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Suboccipital Strain in Newborns

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The upper cervical spine and atlanto-occipital junction have been identified in previous studies as being the cause of a diversity of clinical findings affecting the newborn infant. This month we review a study by Biedermann in which suboccipital strain is identified as causing a variety of signs and symptoms in a group of 114 young infants. The study, published in the *Journal of Manual Medicine*, not only identifies the signs and symptoms of the suboccipital strain syndrome, but also highlights the effectiveness of spinal adjustments in correcting the problem.¹

Kinematic imbalances due to suboccipital strain, otherwise known as KISS syndrome, identifies the pathogenic potential of the craniovertebral junction to produce a constellation of clinical findings. From a group of 600 children, 114 were chosen for treatment and follow-up study. Their symptoms included restricted motion of the cervical spine, torticollis, cervical scoliosis, facial scoliosis, asymmetric muscle tone, retarded development of the hip joints, opisthotonos (retraction of the head and arching of the back, with infant unable to hold the head erect), deformities of the feet, restless sleep, and not eating or drinking well.

The most common findings were those of torticollis (head tilted to one side), scoliosis (sideways curve of the cervical spine), asymmetric muscle development, slow development of the hip joints and asymmetrical or slow development of motor skills.

The most common factors causing suboccipital strain were identified in the study as including intrauterine malposition of the fetus, the use of forceps or vacuum extraction during the birth process, prolonged labor and multiple fetuses (twins, triplets, etc.). The incidence of these risk factors in affected infants varied significantly from the established normal birth statistics.

According to the authors of this study, the pathogenic importance of asymmetric posture in infants and young children is often disregarded, with the condition either being dismissed as unimportant or not recognized at all.

All of the subjects in the study were treated by adjustments to either the atlanto-occipital or the atlanto-axial joints. According to the author, treating disturbances of the suboccipital joints and the cervical spine simplifies and shortens the course of the infant's problems, and significantly reduces the need for lengthy programs of physiotherapy. Furthermore, the indication for spinal manipulation in infants depends on first recognizing the clinical symptoms and then fitting them with the physical and radiological findings.

The researchers in this study relied on x-ray findings to accurately evaluate the alignment of the atlanto-axial and atlanto-occipital joints. The radiological evaluation was used to help in identifying spinal malformations and as an aid in determining the most appropriate direction of manipulation.

KISS syndrome was defined primarily because of the inability to consistently identify fixations, or "blockages" in the atlanto-occipital region, as had been previously described by Gutmann in the 1960s. In many cases, KISS syndrome can be dealt with effectively by correcting the alignment and restoring lost movement to spinal vertebrae.

Several case reports are presented in the paper, the first of a four month old female infant born by Cesarian section. The mother was concerned that her daughter had difficulty controlling her head position and always slept on her right side. The left arm was used less frequently than the right. Upon examination, painful palpation was identified on the right upper cervical spine, with cervical flexion on the left being half that on the right. Follow-up after manipulation showed symmetrical development and normal sleep patterns.

Another report details the case of a five month old twin who suffered hypoxia at birth. At six weeks of age examination showed cervical scoliosis, hypomobility of the left arm, poor head control and asymmetry of the facial structures. Following manipulation, posture and mobility were symmetrical and the cervical scoliosis straightened.

A third report gives details of the case of a six month old female with inability to turn her head to the left and with a pronounced facial scoliosis. Handling the child was described as difficult as she often cried, her motor development was retarded and she had recurrent fever of unknown origin. A few hours after the first treatment she moved her head to the left. One month later her facial scoliosis was much less pronounced and

her motor development was improved. Twelve months later no abnormalities were detected.

In this study, 29 infants were identified with congenital torticollis. In this condition, spasm or trauma to the sternocleidomastoid muscle (SCM) causes the newborn infant's head to tilt to one side. Frequently, in persistent cases, surgery to lengthen the SCM is the elective option. All but one the 29 infants with torticollis responded to manipulation of the upper cervical spine.

Identification of Suboccipital Strain

Identification of suboccipital strain requires careful palpation by a doctor experienced in the art of spinal examination. Initial indications can be increased pain or sensitivity of the suboccipital and upper cervical spinal regions and/or restricted movements of the head and neck.

Subluxation of the atlas to the right, relative to the occiput, was a more frequent finding than was left atlas subluxation. This finding correlates with the studies of Jirout who also found the most common direction for atlas subluxation to be to the right.² In 19 cases the main spinal asymmetry was found at C1-C2. In these patients, treatment at C1-C2 proved to be as effective as adjusting C0-C1.

Conclusion

Suboccipital strain is a leading factor in the conditions described. It can be relieved quickly and effectively by adjusting the cervical spine, in most cases, with one or two treatments. A frequent comment by parents was that their child ate better and slept better after the treatment.

References

1. Biedermann H. Kinematic imbalances due to suboccipital strain in newborns. *J. Manual Med* (1992) 6:151-156.
2. Jirout J. (1990) *Roentgenologische Bewegungsdiagnostik der Halswirbelsäule*. Fischer, Stuttgart.

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