## Comparing The Structure Of Chiari 0 And Chiari 1

One of the more controversial topics in Chiari is the existence and diagnosis of Chiari 0 (CM0). Chiari 0 patients have Chiari-like symptoms and sometimes even syringomyelia, but little to no tonsillar herniation. While many Chiari experts now recognize that the amount of herniation is not a good indicator of severity, it is not clear if Chiari 0 is fundamentally different in some way from Chiari 1. A new study from researchers in Russia and the National Institutes of Health (NIH) found both similarities and differences between the two.

For the study, the researchers compared 37 adults with Chiari 0 and syringomyelia, 46 adults with Chiari 1 and syringomyelia, and 25 healthy controls. All of the Chiari patients had symptoms and imaging evidence of a small posterior cranial fossa. The researchers then performed an extensive series of MRI measurements to compare skull anatomy, brain position, cerebrospinal fluid spaces, and syrinx characteristics between the groups.

The results showed that both Chiari 0 and Chiari 1 shared many of the same anatomical abnormalities. Compared to healthy controls, both groups had a smaller and flatter posterior cranial fossa (the area of the skull where the cerebellum is located), reduced CSF spaces around the foramen magnum, and evidence that the brainstem and cerebellum were positioned lower within the skull. However, these changes were generally more pronounced in the Chiari 1 group. One interesting finding was that Chiari 0 patients tended to have a smaller foramen magnum, or opening at the bottom of the skull. The researchers speculate that this may help explain why Chiari 0 patients can develop symptoms and syringomyelia despite having little or no tonsillar descent.

Despite the similarities, the study also found important differences in syringomyelia. While both groups had syrinxes, the syrinxes associated with Chiari 1 were significantly larger and tended to extend higher in the spinal cord. This supports previous observations that Chiari 0 syrinxes are often smaller and less expansive than those seen with Chiari 1.

In general, it appears like Chiari 1 represents more severe anatomical deviations from the norm than Chiari 0 but that patients with Chiari 0 may have smaller openings at the bottom of the skull.

**Source**: Bogdanov EI, Faizutdinova AT, Heiss JD. MRI-morphometric characterization of Chiari malformation types 0 and 1 with syringomyelia: implications for diagnosis and pathogenesis. Neurol Sci. Published online March 13, 2026. doi:10.1007/s10072-026-08820-z.



*Conquer Chiari's research updates highlight and summarize interesting publications from the medical literature while providing background and context. The summaries do contain some medical terminology and assume a general understanding of Chiari. Introductory information and many more research articles can be found in the Conquer Chiari Library.*