Blocked Atlantal Nerve Syndrome
In Infants and Small Children

BY G. GUTMANN

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Summary: Three case reports are reviewed to illustrate a syndrome that has so far received far too little attention, which is caused and perpetuated in infants and small children by blocked nerve impulses at the atlas. The clinical picture ranges from central motor impairment and development through idencephalic impairments of vegetative regulatory systems to lowered resistance to infections, especially to ear-, nose- and throat-infections. The theoretical background to this syndrome is indicated. The main factor in the causation concerns the neurophysiological connections between the area of the atlanto-occipital joint and centers in the brain stem. In addition to the case history (birth trauma, etc.) and the pediatrician's diagnosis, chiropractical and radiological examination are of decisive importance for the diagnosis of this syndrome. If the indications are correctly observed, chiropractic can often bring about amazingly successful results, because the therapy is a causal one.

Key words: Babies, infants, atlas, blocked nerves, dysregulation, motor, vegetative, impaired development, resistance lowered to infections, diagnosis and therapy, chiropractical.

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We described this syndrome for the first time in 1953, and then again in 1968, with the complex designation, cervical-diencephalic-static syndrome (C.D.S.). In 1984 we described it as cervical-diencephalic-kinesiological syndrome in small children.

Even though it is among the most satisfying indications of the effectiveness of manual therapy, evidently even experts in our own ranks have hardly gained access to this occurrence at all. Only the pediatrician Mohr (30) has checked our reports and confirmed them in full measure. Lewit, (26, 27) and later Seifert (35) expressed a similar opinion in the German Democratic Republic.

CASE STUDIES

V.S., 10-month-old male child

Congenital torticollis after suction-belljar delivery. Post-natal haemotoma of the sternocleidic mastoid on the right side.

In spite of intensive therapeutic gymnastics, no improvement in the torticollis. A clear-cut asymmetry had developed in the skull and face. Crawling, let alone sitting, was impossible. The orthopedic institute treating the patient diagnosed cerebral disturbances of movement.

Our X-ray findings: Moderate degree of inferior location of the atlas with kyphotic position of the HWS and dislocation of the occiput (al) on the right side across from Cl and C2.

No clear blockage could be felt manually. Targeted manual impulse treatment (Cl/C2 from the left with counter-support of the occiput (al).) In the course of the next 12 months, the first clear improvement in posture and motor responses, confirmed by colleagues collaborating in the treatment.

The second treatment was after 4 months. The parents reported that the child had literally made a great leap forward after each treatment.

Later reports from the parents and treating doctors confirmed unanimously that both motor responses and the previously retarded mental and linguistic development were now pro-

ceeding normally, that the facial asymmetry was completely gone and that the accompanying therapeutic gymnastics could be stopped after the second treatment.

Summary: Congenital torticollis with increasing asymmetry of the face and skull, disturbed postural and kinesiological development, disturbed mental and especially linguistic development; on-going therapeutic gymnastics without significant improvement. Normalization in every respect after two impulse (thrust) treatment, including the asymmetry in face and skull.

R.R., 1 1/2-year-old male child, normal birth

Early recurring tonsillitis. Frequent enteritis. Conjunctivitis resistant to therapy.

The child was strikingly often afflicted with colds, sniffles, earaches, increasing disturbance of sleep.

The child seemed quite literally to be afraid of sleeping, and by implication, of the horizontal position.

He refused to go to bed and ran around until he occasionally collapsed with fatigue.

At the age of 1 1/2 during another cold, the first cerebral spasm, which then was repeated several times. Since this time, especially restless sleep.

The child could not maintain a sleeping position for long, woke up screaming at night. His neck could not be touched without strong resistance from the child as well as painful cries.

As an infant, he had fallen several times from the diaper table. Fourteen days before the first spasm, he had fallen on the back of his head from a height of 1.5 meters (approximately 5 feet).

Manual and X-ray information: Extended HWS with kyphosis between C2 and C3. Blockage of the atlas in the ventral flexion position and right-side dislocation.

First manual impulse treatment of the atlas. Immediately thereafter the child spontaneously asked to be put to bed. He slept for the first time completely calm until the next morning. His previously disturbed appetite became completely normal.

It was apparent that the child could now walk more surefootedly and did not fall as much as before, even though this problem had earlier been considered unchangeable.

The inflammation of the connecting membrane vanished completely.

Another fall on his head three months later, this time from a baby carriage. Two weeks later nausea and another spasm when turned over on the left side. In the pediatric clinic, a diagnosis of fever induced seizures was made.

