

“Inpatient” Surgery as an Outpatient: Spine

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Disclosures - MWC

- Consultant
 - Medtronic
- Share Holder
 - Bay Area Surgical Group
 - Orthopaedic Management Association

Overview

- Outpatient Spine Surgery Procedures
- Minimally Invasive Spine Surgery
- Reimbursement

Stats

- California Ambulatory Surgery Association
 - 2008 stats
 - Top 100 Procedures
- 9,234 Spine epidurals
- 9,178 Cataracts
- 5,041 Knee arthroscopies
- 349 Laminotomy/hemilaminectomy/Disc

Literature

Spine (Phila Pa 1976). 2006 Aug 1;31(17):1957-63; discussion 1964.

Population-based trends in volumes and rates of ambulatory lumbar spine surgery.

Gray DT, Deyo RA, Kreuter W, Mirza SK, Heagerty PJ, Comstock BA, Chan L.
Source

Center for Quality Improvement and Patient Safety, Agency for Healthcare Research and Quality, Rockville, MD 20850, USA. darryl.gray@ahrq.hhs.gov

Abstract

STUDY DESIGN:

Sequential cross-sectional study.

OBJECTIVES:

To quantify patterns of outpatient lumbar spine surgery.

SUMMARY OF BACKGROUND DATA:

Outpatient lumbar spine surgery patterns are undocumented.

METHODS:

We used CPT-4 and ICD-9-CM diagnosis/procedure codes to identify lumbar spine operations in 20+ year olds. We combined sample volume estimates from the National Hospital Discharge Survey (NHDS), the National Survey of Ambulatory Surgery (NSAS), and the Healthcare Cost and Utilization Project (HCUP) Nationwide Inpatient Sample (NIS) with complete case counts from HCUP's State Inpatient Databases (SIDs) and State Ambulatory Surgery Databases (SASDs) for four geographically diverse states. We excluded pregnant patients and those with vertebral fractures, cancer, trauma, or infection. We calculated age- and sex-adjusted rates.

RESULTS:

Ambulatory cases comprised 4% to 13% of procedures performed from 1994 to 1996 (NHDS/NSAS data), versus 9% to 17% for 1997 to 2000 (SID/SASD data). Discectomies comprised 70% to 90% of outpatient cases. Conversely, proportions of discectomies performed on outpatients rose from 4% in 1994 to 26% in 2000. Outpatient fusions and laminectomies were uncommon. NIS data indicate that nationwide inpatient surgery rates were stable (159 cases/100,000 in 1994 vs. 162/100,000 in 2000). However, combined data from all sources suggest that inpatient and outpatient rates rose from 164 cases/100,000 in 1994 to 201/100,000 in 2000.

Literature

Can J Neurol Sci. 2010 Jan;37(1):49-53.

Admission and acute complication rate for outpatient lumbar microdiscectomy.

Fallah A, Massicotte EM, Fehlings MG, Lewis SJ, Rampersaud YR, Ebrahim S, Bernstein M.

Source

Division of Neurosurgery, University of Toronto, Toronto, Ontario, Canada.

Abstract

OBJECTIVE:

Specialization is generally independently associated with improved outcomes for most types of surgery. This is the first study comparing the immediate success of outpatient lumbar microdiscectomy with respect to acute complication and conversion to inpatient rate. Long-term pain relief is not examined in this study.

METHODS:

Two separate prospective databases (one belonging to a neurosurgeon and brain tumor specialist, not specializing in spine (NS) and one belonging to four spine surgeons (SS)) were retrospectively reviewed. All acute complications as well as admission data of patients scheduled for outpatient lumbar microdiscectomy were extracted.

RESULTS:

In total, 269 patients were in the NS group and 137 patients were in the SS group. The NS group averaged 24 cases per year while the SS group averaged 50 cases per year. Chi-square tests revealed no difference in acute complication rate [NS (6.7%), SS (7.3%)] ($p > 0.5$) and admission rate [NS (4.1%), SS (5.8%)] ($p = 0.4$) while the SS group had a significantly higher proportion of patients undergoing repeat microdiscectomy [NS (4.1%), SS (37.2%)] ($p < 0.0001$). Excluding revision operations, there was no statistically significant difference in acute complication [NS (5.4%), SS (1.2%)] ($p = 0.09$) and conversion to inpatient [NS (4.3%), SS (4.6%)] ($p > 0.5$) rate. The combined acute complication and conversion to inpatient rate was 6.9% and 4.7% respectively.

CONCLUSION:

Based on this limited study, outpatient lumbar microdiscectomy can be apparently performed safely with similar immediate complication rates by both non-spine specialized neurosurgeons and spine surgeons, even though the trend

Literature

J Spinal Disord Tech. 2010 Oct;23(7):439-43.

Safety of anterior cervical discectomy and fusion performed as outpatient surgery.

Garringer SM, Sasso RC.

Source

Department of Orthopaedic Surgery, Indiana University School of Medicine, Indianapolis, IN 46260, USA.

Abstract

STUDY DESIGN:

Retrospective review of a prospectively collected database.

OBJECTIVE:

To determine the complications and safety of anterior cervical discectomy and fusion performed on an outpatient basis.

SUMMARY OF BACKGROUND DATA:

Anterior cervical discectomy and fusion performed as outpatient surgery is an appealing alternative and has many potential benefits. The safety of this practice, however, has not been thoroughly investigated. This study aims to examine the frequency of acute complications and rates of unplanned admissions for anterior cervical discectomy and fusions scheduled as outpatient procedures.

METHODS:

Data were collected prospectively on 645 consecutive patients undergoing anterior discectomy and fusion by a single surgeon for either stenosis or herniated nucleus pulposus involving 1 level. These data were then retrospectively reviewed for acute complications occurring within 48 hours of surgery. A subset consisting of the last 392 patients were further reviewed to better characterize this population. Complications after surgery as well as procedures requiring postoperative admission for any reason were detailed.

