Thesis

From the osteopathic perspective of C1, is there a statistical difference between normal births and caesarean operations for new borns?

by:

Frank Römer

In order to obtain a Bachelor of Science in Osteopathy – BSc (O)

National University of Medical Sciences

2015

Frank Römer

Am Gute 3b 38300

Wolfenbüttel / Germany

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Question

Over the last 10 years many infants and small children with various problems were brought into my practice by their parents. After an examination many of these small patients proved to have a C1 blocking. The question I always put to myself is whether there is a statistical difference between normal and caesarean births. I could find no relevant data in the literature. With this in mind I started to collect data in August 2014 to obtain information regarding the frequency of C1 blocking. The following data were collected:

- Normal birth?
- Caesarean operation?
- Forceps delivery?
    - Extraction cup?
- Wrapping in umbilical cord
- Age at first visit

218 children were examined within the first 6 months. Their ages were between 7 days and 12 months Prerequisite for the examination was that the children had not been previously examined.

Course of a pregnancy

A pregnancy begins with the fertilization of an ovum (egg cell) and its' attachment to the uterine wall. A normal pregnancy takes 280 days beginning on the first day after the last period.

We divide the pregnancy into trimesters

First Trimester (1-3 months):

The beginning of the pregnancy is in the first trimester when the ovum attaches itself to the uterine wall and is marked by a hormonal change in the pregnant woman. In this phase the most spontaneous abortions occur. The embryo develops its internal organs in the first eight weeks.

Second Trimester (3-6 months):

In the 2cnd trimester the internal organs develop further.

The mother can feel the first movement oft eh child in her stomach. Swings in mood and nausea are greatly reduced during this period.

At the end of the 2nd the child reacts to external optical and acoustic stimuli. At this time the embryo is approximately 26 cm long and weighs around 500 g (Source: Wikipedia).

Third Trimester (6-9 months):

The third trimester is primarily for the embryos increase in weight as well as the preparation of the maternal body for childbirth. Thanks to intensive medical support a premature birth in the third trimester can be survived.

The average increase in weight of the pregnant woman during the pregnancy is approximately 10 to 15 kgs. Most of this is fluid in the
in the form of amniotic fluid and retention in the tissue.

The embryo rapidly puts weight on, especially at the end of the pregnancy and so it weighs on average 2800 g to 4000 g and has a size of 48 cm to 54 cm (Source: Wikipedia).

Course of a normal birth

There are two alternatives as to how a person can be born.

1. A normal birth
2. A caesarean

At the end of a pregnancy 55% are “normal” births. Normally the birth takes place in a hospital or maternity clinic. Only 1.5% of all children in Germany were born at home in 2012. (Source: Wikipedia).

What exactly leads to the start of the birth is unknown. The birth begins approximately 280 days after the last period.

The birth sequence can be split up into three stages:

1.1 The opening stage

1.2 The second stage of labour

1.3 The post-natal stage

1.1 The opening stage

The opening stage starts with the onset of labour. This is indicated with the shortening of the neck of the womb and the uterine cervix begins to open. Similarly it is at this stage that the child is lowered into the birth canal.

This stage takes approximately 8-14 hours for first time mothers. For future births this can be reduced to 2-8 hours.

1.2 The second stage of labour

If the neck of the womb is completely open (10 cm) then the second stage of labour begins. The head of the child slides into the birth canal. Accompanied by strong contractions, the child is pressed further along the birth canal. It is at this point that the majority of birth complications take place that can lead to the implementation of forceps or a suction cup. If there is a risk to the mother and/or child then the complications can lead to a secondary caesarean.

After the baby's head has been born the shoulders position themselves to the longitudinal axis of the maternal pelvis and they are also born. After this the midwife or doctor can complete the birth and cut the umbilical cord.

1.3 The post-natal stage

The post-natal stage is characterised by the detachment of the uterus from the uterine wall and the birth of this. Normally this stage only takes 30 minutes.

<u>The most common complications at a normal birth are:</u>

- Wrapping of umbilical cord
- Decreased heart function
- Birth arrest
- HELP syndrome
- Breech
- Malposition

2. Caesarean

If before or during birth there are complications for the mother or child, then the child can be born by means of a caesarean.

