Perioperative Care for Outpatient Spine Surgery

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Classic Open Spine Surgery

- Long OR times
- Transfusions
- Length of stay 3-4 days

Minimally Invasive Spine Surgery

- Smaller incisions
- Muscle splitting approaches
- Minimal Blood Loss
- Reduced Length of stay

Spine

SURGERY

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Medialized, Muscle-Splitting Approach for Posterior Lumbar Interbody Fusion

Technique and Multicenter Perioperative Results

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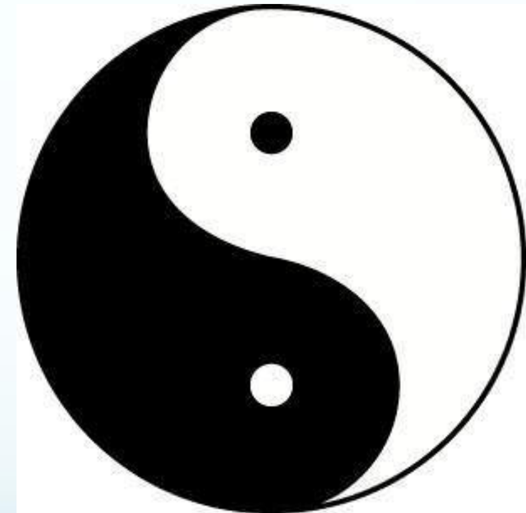
Spine Surgery in the ASC-Outpatient

- Must combine minimally invasive techniques with perioperative considerations in order to deliver safe and reproducible outcomes
- Its not just the surgery
- Its not just the anesthesia



Considerations

- Patient Selection
  - Age
  - Medical co morbidities
  - Complexity of case
  - Patient driving and engaged in decision making
- Procedure Selection
  - Surgeon Comfort performing procedure in outpatient setting (ie inpatient stays less than 24 hours)
  - Estimated Blood loss - as no ability to transfuse

ASC considerations

- Protocols for complication management
  - Transfer agreement – operating surgeon should have privileges in case of a transfer
  - Management of CSF leak
  - Staff comfortable with spine surgery
  - Ability to keep patient overnight vs same day discharge

Preoperative medication

- Neurontin
- Cox 2 medication
- Preoperative narcotic use?

Intraoperative considerations

- Radiographic Identification of skin incision to minimize the dissection
- Decadron 10 mg prior to incision
- Inject subcutaneous layer with marcaine with epi
- Thoughtful and meticulous dissection
- Efficient team work to move through the surgery.
- Closure – after fascia is closed inject Exparil mixed with saline in lateral musculature and subcutaneous layer

Postoperative Considerations

- Toradol x 1 dose if no contraindication
- Minimize IV narcotic use
- Early mobilization
- Ice packs
- Valium once patient is awake
- Ideal to use po pain meds and po valium as this will provide a longer lasting analgesic effect

Literature

Multimodal Analgesia Versus Intravenous Patient-Controlled Analgesia for Minimally Invasive Transforaminal Lumbar Interbody Fusion Procedures.
Singh K1, Bohl DD, Ahn J, Massel DH, Mayo BC, Narain AS, Hijji FY, Louie PK, Long WW, Modi KD, Kim TD, Kudaravalli KT, Phillips FM, Buvanendran A.

Multimodal Versus Patient-Controlled Analgesia After an Anterior Cervical Decompression and Fusion.
Bohl DD1, Louie PK, Shah N, Mayo BC, Ahn J, Kim TD, Massel DH, Modi KD, Long WW, Buvanendran A, Singh K.

Minimally Invasive Midline Fusion

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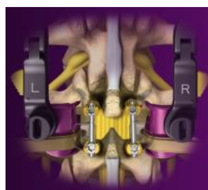
Early Clinical Results of a Novel Medialized Muscle Splitting Posterior Spinal Fusion- In the Outpatient Setting

