Safety, Outcomes, and Cost Effectiveness of Outpatient Cervical Arthroplasties

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First outpatient ACDF in outpatient surgery center: 1994
723 ACDFs and ACDFs: 1994-2002
Build free standing ambulatory spine surgery center: 2002
>2000 ACDFs (1-3 levels) 2002-2013
First outpatient cervical disc arthroplasty: 2009

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Cervical Arthroplasty
Flexion and Extension X-Rays

Literature re: Safety of Outpatient Anterior Cervical Disc Surgery


5-Year Disc Replacement Data: Comparison with Fusion

- After 5 years, patients who underwent TDR had 97.1% probability of no secondary procedures, compared with 85.5% for ACDF patients.
- No reoperations in TDR patients were due to implant breakage or device failure.
- Pseudarthrosis was most common reason for reoperation at index level among ACDF patients.
- Recurrent neck pain and/or arm pain was the most common reason for reoperation at the adjacent level for both groups.
- 2.9% of TDR patients had reoperations within five years of the initial surgery, compared with 14.5% of ACDF patients.
Patient Selection

- One or two level cervical disc herniation
- Cervical radiculopathy
- Failure of conservative treatment
- ASA I or II
- Mean age 46 years
- 56% female, 44% male

Data Analysis

- PhDx Clinical Outcomes Database
- Patient records
- Patient satisfaction surveys

Pre-Operative Symptoms

- Neck pain 100%
- Arm pain 100%
- Motor deficit 33%
- Sensory deficit 46%
- Reflex deficit 24%
- Gait disturbance 0%
- Bowel/bladder dysfunction 0%
Operative Experience

- February 2009 – April 2013
  - 132 cases
    - 1 level: 116
    - 2 level: 16
  - Average OR time
    - 1 level: 60 minutes
    - 2 level: 80 minutes
  - Site of service
    - Hospital outpatient: 32
    - ASC outpatient: 100
  - Average time to discharge: 3 hours

Follow up

- Patients seen at first follow up visit: 100%
  - No perioperative mortality
  - Lateral x-ray
  - Average interval to first follow up: 21 days
  - Subsequent f/u at 3 and 6 months
    - Flex-ext x-rays at 6 months

Outcomes

- 92% improved symptoms
- No worsened symptoms
- No transfers to a hospital
- No post-operative ER visits
- No late hospitalizations
Complications

- Superficial Infection: 1 (<1%)
- Dysphagia: 1 (<1%)
- Hoarseness: 0
- Vocal cord paralysis: 0
- Neurologically worse: 0

Cost Comparison: Outpatient One Level ACDF vs Arthroplasty

<table>
<thead>
<tr>
<th></th>
<th>Single Level ACDF</th>
<th>Cervical Arthroplasty</th>
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<tbody>
<tr>
<td>Facility</td>
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<tr>
<td>Implants</td>
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<tr>
<td>Total Billed Charges</td>
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<td>Ave. Insurance Payment</td>
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<tr>
<td>Average Patient’s Copay</td>
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</tbody>
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Summary

- 132 cases: 2009-2013
- No major complications
- 0% rate of admission from MSC
- 0% admission rate after POD#1
- 0% ER visits prior to first follow up visit
- 92% better at first follow up visit
- Outpatient ASC cost is 84% less than hospital outpatient