RESULTS:

Two of 645 (0.3%) patients developed acute complications, both of which were epidural hematomas. Both occurred within the protocol's mandatory 4 hours postoperative observation time. Both resolved without permanent neurologic deficit. There were no retropharyngeal hematomas and no deaths. Six percent of patients required an unplanned admission. More than 80% of unplanned admissions were secondary to either pain or nausea.

Personal Experience

- Lumbar Laminectomy
- Lumbar Discectomy
- Lumbar Interspinous Process Spacers
 - XSTOP
 - DIAM
- Kyphoplasty
- Future considerations
 - Single level lumbar fusion
 - Single level cervical fusion
 - Single level cervical disc replacement
 - Posterior cervical foraminotomy

Advantages

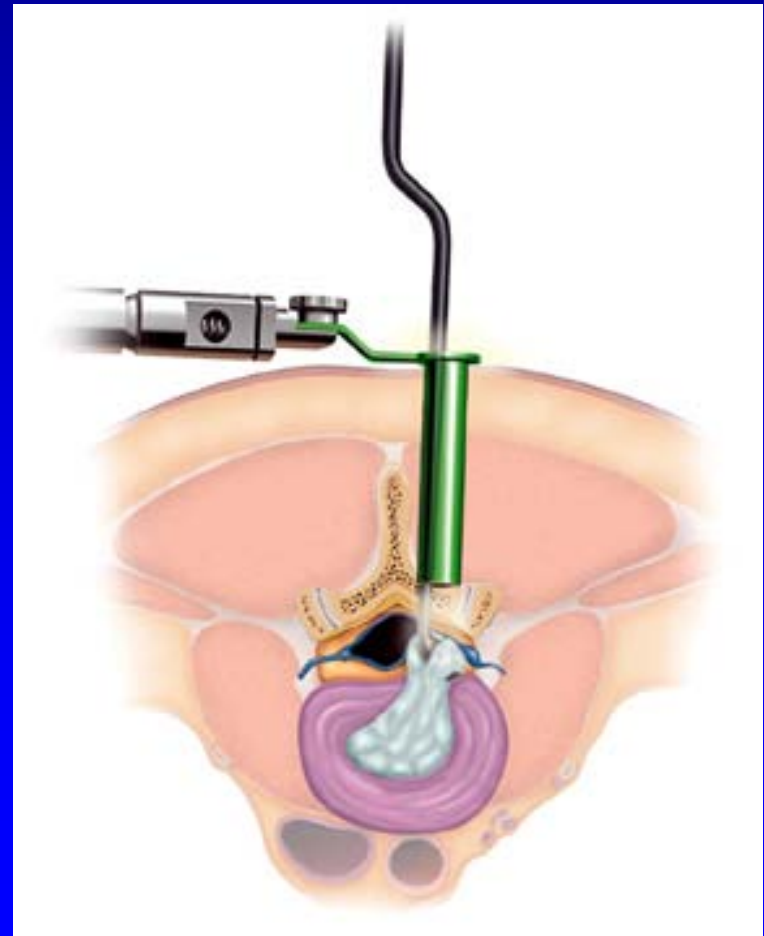
- ASCs usually more efficient
- ASCs more cost-effective
- Convenient for patient/family
- Convenient for MD
- Financial Advantages for MD
 - Share Holder/Owner
 - Facility payments
 - Professional Services

Risks/Disadvantages

- Surgical complications
 - Epidural hematoma
- Medical complications
 - MI, stroke, etc
- Insurance reimbursement
 - No codes
 - Limits patient pool

