Clinical Outcomes Following Anterior Cervical Hybrid Surgery Using Total Disc Replacement with Anterior Cervical Fusion at the Adjacent Segment

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Introduction

- During the past decade, cervical TDR has become an option to ACF for patients failing to respond to non-op care for radiculopathy or myelopathy.
- Biomechanically, hybrid surgery using TDR at one level and ACF at adjacent level, offers significant biomechanical advantages over 2-level fusion in terms of reducing compensatory adjacent-level hypermobility (Lee et al, Spine, 2011).
Purpose

• To evaluate the clinical results of cervical hybrid surgery
  – Patient reported outcomes
  – Re-operations
Methods

- Retrospective review of pts treated with cervical hybrid procedure
- TDR used was ProDisc-C
- Clinical outcome assessments included NDI, VAS assessing neck and arm pain, re-ops
- For pts who had not been seen recently in clinic, forms were mailed
  - Mean follow-up was 13.6 mo
### Patient and Operative Data

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
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<tbody>
<tr>
<td>Age: mean (range)</td>
<td>46.0 (28-63)</td>
</tr>
<tr>
<td>Gender (n % female)</td>
<td>45 (63.4%)</td>
</tr>
<tr>
<td># of levels operated:</td>
<td></td>
</tr>
<tr>
<td>2 levels</td>
<td>61 (85.9%)</td>
</tr>
<tr>
<td>3 levels</td>
<td>10 (14.1%)</td>
</tr>
<tr>
<td>Mean estimated blood loss (ml)</td>
<td>52.0</td>
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</tbody>
</table>
NDI Scores

- Mean scores improved significantly (p<0.05)
  - Pre-op: 43.4
  - Post-op: 22.7
- 73.2% of pts improved ≥15 points on the NDI from pre- to post-op
  - Value often considered to be clinically relevant change
Both improved significantly (p<0.05)
Re-operations

• 2 re-ops (2.5%):
  – 1 for TDR anterior migration
  – 1 for subsidence
• In both cases, TDR removed and ACF performed
• This study evaluated another treatment option for pts with multi-level cervical degenerative disease and upper extremity radicular syndrome or myelopathy

• Within this population, some patients may not wish to undergo a multilevel cervical fusion and/or may not be candidates for multilevel disc arthroplasty
Discussion

- This study supports that cervical hybrid surgery is a viable option for patients with multilevel cervical spine degenerative disease and radiculopathy or myelopathy.