a single incision using a 21mm diameter working channel with titanium or polymeric interbody devices, BMP2 or Silicated Calcium Phosphate bone graft substitutes and unilateral pedicle screw fixation.

Study Design: Prospective study of 647 procedures from 3/18/03 to 10/30/09 in 600 patients (293 male, 307 females) ages 15 to 84 (average 54). Diagnoses included chronic back pain, stenosis, listhesis, segmental instability and central disk herniation. A large majority needed relief from involvement of neuroforamina or the spinal canal.

Outcomes: Outcomes were evaluated for: post-op discharge; incidence of transfusion, infection or reoperation at index level; Waddell's Severity Score; VAS for back, upper leg and lower leg pain. Return to work was evaluated for those who were working within 30 days prior to surgery (295), with data available on 283 patients.

Fusion: Patients returned for reformatted thin slice CT scans at 1 year or longer after 324 procedures to evaluate interbody fusion.

RESULTS:

Discharge: Same day 65%* (423/647); within 23 hours 95% (617/647)

Transfusion: < 1% (4/647)

Surgical Infection: 0

Reoperations: 2.9% (19/647)

Interbody Fusion: Complete 95% (307/324); incomplete 4% (13/324); non-union 1.2% (4/324)

Return to Work: 96% (272/283); no data available 12 patients

	Waddell Severity Score	VAS Back Pain	VAS Upper Leg Pain	VAS Lower Leg Pain
Pre-op	5.3	6.5	5.1	4.0
One Year	2.0	2.6	1.3	1.1
Improved at 1 year	90%	90%	89%	86%
Average Improvement	62%	60%	75%	73%

CONCLUSIONS:

1. Despite required admission, most patients of all ages were discharged the same day; 95% are home within 23 hours.
2. MITLIF has low morbidity for infection, transfusion and reoperation at index level.
3. MITLIF with unilateral pedicle screw fixation gives high interbody fusion rates.
4. MITLIF allows very successful return to work – earliest in 4 days (**update: earliest now 1 day**).
5. MITLIF results in 1 year outcomes for pain and function equal to or better than most open procedures.

SUMMARY:

Minimally Invasive Transforaminal Lumbar Interbody Fusion with unilateral pedicle screw fixation is very successful for a wide range of disorders and age groups. Patient benefits include minimal hospital stay, low morbidity, high fusion rates, successful return to work and excellent one year outcomes for pain and function.

*** Current Data Shows Same Day Discharge is ~95% with Use of Improved Devices, Instruments, and Techniques**