Subdivided into:

- Primary caesarean (contractions or breaking the water haven't started yet.)
- Secondary caesarean (contractions or breaking the water have started.)

With a primary caesarean it can already be seen in advance that there could be possible problems during the birth. These include for example disproportions between the size of the child and the maternal pelvis or the mother's blood pressure is too high. Often there are breathing problems after a primary caesarean as the "stress of birth" is missing. Furthermore due to the missing pressure in the birth canal that the amniotic acid is not pressed out of the lungs.

If a secondary caesarean is required then the normal birth process is already under way and there should be no complications. For example reduction of the heart tones or get stuck in the birth canal.

During a caesarean the woman giving birth under aesthesia receives a 10 to 15 cm cut above the pubic hair. Generally this is made across the pelvis of the mother. A cut in the course of the Linia alba is only rarely seen these days. In the past all the tissue layers were cut with a scalpel, now the tendency is to scratch the uterus and muscle tissue and then tear them. This method provides for improved wound healing and leads to fewer complications for future pregnancies. After the doctor has made preparations in the uterus the child is removed, mostly by its head, through the opened stomach. In this case, the doctor levers the child by means of a lateral flexion of the CS. Presumably it comes to a lateral flexion combined with strong traction to a blocking of the upper CS.

Statistical frequency of normal births to caesarean sections

The data collection performed in my osteopathic practice was carried out over six months. In this period 218 patients were examined. The average age of the examined children was 2.39 months. On average the children were born 5.06 days before the expected birth date. The palpitation, lateral reflexion test of the CS, as well as deblocking noise during the correction, served as evidence of a blocking of C1.

Of the 218 births, 120 (55.04%) were normal births without complications. 58 children (26.60%) were born by means of a caesarean. 20 (9.17%) required the help of a suction cup. 16 (7.34%) were wrapped in the umbilical cord and 4 (1.83%) had to be helped with forceps.

When comparing the data collected in my practice with statistics in Wikipedia then it can be seen that there is a discrepancy in the statistic for children wrapped in the umbilical cord. According to Wikipedia 20% of births have this problem while there are only 7.34% who have this problem in my practice.

From the 218 births, 110 (50.46%) had a blocking of C1. Of these 110 blockings, 41 (37.72%) were a normal birth, 46 (41.82%) were caesareans. 9 (8.18%) required the help of a suction cup or were wrapped in the umbilical cord. Only 5 (4.55%) could be observed to have a blocking after a forceps delivery.

When taking all the births into consideration the blocking of C1 is most common in caesarean births (21.10%). In second place is a normal birth (18.81%). There are significantly fewer blockings with umbilical cord wrapping (4.13%), suction cup (4.13%) and forceps delivery (2.29%).

When comparing a blocking after a caesarean birth with a normal birth (merger of normal, suction cup, umbilical cord wrapping and suction cup), then there is a percentage distribution of 41.82% for caesarean births in comparison to 58.63% for normal births.

As seen on the total number of births the results are 21.10% for caesarean births and 29.36% for normal births.

Problems with an untreated C1 lesion

Due to the many problems that can be attributed to the blocking of C1, I will only mention a few here.

1. Acute
2. Post-acute

For 1:) Possible problems could be:

1. Torticollis

2. Cry baby

3. Right or left convex C-shape of the spine

4. Breastfeeding problems

5. Digestion problems

6. Developmental delays

1. Due to the translation of C1 to one side, there is a lateral flexion with counter rotation of the CS. A movement in the opposite direction is not possible. If the child is in a supine position it can tolerate the blocking quite well. However, if it is placed in the prone position, the limited mobility of the CS leads to complaints.

2. In most cases parents take cry babies to an osteopathic clinic. Pediatricians often think that the problems are caused by digestion problems. However, the crying usually improves immediately after the correction of the atlas.

3. If a C1-blocking causes a translation to the right, this results in a convex bending of the remaining spine.

4. While breastfeeding the restricted rotation of the CS due to a lack of inflection produces problems. The child cannot breastfeed in a relaxed way. This leads to a continual docking and undocking of the breast that often leads to breast inflamation and an unhappy and hungry child.

5. Digestion problems due to atlas blockages lead to the immediate vicinity of the vagus nerve. This is irritated due to incorrect tension and provides further disfunction in the area of the stomach and intestines.

