

"The Arnold-Chiari Malformation"

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One of the more common reasons for a patient to see a chiropractor is for treatment of headaches. In many cases, the root of the problem can be traced to a musculoskeletal or nutritional origin, but, occasionally, the chiropractor faces a patient with a headache that is unresponsive to treatment.

One possible explanation for this occurrence centers around the Arnold-Chiari malformation. The Arnold-Chiari malformation was first described by Cleland, a British anatomist, in 1883. There are several types of Arnold-Chiari malformations, but only the Type I Arnold-Chiari is seen with any frequency in chiropractic clinical practice, as the symptoms related to the type I Arnold-Chiari malformation do not typically present themselves until the patient is between the ages of 20-40.

The Type I Arnold-Chiari malformation involves cerebellar displacement into the upper cervical spinal canal. With this type of congenital neurological anomaly, the extra space posterior to the spinal cord in the upper cervical region is occupied by cerebellar tissue, thus crowding the upper cervical neurological structures.

Further complicating chiropractic management of the Arnold-Chiari type I malformation are problems relating to the flow in the vertebral arteries. Due to the downward displacement of the cerebellar tonsils to a position behind the upper cervical spinal cord, there is also downward displacement of the accompanying posterior inferior cerebellar arteries as well. This may lead to a "hair-pin" turn in the vertebral arteries that may lead to ischemia to the cerebellum and medullary regions with only extension of the head.

The most common patient complaints are (1) bioccipital headaches, (2) occipital and cervical pain, and (3) dizziness upon extending the head and neck. Other complaints that may be noted in these patients are nausea and vomiting, dysarthria, intermittent blurred vision, diplopia, and ataxic gait.

The clinical neurological examination findings for these patients include: papilledema (an indicator of hydrocephalus due to blockage of cerebrospinal fluid flow by the Arnold-Chiari malformation), facial weakness, dysphonia, apnea, tongue atrophy, diplopia, and signs of spinal cord compression such as the Babinski's sign, hemiparesis, muscle spasticity, and episodic urinary retention. Additionally, these patients may exhibit horizontal nystagmus in both directions and a positive Romberg's test.

Plain film radiological examination of these patients may reveal the presence of spina bifida or Klippel-Feil syndrome. Other than these findings, there are no distinct plain film radiological findings associated with the Type I Arnold-Chiari malformation.

Although the Type I Arnold-Chiari malformation is not a common clinical entity, its existence in resistant headache patients may explain manipulative management difficulties. Should the presence of an Arnold-Chiari malformation be suspected in a headache patient, the patient should be referred for an MRI of the region.

The Type II Arnold-Chiari malformation has not been addressed since it is predominantly a pediatric neurological disorder.

References

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