Minimally Invasive Spine Surgery

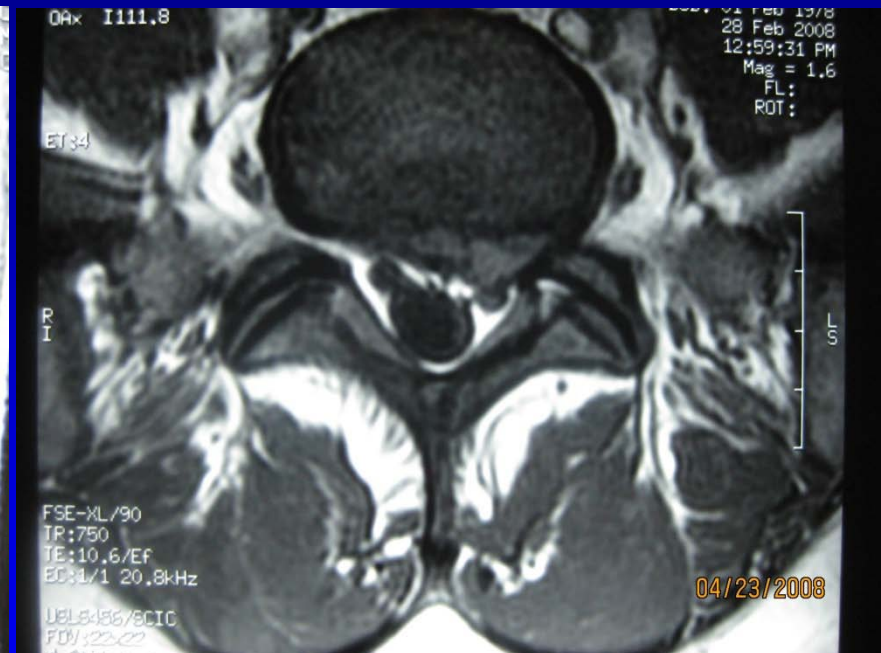
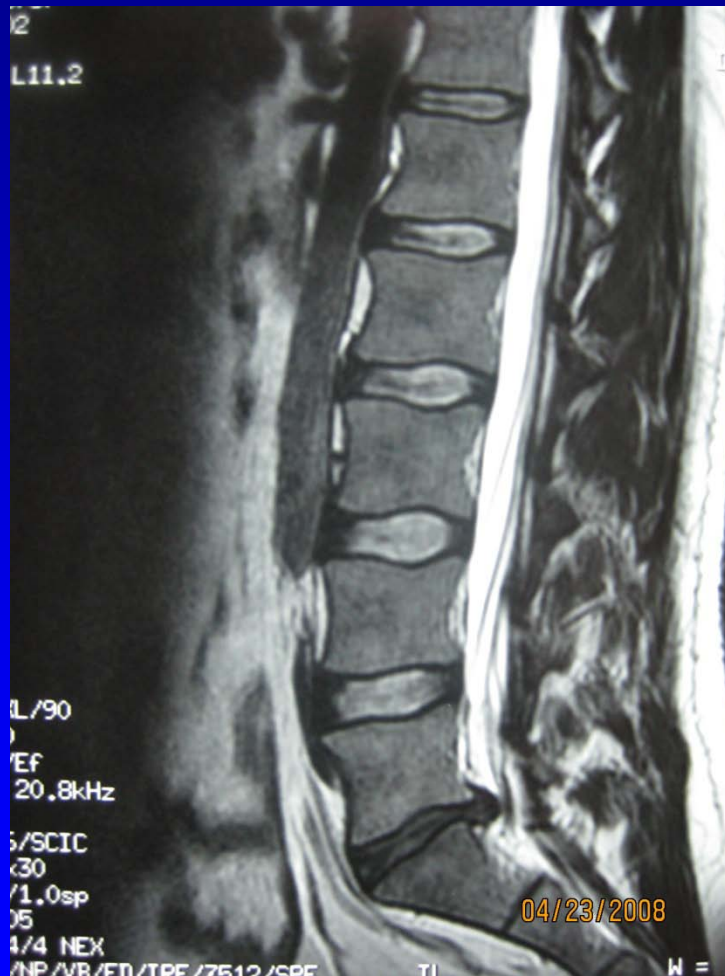
- “Tubes” used to dilate through muscle
- Special retractors
- Good fluoroscopy
- Less blood loss
- Less pain meds
 - No PCAs
- No drains
- Less inpatient needs



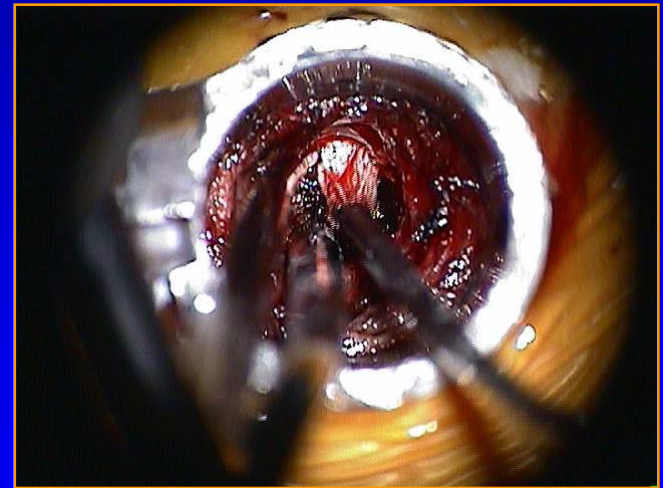
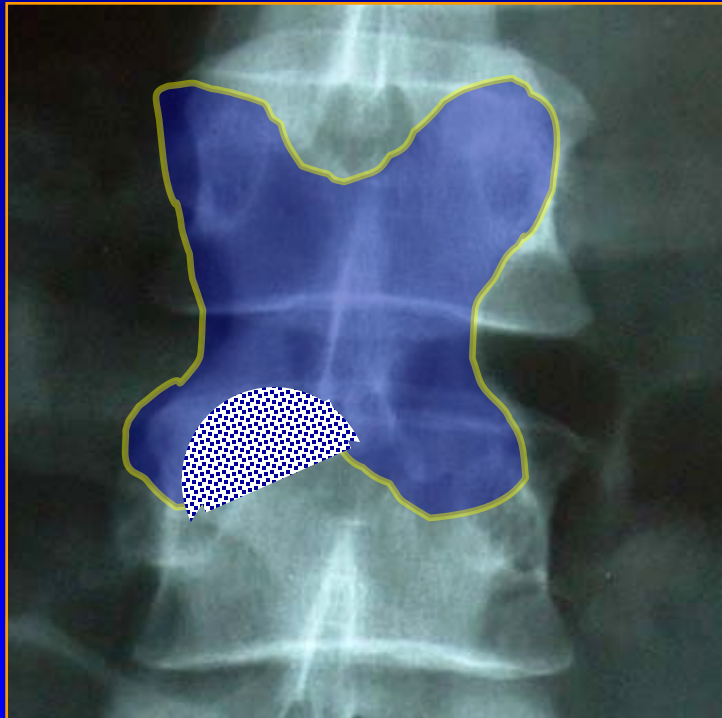
Which Procedures?

