

Key Points

1. Many women diagnosed with Chiari are concerned about whether they can safely have children
2. Increased CSF pressure during labor and anesthesia issues are a concern
3. Research is limited but several case studies have been published demonstrating that labor/delivery can be successful for women with Chiari
4. This study looked at the symptoms of 7 women with Chiari during pregnancy, labor, and post-partum
5. In general there were only minor symptom changes during pregnancy, none which lasted
6. There was no significant worsening of symptoms either during or after labor
7. There were no complications do to epidural anesthesia

Definitions

anesthesia - blockage of all sensations, including pain and muscle movement

catheter - hollow, flexible tube used to deliver medicine into the body or drain fluids from the body

cerebellar tonsils - portion of the cerebellum located at the bottom, so named because of their shape

cerebellum - part of the brain located at the bottom of the skull, near the opening to the spinal area; important for muscle control, movement, and balance

cerebrospinal fluid (CSF) - clear liquid in the brain and spinal cord, acts as a shock absorber

Chiari malformation - condition where the cerebellar tonsils are displaced out of the skull area into the spinal area, causing compression of brain tissue and disruption of CSF flow

Chiari & Pregnancy

Editor's Note: Diane Mueller, N.D., R.N., and the lead author of this work is a Director of the C&S Patient Education Foundation, the publisher of Chiari & Syringomyelia News.

Since Chiari often is diagnosed in a person's late 20's or early 30's, many women with Chiari become concerned whether it will impact their plans for a family. Beyond the question of whether Chiari can be passed to children, there is a concern about whether pregnancy, and more importantly labor, can cause Chiari symptoms to get worse.

Their concern is certainly valid. Chiari symptoms in general can get worse with straining and exertion, and there is no straining quite like that associated with labor and delivery. The contractions and pushing that occur during labor are likely to increase the pressure of the CSF inside the brain and spine. In addition, anesthesia is often given either just outside the dura or into the CSF space itself, raising other concerns.

While there is little research in this area, the few case studies which have been published (see Related Articles) are generally positive. These case studies have shown that with proper management, delivery is possible without aggravating Chiari symptoms.

In the February, 2005 issue of the Journal of Perinatology, Diane Mueller, a neurosurgical nurse doctorate, and Dr. John Oro, a neurosurgeon, add to this evidence by presenting seven cases of Chiari and pregnancy. In looking at the subject, Dr. Mueller wanted to answer three questions:

- 1) Is there a change or worsening of Chiari related symptoms during pregnancy, delivery, or post-partum?
- 2) Does epidural or intrathecal anesthesia change or worsen symptoms?
- 3) Are there any Chiari related complications during delivery or post-partum?

To answer these questions, Dr. Mueller asked 7 women who were diagnosed with Chiari and were pregnant either at the time they were evaluated or some time afterward to fill out answer a questionnaire. The questionnaire asked about symptoms experienced during the pregnancy, the type of delivery, anesthesia used, symptoms after delivery, and whether there were any complications.

The average age of the women was 29 (see Table 1). The average size of the Chiari malformation was 9mm and two of the women had syrinxes as well. Most of the women got pregnant after undergoing decompression surgery, but two of the women were pregnant before surgery.

Table 1 - Selected Characteristics of 7 Pregnancies

Case	Age	CM Size (mm)	SM (Y/N)	Length of Labor (Hours)	Anesth.	Type of Delivery	Surgery Before or After Delivery
1	30	8	Y	9	Epidural	Vaginal	After
2	28	7	N	3	None	Vaginal	After
3	27	4	N	6	Epidural	Vaginal	Before
4	30	19	Y	3.5	None	Vaginal	Before
5	23	3	N	1	None	Vaginal	Before
6	31	10	N	.33	Epidural	Not Clear	Before
7	32	13	N	7	Epidural	Vaginal	Before

Overall, the group fared very well. For most of the women, some symptoms got slightly worse during pregnancy but resolved fairly quickly (see Table 2). Interestingly, in some cases symptoms - mostly headaches - actually got better at times during the pregnancy. Labor and delivery didn't aggravate symptoms at all, and only one woman had a slight problem post-partum which resolved in the near-term. Anesthesia did not seem to be an issue as well, with several women receiving epidurals with no problems. Overall there were no Chiari related complications during delivery.

Table 2 - Summary of Symptom Changes During & After Pregnancy

Case	Pregnancy	Labor/Delivery	Post-Partum

decompression surgery -

general term used for any of several surgical techniques employed to create more space around a Chiari malformation and to relieve compression

dura - tough, outer covering of the brain and spinal cord

epidural - space near the spinal cord just outside the dura

epidural block - procedure where anesthesia is injected into the epidural space - usually through a catheter

ICP - intracranial pressure, pressure of CSF inside the skull area

intrathecal - when something is injected into the CSF; in the case of labor also known as a spinal block

spinal cord - thick cord of nerve tissue which extends from the brain down through the spinal column, and from which nerves branch off to different parts of the body

syringomyelia (SM) - neurological condition where a fluid filled cyst forms in the spinal cord

syrinx - fluid filled cyst in the spinal cord

tonsillar herniation - descent of the cerebellar tonsils into the spinal area; often measure in mm

1	Slightly worse	None	None
2	Some slightly better, some slightly worse	None	None
3	Some better, some worse	None	None
4	Slightly worse	None	None
5	None	None	None
6	Some slightly better, some slightly worse	None	None
7	None	None	Short-term neck pain, spasms

Even when all Chiari related pregnancy reports are combined, the number of cases is too few to draw strong conclusions. However, it is encouraging that at least several women with Chiari have been able to have successful pregnancies without aggravating their symptoms.

Interestingly, despite these publications, a number of women have reported anecdotally that pregnancy/delivery actually triggered their initial symptoms. In Milhorat's landmark study, 16 out of 364 Chiari patients reported pregnancy as a precipitating event. Is it possible that pregnancy can trigger initial symptoms, but in general does not worsen existing ones? Like so many Chiari related questions, the answer to this one will require much more research.

Related Articles:

[Link With MS; Giving Birth With Chiari](#)

[Anesthesia issues during labor for women with Chiari](#)

[Skydiving, bad elbows, and labor management](#)

Source

Source: Mueller DM, Oro' J. Chiari I malformation with or without syringomyelia and pregnancy: case studies and review of the literature. Am J Perinatol. 2005 Feb;22(2):67-70.

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