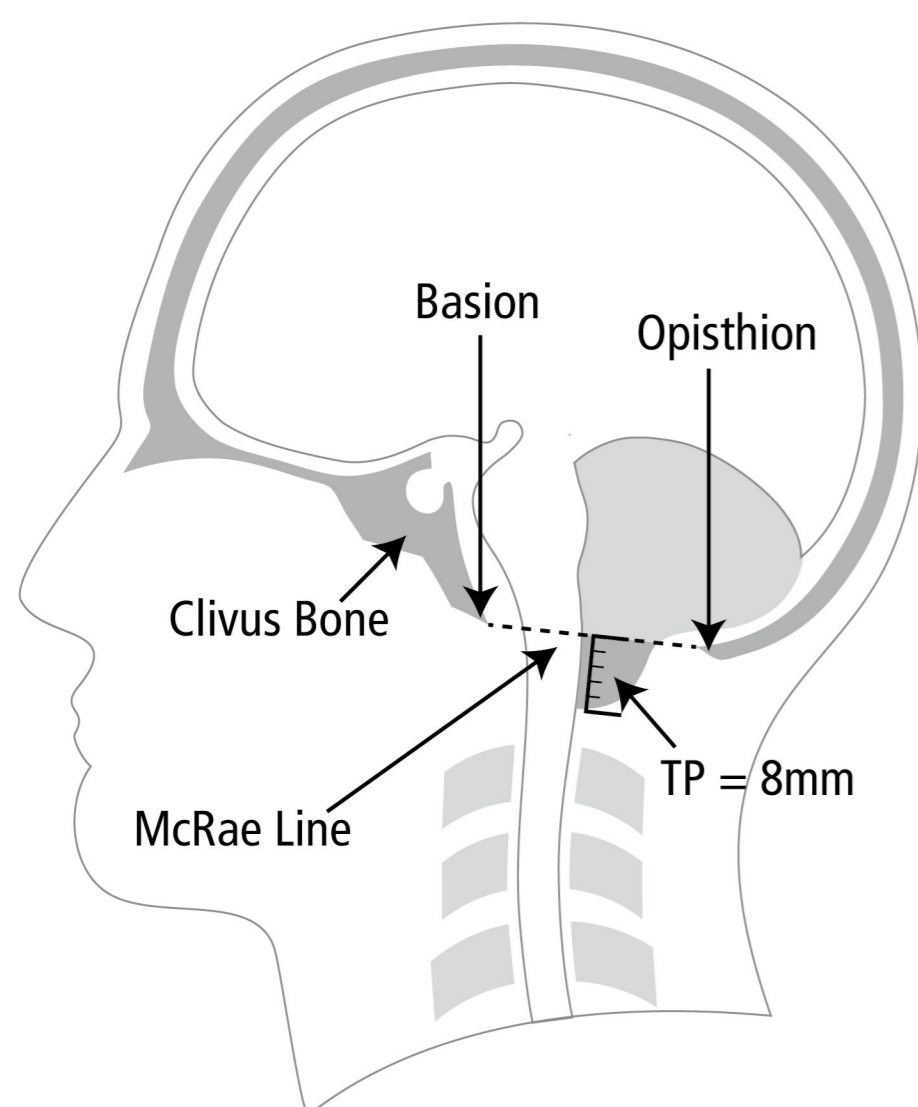


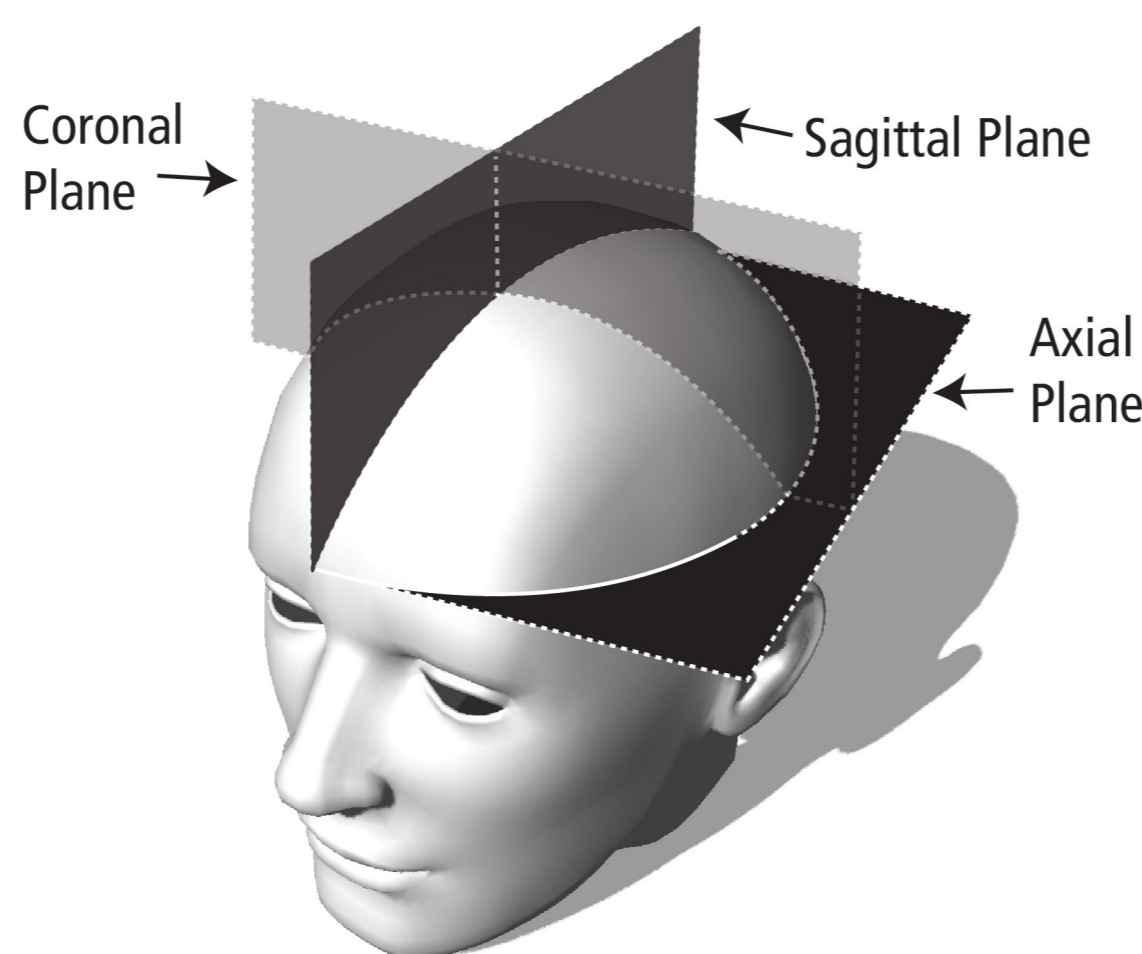
The 5mm Rule:

The traditional definition of Chiari is tonsillar herniation of 5mm or more.

Measuring Tonsillar Position



MRI Orientations



Origins of the 5mm Chiari Rule

In 1986 a study (Barkovich) looked at the tonsillar position of 25 Chiari patients and 200 healthy controls using hard copies of MRIs to make the measurements. They found that there was overlap of the two groups between 3mm-5mm. From this, they concluded that Chiari involved herniation of at least 3-5mm. Over time this shifted to the currently accepted definition of 5mm.

How Tonsillar Position Is Measured

- The mid-sagittal MRI image is selected
- A line is drawn between the bottom of the clivus bone and the lower tip of the occipital bone, this is the McRae Line
- A line is drawn perpendicular to the McRae Line to the lowest tip of the cerebellar tonsils
- The length of this line is the amount of herniation, or the tonsillar position

Problems With the 5mm rule

- 1-3% of the general population has tonsillar position of at least 5mm, but the vast majority do not, and will not, have symptoms
- Tonsillar position changes over time in an individual and varies among the general population
- Research has shown that tonsillar position is not strongly linked to symptom severity or surgical outcome
- Tonsillar position is difficult to measure accurately and consistently

A 2020 survey of 63 international Chiari experts, with a combined experience of over 15,000 cases, found that nearly 90% question the 5mm definition of Chiari.