- Minimally invasive nerve decompression
 - Discectomy
 - Laminectomy
 - XSTOP
- Minimally invasive spinal fusion
 - Transforaminal Lumbar Interbody Fusion (TLIF)
 - Transpsoas Lateral Interbody Fusion (X/DLIF)
- Cervical disc Replacement
- Kyphoplasty

Herniated Nucleus Pulposus



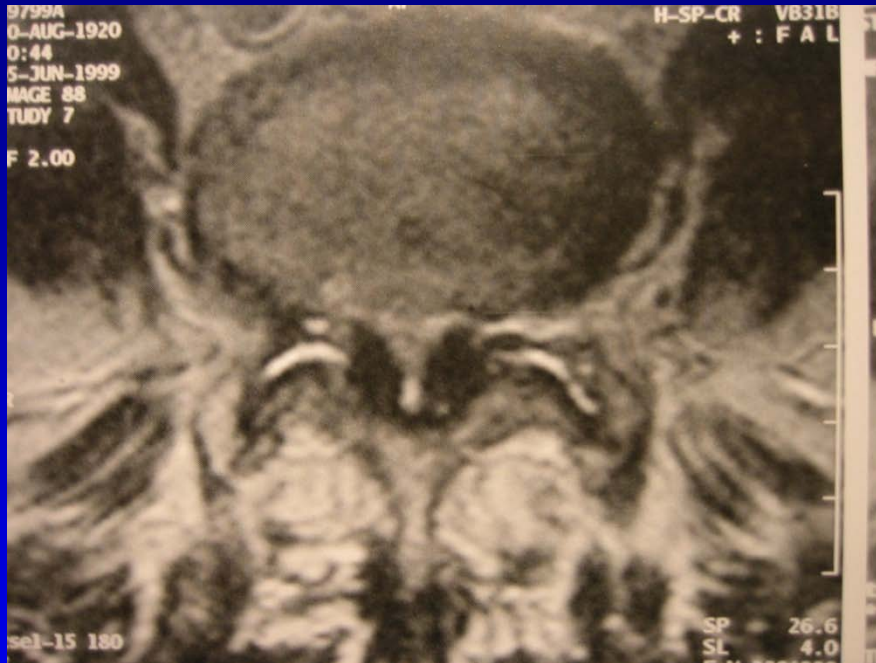
Minimally Invasive Spine Surgery



Minimally Invasive Spine Surgery

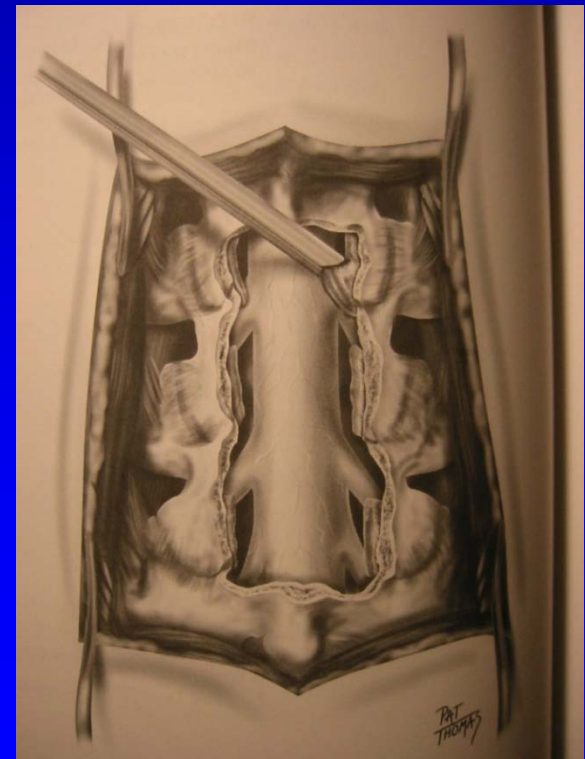
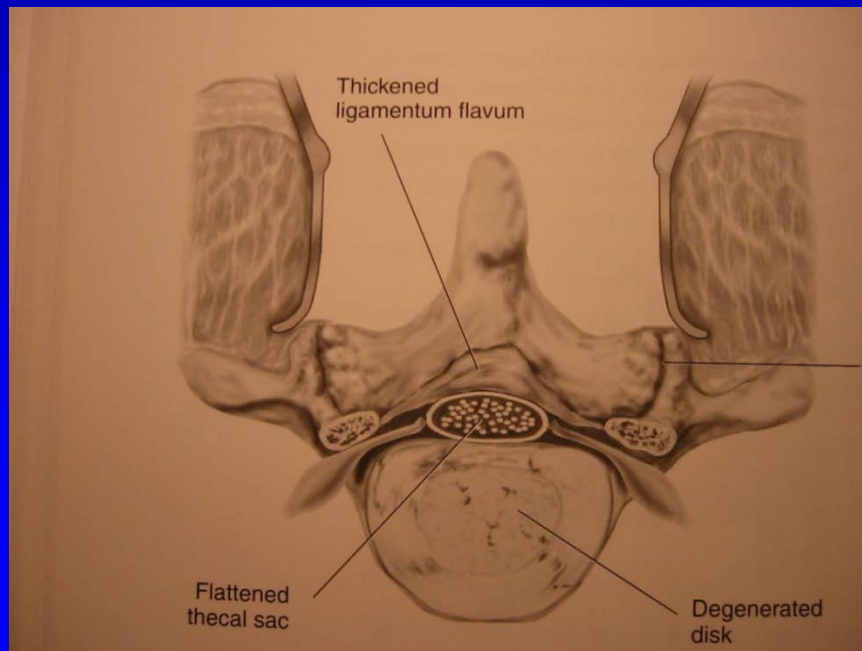


