



The Safety and Efficacy of  
Outpatient Anterior Cervical Discectomy  
and Fusion

## Introduction

Anterior cervical discectomy and fusion (ACDF) is the standard procedure for patients with radiating neck pain who are unresponsive to conservative care. This procedure uses a small incision made near the throat to remove a herniated or degenerative disc in the neck and fuse the bones together. ACDF has been shown to be an effective treatment for a number of spinal disorders [1–2]. Medical professionals have an ongoing debate about the need for fusion [3] and/or hardware [4]. Research has shown complication rates for ACDF with hardware are low [5], and there are benefits from adding hardware such as long-term stabilization [1] and decreased irregular shape of the spine associated with failed fusion [6]. Additionally, the use of hardware has been shown to significantly reduce recovery time, thus decreasing the costs associated with undergoing ACDF [6]. Performing an ACDF in an outpatient setting provides an opportunity to reduce the total cost of surgery. Research is widespread on the substantial benefits of outpatient surgeries, beyond overall reduced costs [7]. However, there are few studies that examine the safety and efficacy of performing an outpatient ACDF. The purpose of our study was to evaluate the safety and efficacy of performing an ACDF with hardware on an outpatient basis.

## Methods

Over a 2-year period from July 2013 to July 2015, 80 patients were evaluated after surgery for the efficacy and safety of performing ACDF with instrumentation procedures on an outpatient basis. The safety and efficacy of performing ACDF as an outpatient procedure were assessed comparing complications during and after surgery, which were reported for a follow-up time period of 1 year. Complications were divided into 2 groups: major and minor. Major complications included readmission. Minor complications included allergic reactions to medications that did not require hospitalization and temporary abnormal body function. Clinical factors, such as surgical blood loss and duration of the surgical procedure were reported. Patient-reported outcomes were measured via a Visual Analog Scale (VAS) and Neck Disability Index (NDI). The visual analog scale is a pain scale, ranging from 0 to 10. The Neck Disability Index is a functional status questionnaire and ranges from 0 to 50. Both of the scores are better if they are lower.

## Demographic data

A total of 80 patients underwent ACDF as an outpatient procedure. Before surgery, an extensive clinical examination was performed to evaluate motor, sensory and reflex deficits. The findings were consistent with neck pain with or without radiating pain, which limited the patient's ability to function. Examination of the cervical spine including MRI, CT and X-rays with multiple views were performed to confirm clinical diagnoses. Overall, 100% of patients were discharged less than 6 hours after their surgeries. There were 0 reported intraoperative and postoperative complications with these patients. The average length of surgery was 136 minutes with an average estimated blood loss of 59.84 mL (Table 1).

Table 1.

	<b>136.74</b> minutes	Average length of surgery (LOS) in study
	<b>59.84</b> milliliters	Average estimated blood loss (EBL) in study
<b>Level of Disability Improvement</b>	<b>20.7</b> BEFORE SURGERY	<b>14.16</b> AFTER SURGERY
<b>Average Pain Scores</b>	<b>5.45</b> BEFORE SURGERY	<b>3.39</b> AFTER SURGERY

## Results

A comparison of the patient-reported outcomes was carried out before and after surgery. There was a significant reduction in both the reported disability and pain outcomes post-surgery (Table 2). Results show a 38% improvement in the level of pain (VAS) and a 32% improvement in the level of disability (NDI).

Table 2.

Preop VAS Average	Postop VAS Average	Preop NDI Average	Postop NDI Average
5.45	3.39	20.7	14.16
Difference		Difference	
2.06***		6.54***	

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## Conclusion

Outpatient surgery reduces total surgery cost and risks to patients. The findings of this study indicate that an ACDF performed in an outpatient setting may prove to be beneficial in decreasing the complications of standard treatments for patients with radiating neck pain. Although any patient can experience complications from surgery, our analysis provides evidence that ACDF procedures in an outpatient setting result in few complications, minimal blood loss and favorable patient outcomes regardless of patient demographics.

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## References

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