

# The effect of sacro occipital technique (SOT) category one procedures on Chiari Type 1 and cystic syringomyelia: A case report

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**Introduction:** The purpose of this investigation was to determine if sacro occipital technique (SOT) category one procedures, cervical stairstep technique, and cranial manipulation have an effect on a Chiari malformation with Cystic Syringomyelia. A 42 year old female noted that with cervical spine flexion she had symptoms of blurred vision, radiating pain, weakness and neuralgias of bilateral upper extremities (especially with coughing), cervicothoracic stiffness and pain, and tension at base of skull, head and jaws.

**History:** An MRI of cervical spine (March 2019) revealed a cystic syringomyelia of the cervical spinal cord from C3-T2, occupying the majority of the spinal cord from C6-T2. Chiari Type 1 malformation was also noted with inferior displacement of the cerebellar tonsils 7-8mm. The goal of care was to reduce cerebellar tonsil displacement, slow, halt, or reverse advancing development of spinal syringomyelia cyst, improve CSF circulation to cervicothoracic spinal cord and related nerve roots, thus reducing the patient's symptoms and improving mobility.

**Methods/Intervention:** Examination revealed anterior/posterior body standing sway with bilateral T1 costovertebral tenderness and hypermobility. With gentle pressure of the doctor's thumb over the prone patient's L5 spinous, found upon their coughing that the thumb 'jerked' headward (SB- cough test) consistent with a sacrum restricted in counternutation/flexion. The patient's symptoms were aggravated with cervical traction, better with cervical stair step procedures and restricted motion was noted in the upper thoracic spine.

Treatment focused on basic one cranial technique, frontal occiput pumping, sphenobasilar range of motion, and cervical stairstep technique, which were performed to potentially reduce the drag on the cerebellar tonsils. SB-blocking with sacral base pressure on sustained exhalation and bilateral arm traction (by the patient) were repeated in sets of three when SB-cough test was indicated. This was performed in an effort to improve the craniosacral pumping mechanism and reduce dural torsion as well as improve cerebrospinal fluid circulation and meningeal function around the spinal cyst. Eventually, gentle osseous mobilisation of the upper thoracic spine was successfully performed and the chiropractic manipulation was relatively effortlessly received. The patient was treated generally twice monthly between the first (December 2019) and last (November 2022) MRI.

**Results:** The inferior displacement of the cerebellar tonsils reduced from 7-8mm (December 2019) to 7mm (December 2020) then 6-7mm (November 2022). Syringomyelia remains unchanged (April 2019 - November 2022). The thoracic spine began gaining more mobility with SB-blocking technique preceding gentle osseous manipulation. By November 2022 she noticed significant improvement in upper extremity weakness, neuralgias, radiations, cranial torsion, cervicothoracic stiffness/pain. Unfortunately the symptoms that were unchanged were visual disturbances with cervical flexion.

**Conclusion:** This case illustrates conservative chiropractic care providing relief for a patient with Chiari type 1 and cystic syringomyelia. The patient has made good progress under care however warrants continued therapeutic surveillance since these conditions may be degenerative in nature, particularly if there is ever trauma either acute or chronic (e.g. ergonomic) to the upper cervical and cervicothoracic regions.

**Indexing terms:** Chiropractic; sacro-occipital technique; SOT; Chiari Type 1; SB-blocking technique



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