Spinal Stenosis



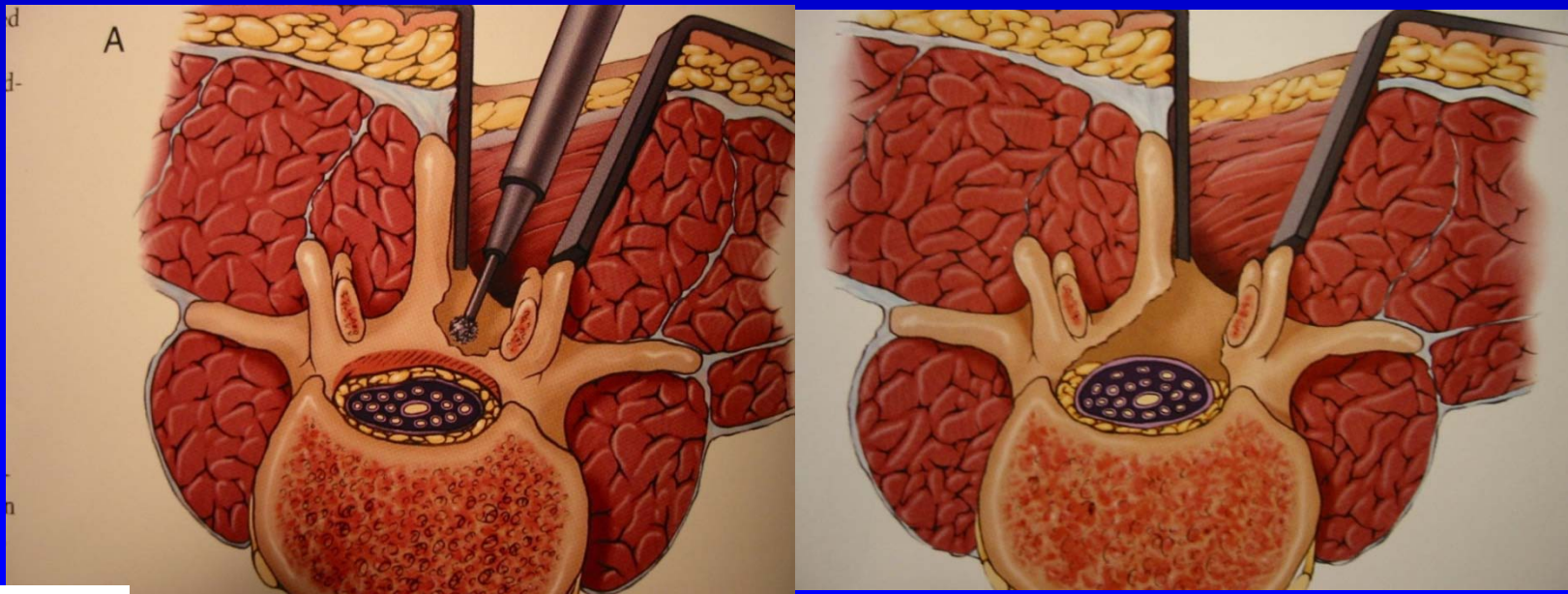
Spinal Stenosis

- Traditional technique
 - “Maximally invasive”
 - Open laminectomy



Spinal Stenosis

- Minimally Invasive Surgery
 - Tubular retractors
 - Unilateral approach
 - Unilateral or bilateral direct decompression



Spinal Stenosis

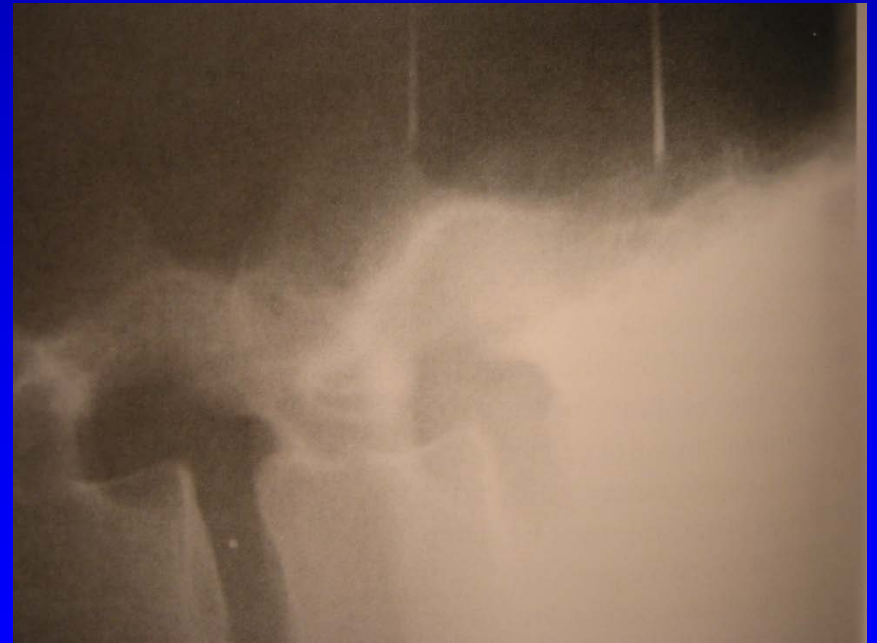
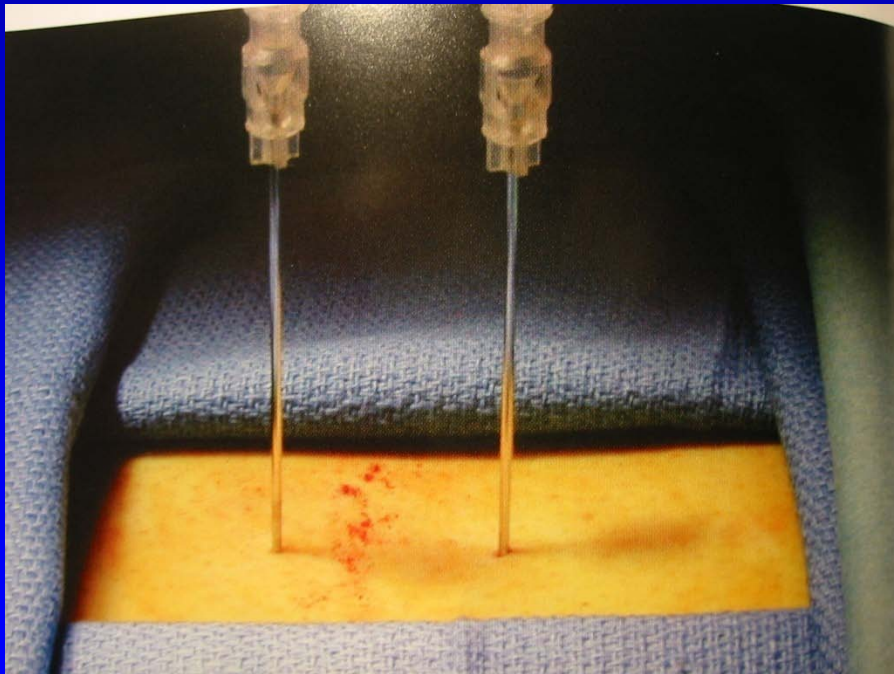
- Interspinous Decompression (**XSTOP**)
 - Indirect decompression
 - Performed under conscious sedation
 - Excellent alternative for those patients who may not undergo general anesthesia
 - Implant costs