Four weeks later, renewed impulse treatment of the atlas, thereafter three spasms. After that normal development.

Fourteen months later during childish rough-housing, during which the head was held far back for a rather long time, the child that evening briefly lost consciousness, vomited, and experienced a seizure.

After treatment of the atlas, three days later, undisturbed development.

Summary: Recurrent rhinitis, bronchitis, tonsillitis, enteritis, persistent conjunctivitis, instance of antalgue. Restless sleep with crying out at night, unmotivated central seizures, cerebral spasms, disturbed motor responses with frequent falls, and disturbance of the appetite and overall ability to thrive.

7-month-old male infant, normal birth

Asymmetric development of the skull since the eighth week of life, also, to an increasing degree, of the face. The child always lies on the right side only despite all efforts to put it to sleep in a different position or to move it to a different position while it is asleep. Orthopedic suspicion of incipient scoliosis and dysphasia of the the hip joint. Maintenance in a plaster cast planned but rejected by parents.

Findings: On the right side, clearly flattened skull, clearcut asymmetry of the face, asymmetrically developed thigh flexures, distortion of the ilio-sacral joint.

Manually: Blockage of the atlas.

X-ray: Right dislocational position.

After manual impulse treatment with the agreement of the treating orthopedist, immediate disappearance of ilio-sacral joint distortion. Three days later, the report of the overjoyed mother that the child is now sleeping completely restfully, moreover, in any and all positions. At the time of the next visit three weeks later, symmetrically developed thigh flexures.

Two months after the first treatment, the second atlantal manipulation takes place.

No further developmental problems. The skull becomes more and more symmetrical. Facial asymmetry no longer noticeable.

Summary: One-sided compulsive sleep position, increasing asymmetry of the skull and face, infantile scoliosis, hip dysphasia, distortion of the ilio-sacral joint.

These few case studies are presented from more than 1,000 small patients treated successfully, almost without exception.

Symptoms and Pathogenesis of the Clinical Picture

The clinical picture presents three characteristic groups of symptoms:

1. Disturbance of motor responses, both in postural-tonic and kinesiological-phasic portion.
2. A brain-stem component net central disturbance of negative regulatory systems.
3. Inclination to infections in the throat, nose, and ear region.

1. *Disturbance of Motor Responses*

According to Votja, disturbed postural activity is the common term of every pathological motor response development.

Now the central motor responses develop first and foremost from reflectoristic motor events. The tonic neck reflexes play a determining role in this process, both positively and negatively. If they are undisturbed, the transition to centrally directed motor activity takes place from the 6th to 8th month without a problem.

If they are disturbed — most often

by functional damage in the atlanto-occipital joint — a one sided over or under-valued reflexive response dominates and frustrates (and diminishes) the encephalization of motor responses.

Gesell (13), Bobath (1), Votja (43) have observed, as did Buchmann (4,5), that reflexive control in the case of primary cerebral damage maintains dominance over tonic neck reflexes and frustrates the building of central motor control, so that "certain head positions and movements force characteristic positions of the extremities in such children."(4)

The central nervous system has a deficient adaptibility to the changes in the position of the head and the body position. The spinal level of coordination comes under the influence of pathologic differences (stimuli?) led into the central nervous system or those which are normal but are processed in a pathological manner.

On the other hand, a disturbance of function fed pathologically from the periphery of the atlanto-occipital joint in a reflexive way can cause in secondary fashion a condition in the central area which can hardly be distinguished from a primary centrogenic disturbance, and may even exceed the effect of an originally central disturbance.

For the sake of differential diagnosis, the manual test treatment of the atlanto-occipital joint is decisive. These disturbances take place in the brainstem within the reticular structure.

2. *Brain Stem Component*

The most frequent symptoms of this motor response brain-stem component are: Torticollis with one-sided compulsive positon, with increasingly asymmetry of the skull. Delayed postural developed and upright position, disturbed and asymmetrical kinesiological motor response, infantile scoliosis, functional impairment of the hip joints, low to high grade hip dysplasia, ilio-sacral distortions, also so called growing pains.

The vegetative brain-stem component in the clinical picture of this syndrome is therefore more self-evident than unexpected, for it is in the reticular apparatus as "the most important subcortical association mechanism" (32) that the capability for responses of all systems is directed; it is here that a surplus of pathological afferents finally release undirected and overshooting reactions. The direct neural connection between the atlanto-occipital joint(s) and the brain-stem region originally hypothetically postulated by us in 1953 has since then been frequently confirmed by experiments, thus the connection to the vestibular and abducent core region, especially the reticular formation (7,10,21,22.24,29,38).

