

Comparing Surgery to Medical Treatment of Headaches in Chiari Children

Headaches are of course the signature symptom of Chiari, but not all headaches are the same. The International Classification of Headache Disorders (ICHD) specifies three criteria specific to typical Chiari headaches: 1) brought on by a Valsalva-like maneuver (straining), 2) located in the occipital or sub-occipital region (back of the head), and 3) lasting less than five minutes. Publications have consistently shown that some Chiari patients experience typical headaches, some experience atypical headaches, and some experience a mix.

Using the ICHD definition, doctors from Boston Children's Hospital compared the effectiveness of surgery versus medical treatment in improving different types of headaches in pediatric Chiari patients. Specifically, they reviewed the records of 112 consecutive patients who were over the age of 6. On average the groups had 10mm of tonsillar herniation and 24% had a syrinx. The doctors created three groups based on the headache type: those with 2 or 3 of the ICHD features (typical), those with only 1 of the ICHD features (some), and those with none of the ICHD features (atypical). Using this definition, 36% of the group had 'typical' headaches, 37% had 'one feature' headaches, and 43% had a 'atypical' headaches. Forty-three percent of the children underwent surgery, and sixty-seven percent were treated with a variety of headache medicines. The doctors evaluated headache improvement both in the short-term (< 6 months) and in the long-term (>6 months). The results are presented in Table 1.

Table 1: Percentage of Patients with Improved Headaches by Treatment and Type

	Short-Term (< 6 months)		Long-Term (>6 months)	
	Surgical	Medical	Surgical	Medical
Typical	76%	56%	68%	50%
One Feature	81%	54%	80%	52%
Atypical	100%	32%	50%	76%

Generally, headaches with at least 1 Chiari feature improved more with surgery than with medication in both the short-term and the long-term, however statistically this difference was not significant. This could be due to the relatively low number of subjects in each group once it is split by type and treatment. It is also difficult to directly compare the treatment types because the type of headache influenced the surgical decision; meaning that those with typical headaches were more likely to undergo surgery.

Having said that, this specific level of outcome data is not commonly available for patients to consider (especially pediatric), and the results can be considered valid within each category. It is especially interesting to note that in the long-term, atypical headaches improved about three quarters of the time compared to about half the time for the surgical group. Meanwhile, the surgical improvement rate for headaches with at least one feature matched other publications involving typical headaches.

It's unfortunate that the study was not more granular in defining improvement and that even long-term was defined as a relatively short period of time, but for Chiari patients, any data that can help with treatment decisions is better than none.

Source: The impact of surgical and medical treatment on headaches in pediatric patients with Chiari malformation type I. Lynch BT, Hartman EK, Karsten MB, Slingerland AL, Staffa SJ, Proctor MR, Cravero JP. J Neurosurg Pediatr. 2025 May 9:1-7. doi: 10.3171/2025.2.PEDS24356. Online ahead of print. PMID: 40344763

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