Spinal Stenosis

Minimally Invasive Surgery

Less blood loss and shorter operative time



Degenerative Spondylolisthesis

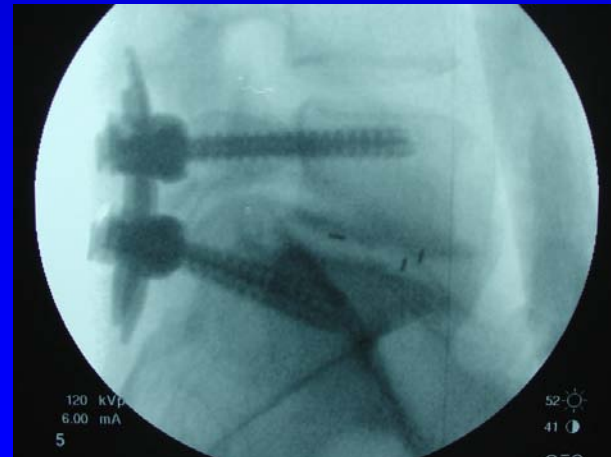
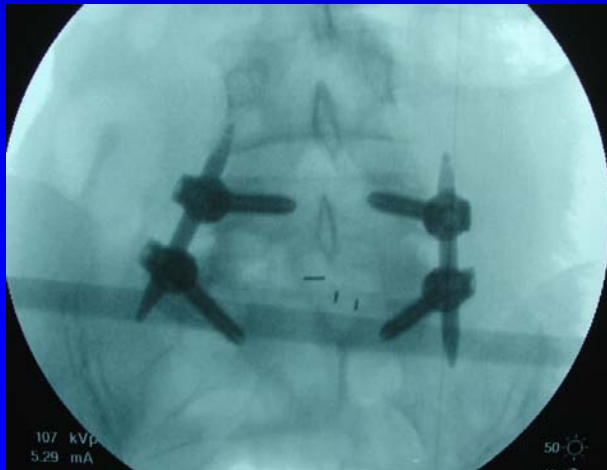
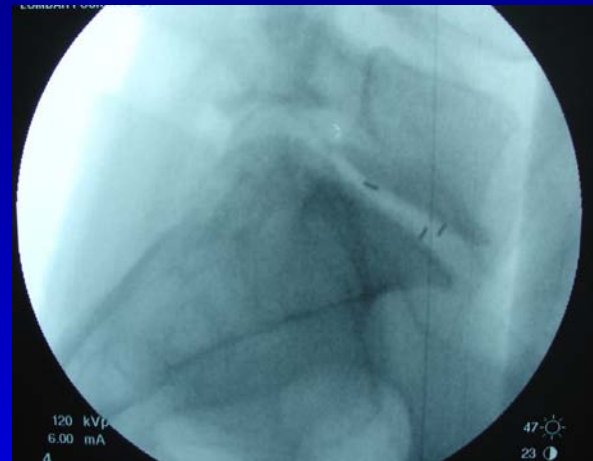
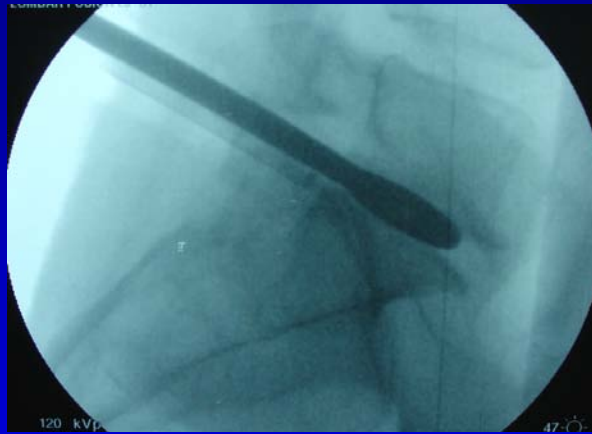


