

Plagiocephaly

Everything you need to know

Plagiocephaly is a relatively common lesion characterized by a flattening of the posterior part of the skull, most often on the right side.

There are two forms:

- Synostotic plagiocephaly, related to the closure of one or more cranial sutures. This condition may need surgical treatment and is, fortunately, very rare. It requires a proper medical diagnosis....
- The so-called positional plagiocephaly that is traditionally attributed to the infant's sleeping position. This is the one dealt with here.



The asymmetric skull of plagiocephaly, seen from above.

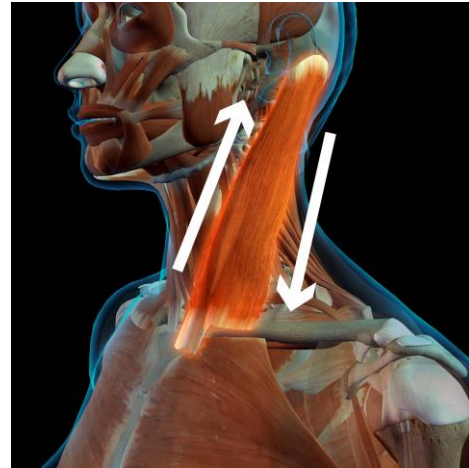
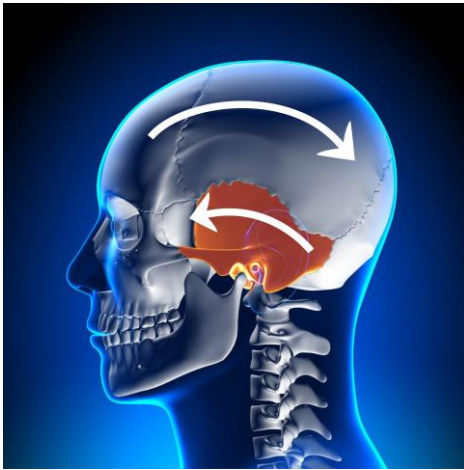
For an infant with a flattened posterior part of the skull on the right side.

This deformity seems to be always accompanied by a torticollis, associated to a “spasm” of a neck muscle called Sterno Cleido Sterno Mastoid (SCOM), most frequently on the left side. The infant will have difficulty turning his head to the right.

First of all, don't panic! This infant will not keep this marked oblong shape all his life, even if he is not treated. But he will be affected, on the one hand because having a permanent stiff neck should not be the most pleasant for the infant, and on the other hand, other, invisible, lesions will lay the foundation for other symptoms, present or future. The first thing to do is to reassure parents. Normally, with very few exceptions, everything will be fine.

But first, why do people become “plagiocephalic” and how?

A little anatomy



The movements of the skull bones that we perceive during chest inspiration.

In this illustration of a human skull you can see the temporals in the centre. What we can feel are the movements of the temporals in relation to the other bones of the skull.

The anterior muscles will bring the temporal in anterior rotation, the posterior muscles in posterior rotation. Their contractions are alternate.

The Sterno Cleido Occipito Mastoid muscles, which are inserted, above, on the temporals and below, on the sternum and clavicles, have a spontaneous motion (almost imperceptible) that mobilizes the temporals in relation to the other bones of the skull.

The two anterior bellies of the muscle contract while the two posterior ones relax and vice versa. This rhythmic, spontaneous motion occurs permanently, even at rest. The body needs these micromovements in order to drain tissues and organs.

These muscles connect the temporal bones to the first dorsal vertebrae through the clavicles and first ribs.

Normally the two temporals have symmetrical movements with respect to the other bones of the skull. But there are lesions that reverse the movements of one of the two temporals. We call these lesions "**desynchronization lesions**".

A desynchronization lesion occurs when an individual puts himself in extreme rotation, and returns (his head) to a neutral position by exhaling (which is anti-physiological). The first dorsal vertebrae will be the best candidate, which desynchronized, will cause desynchronization of the temporals, leading to plagiocephaly.

Thus, while one temporal will go in anterior rotation, the other will go in posterior rotation. The skull will then work in torsion and the skull will gradually get deformed. If, in adults, a temporal torsion may go unnoticed, infants may suffer from it (but sometimes, not)..

It is because it is by bringing your head back to a neutral position and exhaling that you can say that lying on your back is more conducive to plagiocephaly. Obviously, lying on the stomach excludes this lesional mechanism....

In adults, treatment is done by turning the patient's head to the side opposite the temporal in lesion, until mobilization of the collarbone is initiated. Then the patient is asked to take a breath in, sustain the inspiration, and bring the head back towards neutral, and then breathe out.

The two temporals will then be synchronized again.

For infants, the situation is a little more complex, as they cannot be asked to stay in inspiratory apnea.

So, we have to adapt our technique and here is how...

Beforehand, take care to note if the child turns his head less well from one side than the other (especially to the right). This will be your reference to check if your technique has been effective.

The infant is lying on his back.

In the role of the therapist we will take, for example, the father and in the role of the object of covetousness we will take the mother, if possible...

But you can redistribute the roles according to your convenience...

The Mother stands on the side to which the child can turn his head most easily. Theoretically, it will be on the side where the neck muscle (SCM) is the most contracted, i. e. most often on the left.

The therapist places one hand on the infant's left cheek (on the Mother's side) and the other on the infant's opposite shoulder.

Ask the Mother to lower her head to the level of the table plane to encourage the child to turn its head as much as possible until the therapist feels that the rotation of the child's head moves the right shoulder (the infant's collarbone) under his hand (the therapist's).

Once the rotational movement of the child's head is felt by the therapist's hand, the therapist will wait for the child to inhale (he feels it thanks to the hand placed on the infant's chest), and, at that moment, he can turn (gently) the head into a neutral position.

That's all there is to it. You may not believe it, try.

If all the gestures have been done correctly, the child will start turning his head almost immediately much more easily on the other side. This will be the best test for someone who does not have a hand educated in the art of palpation.

The Mother will go to the other side of the table to encourage the child to turn the head on the other side, in order to check the effectiveness of the technique, the child then turning the head towards her much more easily.

These maneuvers give good and consistent results.

Thereafter, the child will be calmer (he will be rid of an unnoticed neck stiffness), the neck muscles will gradually relax. The physiological movements of the skull, now symmetrically restored, will help to reshape the infant's skull instead of twisting it.

With the physiological mechanical processes back in order, simple therapeutic monitoring should be sufficient. Indeed, the child could lose synchronization again, and it would be sufficient to repeat the technique.

Obviously, the skull does not regain a harmonious shape with the stroke of a magic wand. It will still take quite some time for it to return to near symmetry, but it has moved from a lesional phase to a normal physiological (healing) phase.

Other osteopathic techniques called cranial techniques will eventually give the infant's skull a more fluid mobility allowing to accelerate the process of self-modelling of the infant's skull. But we cannot affirm it.

Infants who have just had their temporal synchronization are generally more relaxed after treatment.

There are many plagiocephalic children whose diagnosis is not established because the deformation is not obvious to a lay eye. The link between a form of infant torticollis and plagiocephaly seems obvious to us. When examining the rotation of the infant's head, we often find a loss of amplitude on one side that allows us to detect a slight deformation of the child's skull.

There are many plagiocephalies that go unnoticed.

Be vigilant.

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