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Outcomes of The Minimally Invasive Lumbar Decompression Procedure To Treat Symptomatic Lumbar Spinal Stenosis

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Introduction

It is estimated that up to 84% of the general population can expect to experience an episode of lower back pain (LBP) in their lifetimes. One of the most common causes of LBP in elderly patients is degenerative lumbar stenosis (LSS) causing pain and neurogenic claudication limiting the quality of life and function of our patients.1,2 More than 200,000 patients are affected in the US alone. It is the most common reason for patients over the age of 65 to pursue spinal surgery.1-3 To avoid immediate open surgery and its complications, minimally invasive approaches have been developed over the last decades and the minimally invasive lumbar decompression (mild®) procedure is one of these interventions.3,4
The mild® procedure aims to relieve symptomatic spinal stenosis by debulking the hypertrophied ligamentum flavum which is part of the stenosis without the need for general anesthesia or large incisions with tissue deviations or hospitalizations and prolonged rehabilitation.4,5
Our study investigates the effects of the mild® procedure on pain and functional status up to 12 months after the intervention.

Materials and Methods

We performed a retrospective analysis of the post-procedural outcomes and demographics of patients between the ages 16 to 89 who underwent the mild® procedure performed by multiple interventional pain physicians at the University of Florida inpatient services and outpatient clinics from May 2018 to January 2023 (#IRB202202037). Patients with any conditions that may have confounded quantifying pre-procedural pain were excluded from this study (e.g. experiencing significant pre-procedural pain from a site remote from the treated site). Linear mixed models were used to examine the change from baseline to 1, 3, 6 and 13-month follow-up for Visual Analogue Scale (VAS) Pain scores (Average and Maximum), with Tukey's tests for pairwise differences with baseline. Chi Square's test was used to analyze functional outcomes.

Results/Case Report

N=136 patients were included in this analysis. The patients had a mean age at the procedure of 74.4 (SD=8.2), with 53% being male. The mean baseline BMI was 29.5 (SD=5.7). Statistically significant improvements across follow-up were seen in VAS Average Pain ($p < 0.001$) and in VAS Maximum Pain ($p < 0.001$) (Figures 1 & 2). Greatest improvement from baseline for both Average ($p < 0.001$) and Maximum ($p < 0.001$) was at 1-month, which were also clinically significant improvements with ~30mm decrease in VAS. Though attenuated, Average ($p = 0.012$) and

Maximum ($p = 0.009$) Pain were still statistically significantly improved from baseline at 12-month follow-up. Functional improvements remained high, with no decreases in function over time ($p = 0.559$); > 65% of patients reporting functional improvements at each follow up (Figure 3).

Discussion

This study demonstrates a significant reduction in both average and maximum pain scores alongside reported significant functional improvements by a majority of our patients, underscoring the effectiveness of this minimally invasive technique (mild®) over a follow up period of 12 months