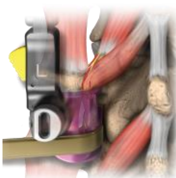
Nitin Khanna MD

ABSTRACT

- **Introduction**
- The evolution of minimally invasive spine surgery has pushed many inpatient procedures to the outpatient setting. The potential for shorter recovery times and decreased infection rates are major benefits of minimally invasive spine surgery. The medialized approach takes advantage of minimal muscle disruption and was designed to satisfy all of the core principles of spinal fusion including,: direct decompression of the neural elements, rigid bilateral pedicle screw fixation, utilizing a cortical trajectory pedicle screws, and bilateral interbody cages which allows for a large surface area for fusion. The procedure is a midline approach that takes advantage of the medialized space(medial to the lateral aspect of the facet joints). This minimally invasive approach preserves the neurovascular supply to the paraspinal muscles. We report our early results with the MAS PLIF procedure performed in the outpatient setting.
- **Methods**
- A retrospective chart review was performed to look at 15 consecutive patients with regards to demographics, length of stay, EBL and 30 day readmission rates.
- **Results**
- 15 consecutive patients underwent a MAS PLIF in an outpatient setting. 9 patients were male and 6 patients were female. The average age was 44.2 (range 31-55). All patients had a one level MAS PLIF. The BMI for patients 27.0 avg(range 20-40.7) 9 patients had commercial insurance and 6 patients had workman's compensation claims/ liability claims. The average length of stay was 133 minutes (range 57-310). Estimated blood loss was recorded as 69.2 ml average(range 20-200) and no patient required a blood transfusion or transfer to a hospital. No patient had to be readmitted within 30 day of the procedure. No infections were noted.
- **Discussion**
- Joint replacements in properly selected patients are now routinely being performed in the outpatient setting. The potential to move lumbar fusion to the outpatient setting utilizing advanced minimally invasive spinal surgery would be a significant opportunity for patients and payers to benefit from decreased infection rates, quicker recovery and achieve cost benefits. There has been significant research to demonstrate the safety and reproducibility of microdiscectomy, cervical fusion and cervical disc replacement in the outpatient setting. There is limited data on outpatient minimally invasive lumbar fusion. Our early data suggest that the MAS PLIF procedure can be performed safely and reproducibly in the outpatient setting. Further research performed in a prospective multi-center study is needed to validate these early findings.

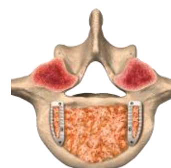


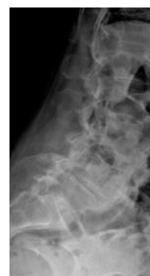
- Bilateral Pedicle screws
- Bilateral Interbody Cages
- Robust Interbody Fusion

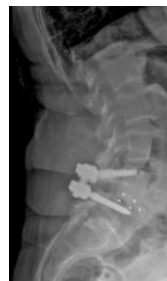


•Medialized Muscle Sparing Approach

•Preservation of the neurovascular supply to the paraspinal muscles







Methods

•Retrospective Review

•15 consecutive patients

Results

- Avg Length of Stay – 133 minutes
- No Blood transfusions
- No 30 day readmissions
- No Infections
- EBL (avg) 69.2 cc

Conclusions

- Based on this pilot study - Lumbar fusion utilizing this novel medialized approach can safely be performed in the outpatient setting

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NASS Hawaii 2019 - accepted

Abstract Title: Safety and Reproducibility of Total Cervical Disc Replacement in an Ambulatory Surgery Center
Presenting Author: Michael Krzyskowski, PA-C
Authors & Institutions: Michael Krzyskowski, PA-C1, Nitin Khanna, MD2
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2Orthopaedic Specialists of NW Indiana, Munster, IN, US

Abstract Title: Safety and Reproducibility of Sacroiliac Joint Fusion in an Ambulatory Surgery Center
Presenting Author: Michael Krzyskowski, PA-C
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Abstract Title: The Effect of Exparel (Injectable Liposomal Bupivacaine) on Length of Stay After Outpatient Medialized Fusion
Authors & Institutions: Michael Krzyskowski, PA-C1, Nitin Khanna, MD2
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Key take aways

- There will be a patient and payor push towards outpatient spine surgery
- Multimodal Anesthesia approaches are key to successful outcomes in the outpatient setting
- The “perfect” protocols have not been fully developed- but require a full coordinated team effort
- Utilizing opiod sparing approaches and attention to avoid IV pain medication

Thank You

Questions?

Hi Dr. Khanna, I know you have a lot of patients, so I'm not sure if you remember me. I was referred to you for my workman's comp case. You did a spinal fusion on my L5/S1 MAS PLIF. Everything went great and I am still doing amazing. I'm a runner and you suggested I only do light/shorter runs and I told you completing a half marathon and a full marathon was on my bucket list. Well, I have officially checked both off my bucket list! I ran the Hero Half Marathon September 2017 and I ran the Chicago Marathon this past Sunday! I am attaching a picture of me after both runs. I know I was a pain in your butt and probably one of your more noncompliant patients, but I just wanted to thank you for everything you did for me. Thank you for doing my surgery and giving me my life back. I feel better than ever and I do not think I would have ever been able to accomplish my goals had I not gotten the surgery to relieve my back pain.

Remember sitting is the new smoking.
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