6. If the atlas blockage remains and cannot be compensated by the body, this usually leads to an altered development process. The children only turn over onto their “favourite side”. Motoric development in the prone position often doesn’t take place. Due to the initiative of the parents, the child learns to sit and to stand up. In this position the blockage in the child can be well compensated for and ensures that the syptoms occur again several years later.

For 2:) Possible problems could be:

1. Facial asymmetry

2. Scoliosis

3. Incoordination

4. Concentration problems

5. ADHD

6. Migraine

1. A frequently observed result of atlas blockages is a skull asymmetry (plagiocephaly). This develops very quickly, especially in the first weeks. A one-sided load on the occiput leads to a flattening of the occipital area as well as a lateral strain of the SSB. By means of osteopathy, the plagiocephaly can be well corrected up to the sixth month. If the skull asymmetry is larger than 1.5 cm after the sixth month then a helmet therapy is indicated.

2. As an intermediary between the spine and the head, the atlas has a difficult job. If it cannot function correctly due to a blockage, the rest of the spine must compensate.

3. Due to missed stages of the development system the children lack most coordinative motion patterns. Later, these can only be learned with difficulty. In part, we find still find persistent reflex patterns among young people.

4. Concentration problems due to a C1 blockage normally first occur mostly among school age children. Due to a sitting position when writing (flexed CS), increased tension is created in the OAA area, which the child tries to relieve by moving. Further problems that can develop are visual disorders as well as a cramped sitting position. Loosening the blockage relaxes the situation and teachers and parents report a significantly improved performance.

5. As already described with the concentration problems above, an atlas blockage leads to tension in the upper part of the CS. The child tries to relieve this by moving which leads to the child not being able to sit still for longer periods. As other children sit in the corner and occupy themselves with a toy the affected child moves from one toy to another and occupies itself for only a short time.

6. There are numerous causes for migraine. Due to a connection of the C1 to the dura mata and then further to the meninges I see a direct correlation between the blockage and the migraine. If the migraine is caused by a C1 blockage then this disappears immediately after being corrected.

Treating a C1 blockage

A C1 blockage should be treated as soon as possible to prevent any further consequential damage and to prevent more extensive treatment. When treating infants then techniques should as MET or PIR come into practice. Direct or indirect techniques are often used in this area. Preferably I work in my practice with direct C1 manipulation techniques by means of lat flex and counter rotation. For correction, it is enough to use a light impulse in the correction direction. This should naturally be done without pain. It is often therefore necessary to pre-treat the CS fascia beforehand. The fascial distortion model after Typaldos is excellent for this. After any existing disorders of the fascia have been treated then the atlas can be corrected very easily.

In most cases the symptoms are improved soon after the treatment. Very rarely is there a worsening of the symptoms. A check is performed immediately after the treatment by means of a cervical spine lateral flexion to the left and right. This should be possible on both sides.

Conclusion

The data collected in my practice is not intended to be a complete representation. It must be assumed that parents come with their child to an osteopathic practice because their child has symptoms. To carry out a representative survey a control under a child's medical routine examination would be useful. Nevertheless, the question of a statistically significant difference between a blockage of C1 during a normal birth or a ceasarean should be answered with no. The investigation has however shown that every second examined child had a blockage of the atlas. Appoximately two thirds of the children examined has been routinely studied beforehand by a pediatrician. However not a single doctor had diagnosed a blockage. This highlights the importance of an osteopathic examination of infants soon after the birth. What the consquences are of a untreated atlas blockage can only be speculated here. The possible consequences of a C1 misalignment are so numerous that it will be very difficult to conduct a reasonable investigation of the consequences in the future. Therefore we should proceed along the lines of “the fewer problems the body has the better it can take care of the task in hand.”

List of Abbreviations

CS	Cervical spine C1 Atlas (first cervical vertebra)
MET	Muscle energy technique
PIR	Post-isometric relaxation
OAA	Occiput-atlas-axis

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Declaration

I hereby declare that I have written the present thesis independently and without illicit assistance from third parties and using solely the aids mentioned. To the best of my knowledge the work has not been submitted, in the same or similar form, to any other examination board and has not yet been published.

Wolfenbüttel, the

Signature