References

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Disclosures

No

Tables / Images

Figure 1

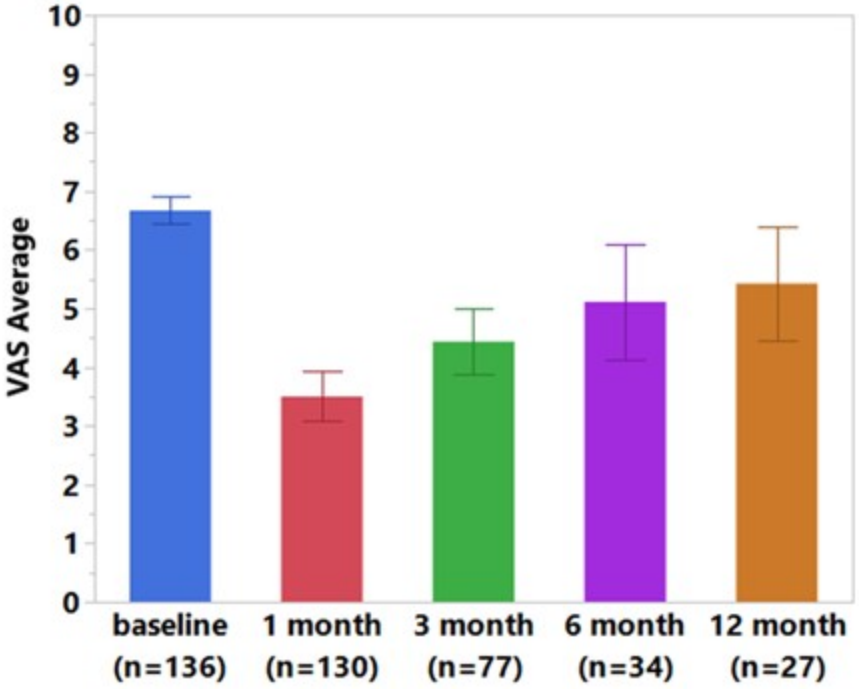


Figure 2

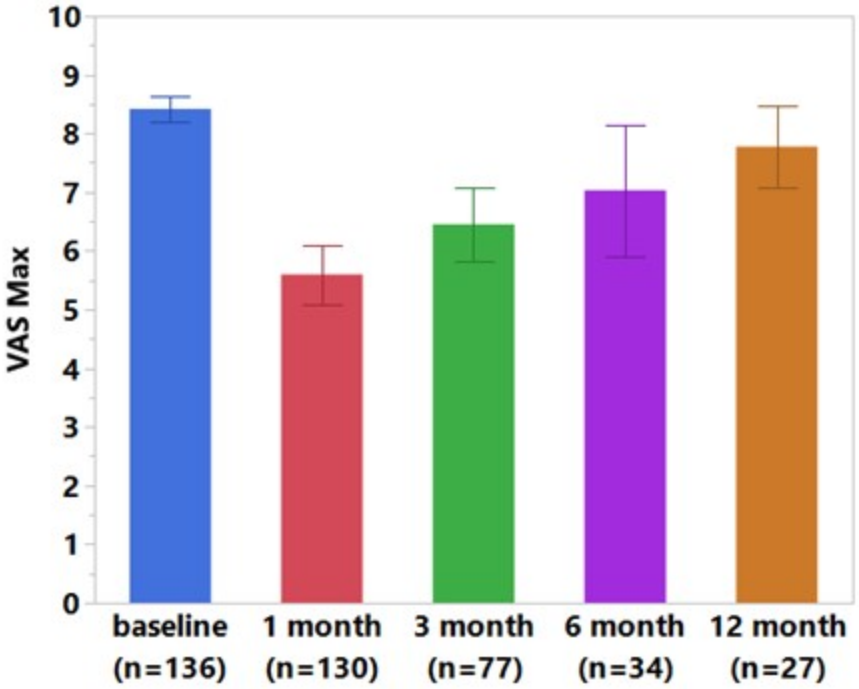
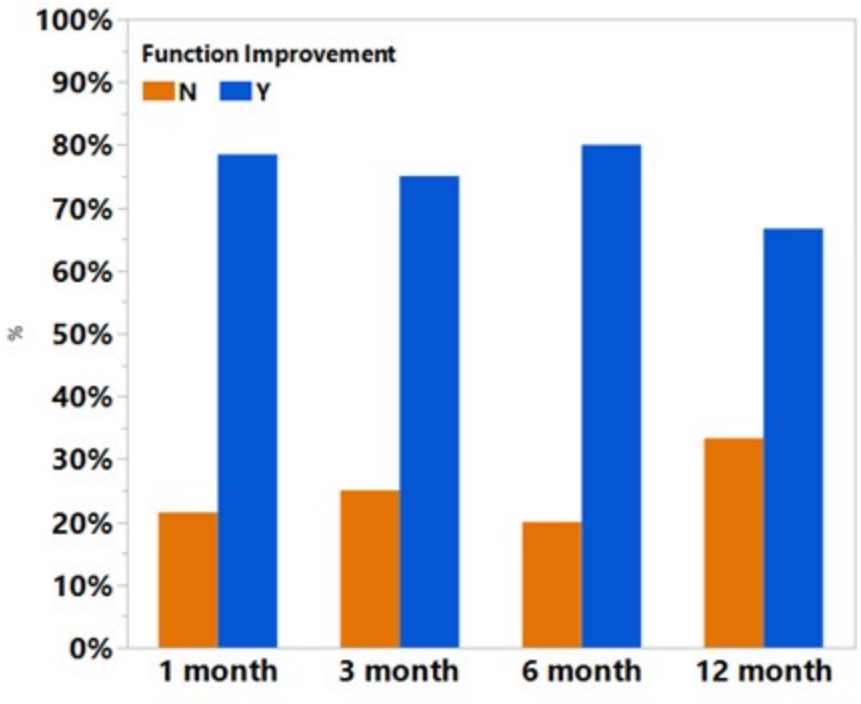


Figure 3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12 month