

# Minimally Disruptive Posterior Cervical Fusion with DTRAX Cervical Cage for Single Level Radiculopathy - Results in 10 Patients at 1-Year

Bruce M. McCormack MD (1); Leo W. K. Cheng MD (2); Edward F. Eyster MD (1); John C. Chiu MD (3)

1 Clinical Faculty, University of California San Francisco, 2320 Sutter Street, Suite 202, San Francisco, California 94143 USA

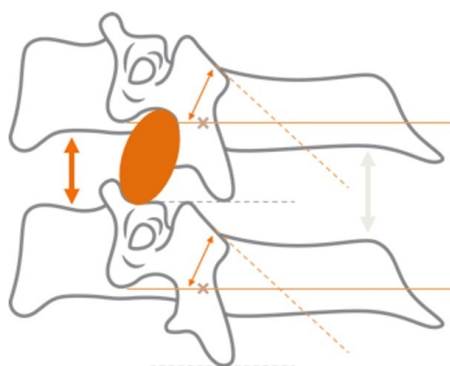
2 Clinical Faculty, University of California San Francisco, 909 Hyde Street, Suite 609, San Francisco, California USA

3 Director Spinal Neurosurgery, California Spine Institute, 1001 Newbury Road, Thousand Oaks, California 91320 USA

## Introduction

The authors present one-year results of 10 patients with cervical radiculopathy due to spondylosis and stenosis treated with a minimally disruptive posterior cervical fusion. DTRAX Cervical Cage is a titanium intervertebral cage that was used to distract and immobilize the cervical facet to achieve indirect root decompression and fusion. Clinical and radiologic results are analyzed.

### Illustration demonstrating facet distraction following DTRAX Cervical Cage implantation:



## Methods

A one-year retrospective study of 10 patients treated with DTRAX Cervical Cage was conducted. Neck Disability Index (NDI), Visual Analog Scale (VAS) for neck and arm pain, neurological status, adverse events, x-rays and CT were collected. X-rays were reviewed for segmental and overall cervical lordosis, fusion, and device retention. CT with reconstructions was obtained at one year in all patients.

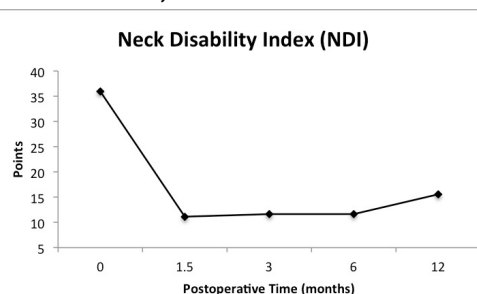
## Results

All patients were available for follow-up at one year. Age ranged from 51 to 78 with a mean of 68. Five patients were treated at C5-6, four at C6-7, and one at C4-5. NDI and VAS were significantly improved immediately after surgery and sustained at one year. All patients had successful radiographic fusion defined as 1.5 mm or less change in distance between adjacent spinous processes at treated level on lateral flexion/extension radiographs. Bridging bone on CT was present in 9 with 1 indeterminate for fusion. There was no significant change in overall cervical lordosis or segmental lordosis. There were no device breakages, device back out, or surgical re-interventions.

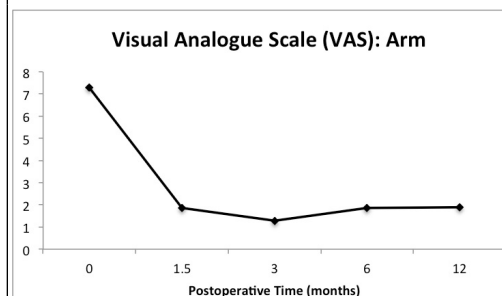
### Postoperative lateral film with DTRAX Cervical Cage at C5-6:



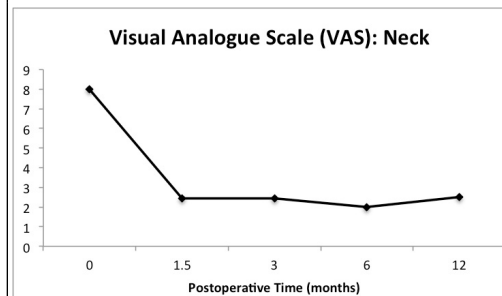
### NDI scores, Baseline to 12 months:



### VAS Arm scores, Baseline to 12 months:



### VAS Neck scores, Baseline to 12 months:



### Radiographic Data Summary

Measurement	Baseline	12 + months	Net Change from Baseline at 12 + months
Overall Cervical Spine Lordosis (degrees)	8.6 ± 3.5	8.5 ± 3.4	-0.1
Cobbs angle at treated level (degrees)	5.7 ± 2.1	6.1 ± 1.6	+0.4
Change in distance between adjacent spinous processes on lateral flexion and extension films (mm)	3.7 ± 0.7	0.8 ± 0.5	-2.9

## Learning Objectives

- One-year retrospective study of 10 patients treated with DTRAX Cage
- Five patients were treated at C5-6, four at C6-7, and one at C4-5
- All patients had successful radiographic fusion defined as 1.5 mm or less change in distance between adjacent spinous processes at treated level on lateral flexion/extension radiographs
- Bridging bone on CT was present in 9 with 1 indeterminate for fusion
- No significant change in overall lordosis or segmental lordosis

## Conclusion

Minimally disruptive posterior cervical fusion with DTRAX Cervical Cage appears to be a safe and effective method of treating select patients with cervical radiculopathy as a result of spondylosis and foraminal stenosis.

## References

1. Goel A, Shah A: Facetal Distraction as Treatment for Single- and Multilevel Cervical Spondylotic Radiculopathy and Myelopathy: A Preliminary Report. *J Neurosurg Spine* 14:689-696, 2011
2. Hilibrand AS, Robbins M: Adjacent Segment Degeneration and Adjacent Segment Disease: The Consequences of Spinal Fusion? *Spine* 4:190S-4S, 2004
3. McCormack BM, Bundoc RC, Ver MR, Ignacio JM, Berven SH, Eyster EF: Percutaneous Posterior Cervical Fusion With the Dtrax Facet System for Single-Level Radiculopathy: Results in 60 Patients. *J Neurosurg Spine* 18:245-254, 2013
4. Riley LH, Vaccaro AR, Dettori JR, Hashimoto R: Postoperative Dysphagia in Anterior Cervical Spine Surgery. *Spine* 35:S76-S85, 2010
5. Tan L, Gerard CS, Anderson PA, Traynelis VC: Effect of machined interfacet allograft spacers on cervical foraminal height and area. *J Neurosurg Spine* 20:178-182, 2014