Anterior Cervical Discectomy and Fusion in an Ambulatory Setting

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Outpatient Spine Surgery: It’s really not a new idea!
Outpatient Spine Surgery

- Literature provides data for a variety of spine procedures with same day discharge
  - Discectomy
  - Decompression
  - Lumbar fusion
  - Anterior cervical fusion
  - Cervical disc replacement
Comparison of Inpatient vs Outpatient ACDF: A Retrospective Case Series

- ACDF Hospital 64
- ACDF ASC 45
- 4 complications in hosp group
- 0 complications in ASC group
- No difference in clinical outcomes
The Safety of Instrumented Outpatient ACDF

- One and two level ACDF 99
- 3 level ACDF 4
- Complication rate 3.8%
- Historical control - No difference
- Safety of ASC
Safety and Feasibility of Outpatient ACDF in an Ambulatory Setting: A Retrospective Review
Tally WC  Int J of Spine Surg  2013

- ACDF 64 single level, 45 2 level
- Mean length of stay:
  - 1 level: 4.7 hours
  - 2 level: 5.4 hours
- No major complications or re-admissions after discharge
- 2 transferred of in-patient for observation only
Quality Analysis of Anterior Cervical Discectomy and Fusion in the Out-patient verses In-patient Setting: Analysis of 7288 Patients From the NSQIP Database

- Major Morbidity and return to OR - ASC 58% lower
- Return to OR - ASC 80% lower
- No differences in clinical outcome
- 1 and 2 level ACDF is safe in an out-patient setting
Clinical Outcomes of Out-patient Cervical TDA Compared to Out-patient ACDF

• Better outcomes in TDA
• No complications in either group
• Out-patient surgery safe
Anterior Cervical Discectomy and Fusion in the Out-patient Ambulatory Setting Compared with the In-patient Hospital Setting: Analysis of 1000 Consecutive Cases

• ASC n=1000, Hospital n=484
• 1 level - 62.9%, 2 level - 36.5%
• Transfer ASC to Hosp 0.8%
  – pain control - 3
  – chest pain/EKG - 2
  – CSF leak - 1
  – hematoma - 1
  – post op weakness with re-exploration - 1
• Conclusions
  – complication rate low (1%)
  – Can be appropriately diagnosed and managed in a 4 hour ASC
  – Clinical outcome similar: 1 and 2 level ACDF can be safely performed in an out-patient setting without compromising clinical outcomes.

– 30 day re-admission 2.2%
– 90 day surgical morbidity similar between out-patient and in-patient
Anterior Cervical Discectomy and Fusion
Associated Complications
Fountas KN  Spine 2007

- Dysphagia  9.5%
- Hematoma  5.6%
- Re-operation  2.4%
- Recurrent laryngeal nerve palsy  3.1%
- Dural tear  0.5%
- Esophageal perforation  0.3%
- Horner’s syndrome  0.1%
- Infection  0.1%
Techniques to Minimize Complications

- Patient Selection
- Patient Expectations and Education
- Pre and peri-operative medications
- Surgical techniques
# Patient Selection: Anesthesia Guidelines

## ASA Physical Status Classification

Last updated by the 2013 House of Delegates on October 11, 2014

<table>
<thead>
<tr>
<th>ASA</th>
<th>Definition</th>
<th>Example(s)</th>
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</thead>
<tbody>
<tr>
<td>ASA I</td>
<td>Healthy, normally active</td>
<td>Healthy, not limited in daily activities</td>
</tr>
<tr>
<td>ASA II</td>
<td>A patient with mild systemic disease</td>
<td>Mild disease only without limitations</td>
</tr>
<tr>
<td>ASA III</td>
<td>A patient with severe systemic disease</td>
<td>Severe disease, limited in daily activities</td>
</tr>
<tr>
<td>ASA IV</td>
<td>A patient with a severe systemic disease that is a constant threat to life</td>
<td>Life-threatening condition, likely to require immediate medical intervention</td>
</tr>
<tr>
<td>ASA V</td>
<td>A patient with a transient systemic disease that is not expected to recur without the operation</td>
<td>Transient condition, expected to improve</td>
</tr>
<tr>
<td>ASA VI</td>
<td>A patient with a permanent systemic disease that is not expected to improve</td>
<td>Permanent condition, no improvement expected</td>
</tr>
</tbody>
</table>

*The addition of "E" denotes emergency surgery: a surgery to be done immediately when delay in operation of the patient would lead to a significant increase in the threat to life or body function.*
Patient Selection

- Primary surgery
- Revision surgery is a relative contraindication
  - Radiation
  - Dysphagia, dysphonia
  - 3 or more levels
  - Corpectomy
  - Deformity
ASC – YES!
ASC – YES!

CENTER FOR SPINE CARE
23 HOUR – YES!, ASC – NO!
23 HOUR – YES!, ASC – NO!
Patient Expectation and Education

- Review literature
- Reasonable expectation
- Review usual post-op experience
- Possible complications and treatments
- Review post-op protocols and answer frequently asked questions
Pre and Peri-op Meds

- Acetaminophen 1000mg IV
- Decadron 10mg IV
- Toradol 30mg IV
- Gabapentin 900mg PO
- Clonidine 0.1mg (same category as Precedex)
- Magnesium 1.0 gram pre op
- Exparel (intramuscular infiltration)
Surgical Technique

- Dissection
  - Sharp dissection
  - Bipolar cautery
- Retractors
  - Release tension on the esophagus intermittently during case
  - Similar to a tourniquet in extremity surgery
- Hemostasis
  - Hypotensive anesthesia
  - Transenamic acid (TXA)
  - Haemostatic agents (Floseal)
- Stem Cells (used as bone graft combined w/collagen – no graft site pain)
- Drains
Summary

- Literature supports ACDF in an out-patient setting
- Patient selection is critical
- Surgical technique is critical
- Pre and peri-op processes are necessary to prepare for and preclude potential problems and complications. Post op processes are necessary to recognize and address complications or issues in order to ensure a safe and satisfying patient experience.