

Is Shrinking the Tonsils During Surgery Beneficial?

When surgeons perform Chiari decompression surgery, they have many decisions to make when it comes to the precise steps they employ. For example, how much bone to remove, whether to open the dura, and what type of dural patch to use, to name a few. Another decision is whether to reduce the size of the herniated tonsils, usually through cauterization. When Conquer Chiari first started publishing Research Updates in 2004, there were strong feelings in the neurosurgical community that tissue should be preserved at all costs. However, over time, others pointed out that the cerebellar tissue is often clearly damaged and shrinking the size can greatly improve the space available for spinal fluid to flow.

Recently, a new study of 151 surgical, Chiari children found no clear advantage to reducing the cerebellar tonsils during the procedure. Researchers reviewed initial surgeries at Children's National Hospital from 1997 through 2024. All children had posterior fossa decompression with duraplasty, in which surgeons opened the membrane around the brain and sewed in a patch. In 110 cases, surgeons also reduced the volume of the cerebellar tonsils, usually by cauterizing them; in 41, they did not. The children averaged about 9 years old; 63 (42%) were boys and 88 (58%) were girls.

When they compared outcomes and complications between the two groups, they didn't find any statistically significant differences. Symptoms improved in more than 70% of children in each surgical group, without a clear difference in headache or neurological outcomes. Complications within 30 days occurred in 29% without tonsil manipulation and 15% with it, and syrinxes improved in 85% of children whose tonsils were left alone, compared with 76% of those whose tonsils were manipulated. Repeat operations were uncommon in both groups—7.3% and 4.5%, respectively.

This is not the first study to look at this topic, and some other studies have reached different conclusions. In a 2016 study of 171 children with Chiari I and a syrinx, tonsil cautery was associated with roughly six times the odds of syrinx improvement. A 2023 study of 437 children found more than 50% syrinx reduction in 80% of those who had tonsil reduction versus 59% of those without, while symptoms and reoperation rates did not differ significantly. In contrast, a prospective eight-center study analyzed 68 children with Chiari I and a syrinx and found no clear benefit from tonsil reduction at one year across all measures.

One reason this question is difficult to settle is because the studies can't be randomized, meaning patients aren't randomly assigned to one procedure versus the other. The result of this is that surgeon preference, even if made during the operation, is built into the equation. So overall what the research has shown so far is that reducing the tonsils during surgery is not beneficial for every Chiari patient. But of course this doesn't mean it isn't beneficial for some Chiari patients. It's not possible to track outcomes for patients where the surgeon thought the tonsils should be reduced but instead were left alone. Unfortunately, this is a question where patients have to rely on their surgeons to make the right decision.

Sources: Chesney KM, et al. Childs Nerv Syst. 2026;42:365. doi:10.1007/s00381-026-07451-1; Stanko KM, et al. J Neurosurg Pediatr. 2016;17:174–181. doi:10.3171/2015.6.PEDS14471; Braga BP, et al. J Neurosurg Pediatr. 2023;31:607–616. doi:10.3171/2023.1.PEDS22222; Koueik J, et al. J Neurosurg Pediatr. 2020;25:21–29. doi:10.3171/2019.8.PEDS19154

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