

# Fusion Rate, Dysphagia and Patient Satisfaction for 4-Level Anterior Cervical Discectomy and Fusion (ACDF)

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### Introduction

The literature on ACDF> 3 levels remains controversial. Combined anterior posterior cervical fusion leads to increased morbidity and loss of cervical mobility. We investigated fusion rate, incidence of dysphagia and patient satisfaction in 4-level ACDF in order to demonstrate that multi-level ACDF >3 levels is a reasonable option.

#### **Methods**

Radiographic and chart review were done for consecutive patients who underwent elective 4-level ACDF from 2006-2011. Fusion rate was evaluated for patients with postoperative cervical radiographs/CT at 6 months or more. We excluded patients with a planned staged anterior-posterior cervical fusion. Fusion is determined by neuroradiologists who evaluated postoperative standing radiographs and CT. The criteria are lucency around the hardware, absence of spinous process movement on flexion/extension films, and bone bridging. Patients completed a dysphagia and satisfaction survey by phone. Descriptive statistics were used.

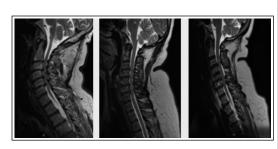


Table 1: Patient Demographics	N=82
Gender: M/F (%)	
Male	51.8%
Female	48.2%
Age at surgery/yrs (Mean ± SD)	59 ± 8
Age Range	41-83
BMI (Mean ± SD)	30.2 ± 5.6
Perioperative steroids (% Y)	
Yes	5.63%
No	94.4%
Diabetes (%)	
Yes	8.4%
No	91.6%
Tobacco use (%)	
Yes	22.5%
No	77.5%
Postop interval: XR date/months	
(Mean ± SD)	10.3 ± 8.3
Duration of OR in min (Mean ± SD)	165 ± 36

Table 2. Levels	N=82
C23	2
C34	75
C45	83
C56	83
C67	81
C7T1	8

Table 3: Fusion rate	
Fusion/interspace (%) N=316	96.80%
Fusion/patient (%) N=82	93.90%

Table 4: Patient Satisfaction and	
Neck Pain	N=60
Are you satisfied with your experience? (% Y)	88.3%
Would you have the surgery again? (% Y)	65.0%
Are you still having neck pain? (% Y)	33.3%

#### Results

Ninety-three patients were included in the study and eleven later excluded due to unavailable imaging. Eightytwo patients had postoperative imaging at 6 months or more meeting the inclusion criteria (Table 1 demographics). There were a total of 328 interspaces; 316 interspaces were adequate for fusion evaluation. Ten interspaces either had failed fusion or indeterminate fusion status (Table 2). Fusion rate per interspace is 96.8%. Seventy-seven patients had successful fusion. Fusion rate per patient is 93.9% (Table 3). Patient satisfaction surveys were completed in 60 out of 93 (64.5%) patients. Fifty-three (88%) out of 60 patients were satisfied with the results of the surgery and thirty-nine out of 60 (65%) would have surgery again. Twenty out of 60 (33%) reported some degree of residual neck pain (Table 4). Postoperative dysphagia resolved within 4-30 days with an average of 13 days. All patients surveyed regained normal swallowing function (Table 5).

Table 5: Dysphagia	N=60
Rate of postop dysphagia (%)	100
Rate of Resolution (%)	100
Postop interval for complete resolution (Median, Range)	13 (4-30)

# **Conclusions**

Four-level ACDF achieves a very high fusion rate in our institution with a very high satisfaction rate and comparable dysphagia rate. ACDF has proved to be a viable alternative for patients with surgical pathology of >3 levels.

## References

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