The incomplete degree of maturity of the child's central nervous system with its sensitive plasticity explains the occasionally massive, at first sight unsystematic vegetative brain stem symptoms: Overall poor thriving, absence of appetite, circulatory disturbances, as well as those of digestion and equilibrium, nausea and vomiting, swift exhaustibility, restlessness to the point of psycho-motor attacks, disturbance of concentration initiative and the ability to learn, delayed and slow speech, inexplicable fever paroxysms, cerebral spasms and, in the age of articulation, head and neck aches.

TABLE 1. Relational disturbances of the head joints in the x-ray picture and manually diagnosed blockages. 1. Healthy persons (180). 2. Children with C.D.S. syndrome (100). 3. Infants with C.D.S. syndrome (75).

	No.	C1 lateral-isation	C1-Rot.	C2-Rot.	Blocked Nerves
1. Healthy adults without problems	45	6 13%	0	15 33%	0
Fleeting problems	38	15 40%	4 11%	16 42%	0
Treated problems	97	32 33%	48 49%	54 55%	C0/C1oder C0/C1 und C1/C2 combination
2. Sick children (C.D.S.)	100	88 88%	23 23%	54 54%	fast 100% C0/C1
3. Infants (C.D.S.)	75	75	0	0	

3. *The Susceptibility to Infection in the Throat, Nose, Ear and Bronchial Region*

The inclination to recurrent otitis, tonsillitis, sinusitis, lasting rhinitis and recurrent bronchitis.

Lewit (27) found among primarily youthful patients with chronic tonsillitis that 92 percent had an atlanto-occipital joint blockage, primarily between the occiput (al) and the atlas. These blockages may be triggered by the first case of tonsillitis, maintain, however, their own inclination to recur. After the removal of the blockage, recurrence is absent. (Lewit - the same observations by us.)

Mohn has reported to us that no tonsillectomy was needed after the systematically administered treatment of functional atlanto-occipital joint disturbances.

Diagnosis

The diagnosis results from :

Anamnesia: mechanism of delivery, birth trauma, early childhood trauma, typical postural, kinesiological postnatal development (especially torticollis).

Clinical Picture with many vegetative variants.

Manual Diagnostic.

X-ray Evaluation according to our criteria.

Last but not least, *the first test treatment.*

Anamnesia

Birth trauma, early childhood trauma. Birth trauma in the narrower sense is less frequent than originally assumed by us. Vacuum extraction does not seem unproblematic, likewise a much later administered intervention (c-section) after the little head has been lodged in the pelvic entrance, possibly in an extreme position. Post-natal investigations, especially computertomographics ones, have shaken the view that normal birth is a problem-free event. In the majority of newborn children, microparenchymic injuries of the brain-segments near the ventricle have been found. Other investigators more often confirmed a distortion of the head-neck connection (6,11,25, 28,35,44).

Post-natal developmental disturbances of the motor system

Torticollis, disturbance of the typical position reflexes, especially in the modifications, according to Vojta (43) and Rubis (35).

Clinical Picture

The clincial picture with many variants, including functional, i.e. secondary morphological deformations of the skeleton.

Manual Diagnosis

A. Massive pain and flight reactions during palpitation, almost exclusively of the atlas cross continuations, mostly differentiated sideways.

B. Muscular fixation and blockage in the area of the A-O head joints among infants and small children exclusively between the occiput and the atlas. With young infants (our youngest patients were 4 weeks old) it is almost impossible to confirm a blockage. We have observed cases without any blockage in which only an x-ray confirmed relational disturbance between occiput and atlas was present.

TABLE 2. Categories of At-Risk Children

1. **Primary Children at Risk**—Primary immediate cerebral damage pre-, con- and post-natal.

2. **Secondary Children At-Risk**—Indirect reflexogenic brain stem disturbance during pre-, con- or post-natal traumatization of atlanto-occipital joints with persistent disturbances of relation and coordination.

X-ray Findings

X-ray finding of course produced only with our analytical functional recording technique along with evaluation on two standard levels, is for us less important for diagnosis than for the selection of the manual technique regarding point of contact and the direction of impulse. It is an absolute requirement.

Carrying out the x-ray examination is not very simple and demands a good deal of patience, experience and collaboration between parents, assistant, and occasionally the personal cooperating doctor.

