

# Persistent Symptoms After Surgical Decompression of Chiari I Malformations: An Institutional Experience

Kurt Grahnke BA; Swathi Chidambaram MD; Caroline Szujewski; Douglas E. Anderson MD, FAANS

Department of Neurological Surgery, Loyola University Medical Center, Maywood, IL

## Introduction

The decision to surgically decompress patients with symptomatic Chiari I malformations (CIM) is typically made on the basis of presence of a syrinx, degree of tonsillar ectopia, and progressive neurologic symptoms and with the goal of improving these symptoms. A small subset of patients with CIM do not, however, have symptom resolutions after posterior fossa decompression. This study analyzes a cohort of Chiari I patients whose symptomatology did not improve after decompression.

## Methods

A retrospective chart review of all 195 patients who underwent decompression for CIM at a tertiary care institution from 2000-2016 was conducted. Patients were evaluated for resolution of their symptomatology postoperatively. Those patients with persistent symptoms were further reviewed through operative reports, pre and postoperative imaging, and patient progress notes.

**Table 1**

Table 1. Demographics, n=16	
<b>Age</b>	
Median	33
Mean	29.5
Range	13-53
<b>Gender, n (%)</b>	
Male	4 (25)
Female	12 (75)
<b>Preoperative Information, n(%)</b>	
Syringomyelia or syrinx	6 (37.5)
<b>Postoperative Symptoms, n (%)</b>	
Headache	12 (75)
Back and neck pain	5 (31.3)
Hypesthesia	3 (18.8)
Gait instability	2 (12.5)
<b>Presence of Pseudomeningocele, n (%)</b>	
Headache	7 (87.5)
<b>Absence of Pseudomeningocele, n (%)</b>	
Hormonal imbalance	2 (25)
Arachnoidal scarring	2 (25)
Concurrent hypotension	2 (25)
Fasciae complications	2 (25)
Other spinal cord pathologies	4 (50)

Pre and postoperative characteristics of patients with persistent symptoms after surgical decompression

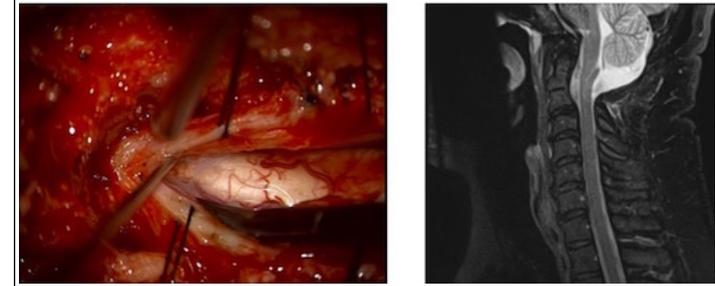
## Learning Objectives

To identify patient centered factors that predict recurrence of symptoms following decompression surgery for Chiari I malformations

## Results

A total of 16 of the 195 (8.2%) patients had persistent symptoms following surgical decompression at an average recurrence interval of 22 days postoperatively (Table 1). The most frequent persisting symptom postoperatively was headache in 12 patients (75%) at an average recurrence interval of 30 days postoperatively. Of those patients with persistent symptoms, 6 patients demonstrated the presence of syringomyelia or syrinx preoperatively. Additional persistent symptoms included back and neck pain (n=5), hypesthesia (n=3), and gait instability (n=2). Pseudomeningocele was noted in 8 patients, 7 of whom complained of headache. For those patients without pseudomeningocele, hormonal imbalances (n=2), presence of arachnoidal scarring (n=2)(Fig. 1), concurrent hypotension (n=2), fasciae complications (n=2) and other spinal cord pathologies (n=4) may have accounted for their persistent systems.

**Figure 1**



Intraoperative image and T2 MRI of arachnoidal scarring below the C2 lamina

## Conclusions

Headaches represented the most common persistent symptom following surgery for Chiari I. Persisting symptoms after surgery impose a significant effect on quality of life. This study demonstrates the importance of analyzing surgical outcomes in a patient-centered framework that focuses on factors that lead CIM patients to deteriorate to pre-operative symptom status.