Minimally Invasive Lumbar Fusion

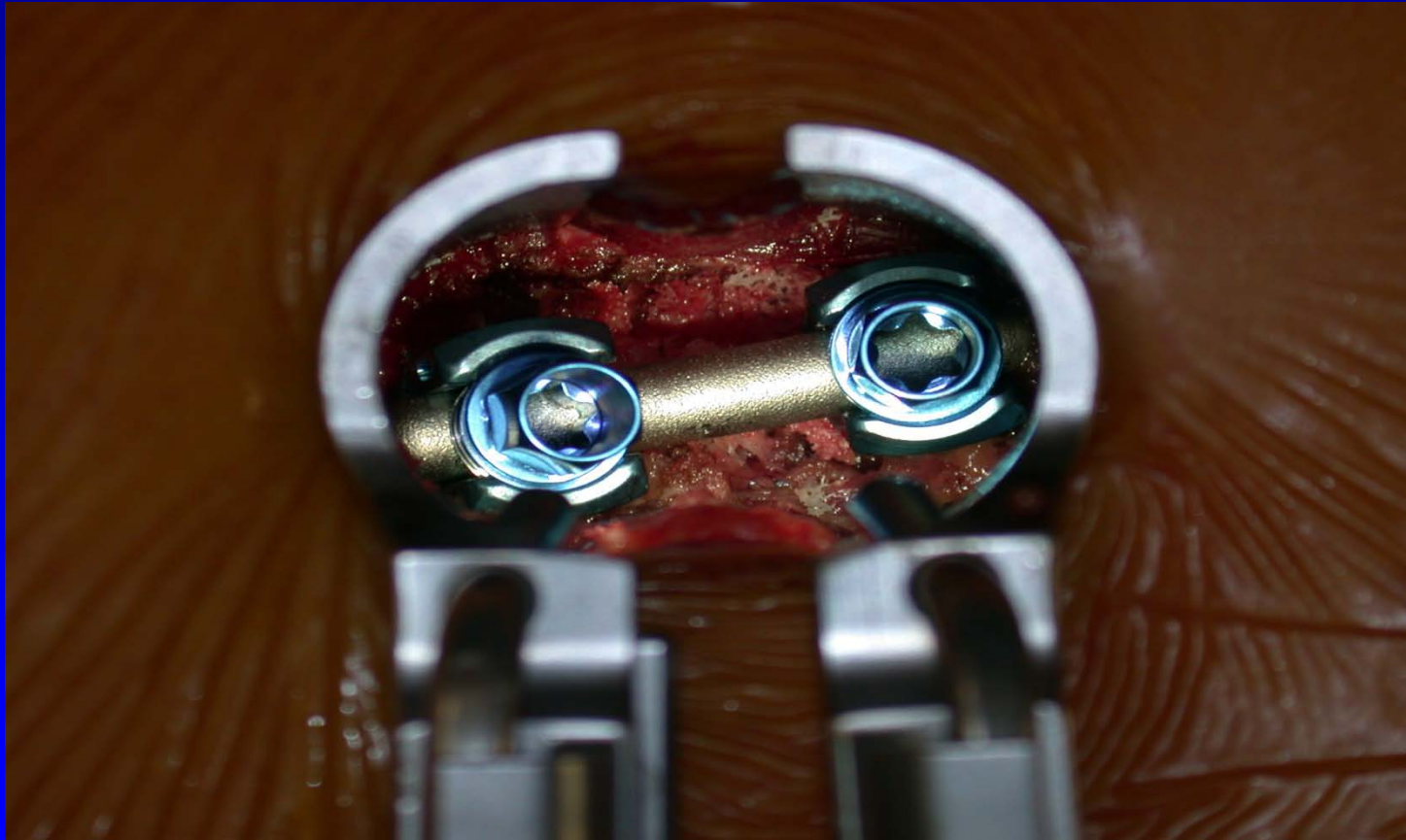


Less blood loss and post-operative pain compared to traditional fusion methods

Intraoperative Images



Pedicle Screws and Rod

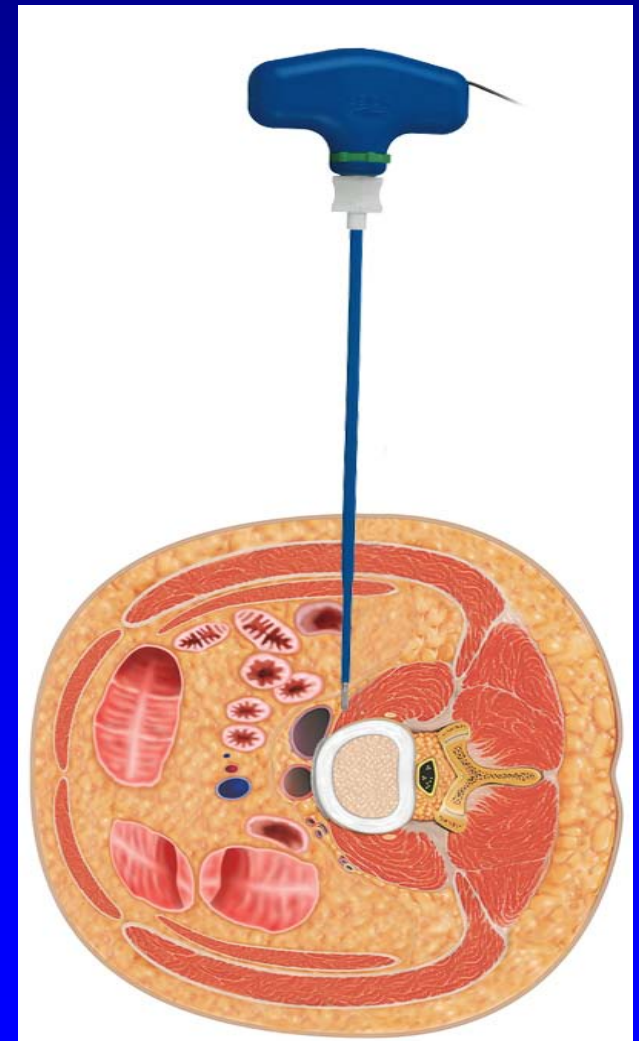


Illustrative Case

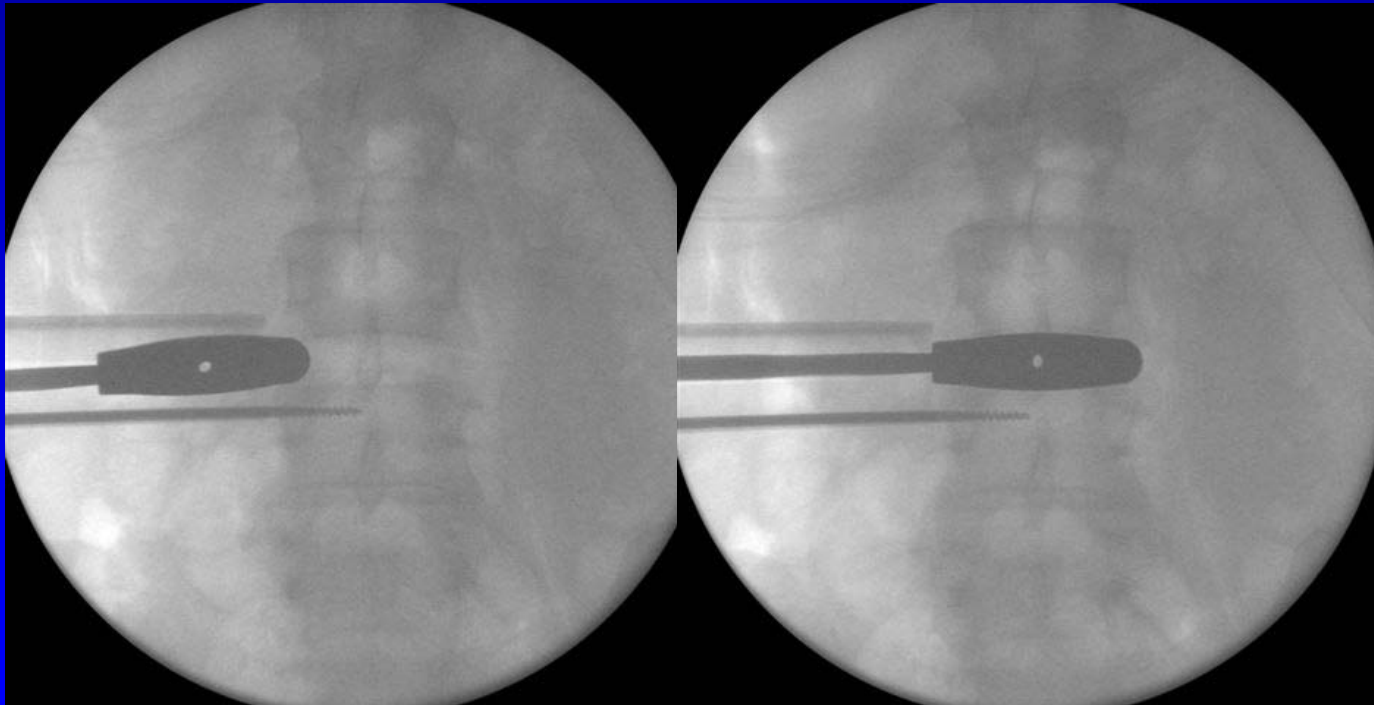


Transpoas Lateral Approach

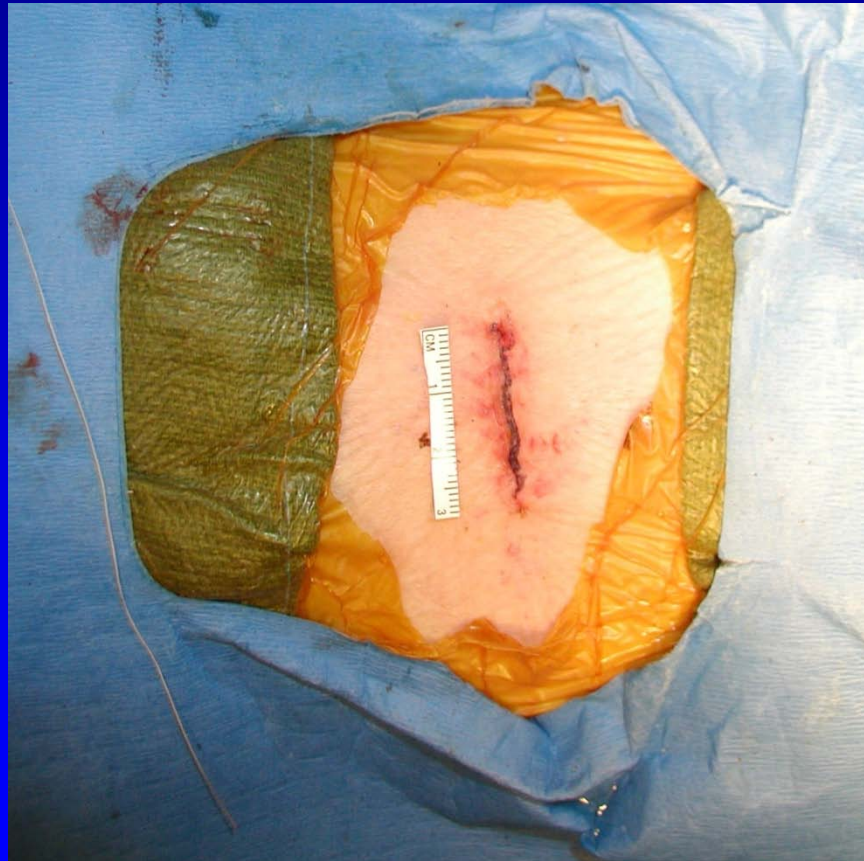
- Minimally Invasive
- Retroperitoneal
- Anterior decompression and fusion



Trial/Distract



Closure



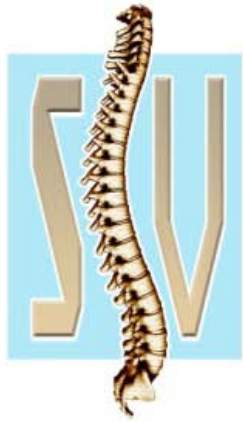
Neuromonitoring



Conclusion

- Upward trend in outpatient spine surgery
- Minimally invasive procedures
- Complications infrequent
- Need better pain control for lumbar fusion cases
- Insurance modification/reform

Thank You!



Silicon Valley

SPINE INSTITUTE

svspine.com