

Key Points

- Duraplasty is a traditional part of posterior fossa decompression surgery (PFDD) for a Chiari malformation.
- Decompression surgery without duroplasty (PFD) was created to obtain decompression without risking complications.
- Some individuals that undergo PFD may need to endure a repeat operation to correct an inadequate decompression, developing syrinx, or returning symptoms.
- Dr. Krishna and his team inferred that the larger a tonsillar herniation is, the greater the possibility of another surgery.

Source

[High long-term symptomatic recurrence rates after Chiari-1 decompression without dural opening: a single center experience.](#)

Krishna V, McLawhorn M, Kosnik-Infinger L, Patel S. Clin Neurol Neurosurg. 2014 Mar;118:53-8

Decompression Without Dural Opening Can Lead To Symptom Recurrence

April, 2014 - Within the Chiari surgical community, doctors continue to debate if the dura should be opened during decompression surgery. For many, a duraplasty—where the dura is cut open and a patch is sewn to expand the dural surface—is an essential component of decompression surgery. However, if a neurosurgeon decides to open the dura, there are an array of complications for a patient to possibly endure. On the other hand, by not opening the dura, Chiari patients may risk the likelihood of an additional surgery in the long run (Mutchnick et al).

In a comprehensive study performed at the Medical University of South Carolina, Dr. Vibhor Krishna and his associates compiled information on forty-seven patients who underwent posterior fossa decompression surgery without duraplasty (PFD) between the years of 1995 and 2007. This alternative form of operating on a Chiari malformation was created to obtain decompression without risking an abnormal collection of cerebrospinal fluid (CSF) around the brain or spinal cord, CSF leak, or inflammation of membranes which cover the brain and spinal cord.

By undergoing PFD, the operation effectively decreases or eases symptoms related to Chiari, but a repeat operation may be needed to correct an inadequate decompression, a developing syrinx, or any returning symptoms. Dr. Krishna and his team followed up with 47 patients, within a four to sixteen year timespan, suffering from lower head and neck pain along with motor and sensory disturbances. Half of the patients involved within the study had various symptoms present for over one year, seventeen were diagnosed with a syrinx, and the average length of tonsillar herniation was 12.6 mm.

After PFD was performed, sensory symptoms improved 58.3%, motor symptoms recovered 75%, and no new neurological problems were experienced. After the latest follow up with the 47 patients, twenty (60.6%) still had adequate symptom improvement while only one expressed intense pain. Eleven (22.9%) patients had additional surgeries for other Chiari conditions. Five patients suffered from symptomatic hydrocephalus after PFD or after a redo decompression surgery with duraplasty (PFDD), which requires the introduction of ventriculoperitoneal shunts (VPS) placed into the body. Four others required syringosubarachnoid shunts for similar reasons. The specialists involved in this study have inferred that if tonsillar herniations were located at or beyond the C2 vertebra another surgery would be required after the initial surgery.

In the long run, a fairly sizable 31.9% of patients needed a repeat decompression after roughly two and a half years. Fifteen patients claimed that their Chiari symptoms returned—eleven said they experienced a complete symptom recovery after decompression, one claimed to have partial improvement, and three others declared that nothing improved after their first surgery. Ten (66.6%) of the repeat decompressions involved duraplasty while the remaining five only needed scar tissue to be removed.

PFD has an 86-93.3% neurological resolution rate shortly after surgery and a 60.6% long-term improvement rate. It also shortens hospital stays to roughly four days instead of ten days for those undergoing duraplasty. However, the Chiari community should understand that there are significant reoperation rates for PFD regardless of initial progress according to Dr. Krishna and his associates at the Medical University of South Carolina.

By analyzing the durability of posterior fossa decompression without duraplasty in the long run, Dr. Krishna and his team concluded that 60.1% of patients have overall improvement of their neurological symptoms. However, if tonsillar herniations exceed beyond the C2 vertebra, then there is a higher rate of surgery after the initial decompression. Comprehensively, when compared to decompression with duraplasty, complication rates are little to nonexistent.

The overall goal of Chiari decompression lies in providing maximum symptomatic relief while minimizing complications (Krishna et al). There is not a specific procedure that is preferred over everything else, but providing information which helps families discuss options with their doctor is of the utmost importance. The data provided in this study supports the call to action found within Conquer Chiari's article titled [Study Quantifies Tradeoffs in Opening Dura During Surgery](#) (2010). Although the debate between duraplasty and non-duraplasty is still present today in the Chiari community, we are at least more informed about the short-term and long-term outcomes of both procedures.

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