Therapy

The therapy based exclusively on the x-ray findings, providing that there is no contraindication. It consists of a directed manual impulse application at the cross continuation of the atlas in reclining position with the head fixed in place. The younger the child is, the gentler our impluse. We are again and

TABLE 3. Treatment effect of manual atlas treatment of a group of 29 children with C.D.S. syndrome with professional orthopedic pre-and post-examination. Average age 3.2 months (0.5 to 8 months).

Mode of Birth	
Vacuum extraction	5
Pelvic end positions	3
Section (C)	2
Premature	3
Twin Birth	1
Skeletal Disturbances	
Skull Asymmetry	13
Hip dysplasm	10
"C" Scoliosis	24
"S" Scoliosis	4
Head Position	
Torticollis	29
Kinesiological Disturbances	12

After one-time treatment of the atlas with orthopedic post-examination on average after 6.3 months.

Results: In 16 children a complete normalization, in 8 children far-reaching normalization of HWS and head mobility. The previously present skull asymmetrics were completely or almost completely removed in all children that were accessible to a lengthy observaton.

again astonished at how even the lightest tap with the index finger gradually and uniterruptedly often, however suddenly, returns the condition to normal. (cf. Tables 3 & 4)

Exercises have proven themselves to be outstanding according to Vojta (induced reflex creeping and reflex turning around).

The effect improves dramatically, however, when existing a-o joint disturbances are removed manually (4,5). This has been confirmed time and time again by our collaborating orthopedic colleagues Knopke and Hamm.

With cerebral spasms parents must be advised, however, that after the treatment a transient, crisis-like worsening may result. The family doctor or pediatrician should be informed of this. We cannot say anything about the frequency of this syndrome. It would have to be determined through field studies in pediatric and orthopedic practices. The syndrome is, however, assuredly much more frequent than could even have been suspected by us up to now. According to Mohr (30), based on reports from Borsche (3), only about 14% to 20% of all children are in a state of vegetative equilibrium.

There is a strong suspicion that among the 80% disturbed children there are many with the atlas blockage syndrome. According to Frymann (11), there was among 1,250 infants chosen non-selectively examination five days post-partum a group of 211 "nervous" children with vomiting, muscular hypertonus to opistotonus, tremors, and insomnia.

During the manual examination of the skull, an increased strain was found in 95 percent of this group. If this strain was removed, an immediate calming often resulted, the crying stopped, the musculature relaxed, the children fell asleep.

Chagnon and Blery (6) emphasize that occipito-cervical lesions in children are still underestimated, least of all because of diagnostic inadequacies.

Seifert (35) found among 1,093 newborns, 298 children with a-o blockages significantly connected with the development of a "C-scoliosis."

TABLE 4.

Mode of Birth	
Twins	1
Naval Twisting	1
Section	4
Vacuum	2
Pelvic End Position	1
Skeletal Disturbances	
Skull Asymmetry	13
Hip Dysplasis	10
"C" Scoliosis	24
Left Side	21
Right Side	3
Kinesiological Disturbances	12
Head Position Torticollis	33
Number of Treatments	
Once	30
Twice with full success	1
Twice with partial success	1

We were able to do comparative investigations between healthy adults, those with mild and more severe vertebral disturbances and children with C.D.S. syndrome; equally large groups were involved (cf Table 3).

In keeping with this, C.D.S. syndrome in infants and small children is esssentially an atlas blockage syndrome.

Summary and Conclusion

We must identify two groups of children at risk according to today's state of knowledge: a. The primary, immediate cerebral damage with disturbed vegetative-postural reactability, either on the basis of a pre-or congenital trauma or through post-natal damage to the central nervous system:primary group of children at risk. Here parental, inter-cranial bleeding with periventricular parenchymic injuries play a role previously underestimated in its proportions. [CT examinations by Ludwig, et al (28)].

b. The secondary, indirect reflexcogenic disturbances of the brainstem as a result of congenital or postnatal traumatization of head joints with lasting disturbance of relations and coordination: secondary children at-risk.

Conclusions for practice

Surveillance of infants should involve the observations of motor development and the manual control of a-o joints. This should be obligatory in difficult births, especially with congenital torticollis.

With developmental disturbances of every kind the atlanto-occipital joints should be examined and in each case be treated manually in a qualified manner. The success of this treatment eclipses every other attempt at treatment, including especially the use of medications and demands the directed reflex therapy in a decisive way according to Vojta (cf Table 3)

In the interim, we have been able to examine a further group of 33 children together with our colleague Mr. Knopke and treat them.

The average age was 3.06 months (3 weeks to 14 months). With increasing experience the children are given manual treatment earlier. The prospects are thus significantly improved and the costs of treatments are substantially reduced. ■

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