



Pictorial Essay on Hair Loss; the Result of Head Bones Displacement

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Abstract

This essay is aimed to back what the author theoretically found: Hair loss occurs as a result of human grow-up, using pictures and photographs. Of course, to conceive, thoroughly the points and the reasons for what is said, one must go back to the previous author's research article: "Abnormal lumbar curvature via body protective system causes head bones displacements, mental disorders and hair loss: the natural process of human grow-up, published in IJAV, OCT.16.2020, VOL.13, ISSUE 5", In which the author has explained how head bones were displaced during human grow-up because of backward flexion of lumbar part of vertebral column. Head bones displacement, in turn causes mental disorders and hair loss. In this essay which mainly focusses on hair loss, it is not necessary to repeat all the facts and reasons stated in the mentioned article so, only the basic points to grasp the main idea and concepts related to hair loss, are briefly explained. Generally saying Displacement of head bones in some individuals possessing a special pattern of head bones, causes baldness. The special pattern is constructed by Wormian bones in the skull. Hair losing patterns in different individuals are not alike, Because the variations related to Wormian bones are numerous, and moreover regarding their different forms and sizes multiplied by many places of happening, there would be much more types of hair loss. To study it, in this essay, first a picture of a young man's head who has not lost his hair yet, is shown. this picture shows the natural form of a human skull. The outer surface of vault is shown with red line. It is identical to the skulls shown in the anatomy books. The second picture is the ultimate phase and also the most common form of hair loss. These two pictures denote two extremes of hair loss discussion. After all, some bald heads between these two extremes are shown to clarify the various types of hair loss. The description of any picture is mentioned in front of it. To describe the causes and reasons, some basic anatomical definitions are mentioned under basic definitions headings, but almost in brief. So, the readers could neglect the basic definitions and only use the common descriptions.

Keywords: Pictorial Essay; Hair Loss; Head Bones

Introduction

Hair loss has many names: Androgenetic alopecia (AGA) is characterized by patterned hair loss in both men (male pattern hair loss, or MPHL) and women (female pattern hair loss, or FPHL) [1-3]. The scientific progression in treatment of hair loss, despite its long history, is not much. Hair loss in human is globally accepted by scientists and people either as a result of genetics or so on, representing some scientific basis. For example, a study that has found the LSS gene is responsible for hair loss caused by the hypotrichosis simplex or AR gene found on the "X" chromosome. The approved researches and findings are all accepted, but the author, in the previously-mentioned article, declared the fact that those people having variations of Wormian bones in their occipitals, would

have hair loss. Variations are very important in making differences in individuals. Lumbosacral Transitional Vertebra (LSTV) or sacralization of the 5th lumbar vertebra [4] The numbers of lumbar vertebrae that usually are five, but sometimes four or six [5], Pterion ossicle, which sometimes exists between the sphenoidal angle of the parietal bone and the great wing of the sphenoid bone, are some of the variations causing differences in the anatomy and functions of body. Among all these variations the most important ones are Wormian and Inca bones inserted in the occipital bone that are responsible for hair loss.

Main body

To demonstrate the basic points and reasons two descriptive pictures are represented. The first one clarifies how the flat

bones are attached to each other and the second illuminates their displacements. The skull bones are shown in different colors; the parietal in red, frontal black, temporal green, sphenoid and occipital blue, in order to distinct their borders from each other. Note that the borders are not simply made by two attached bones, but in their sutures a bone might be overlapping or overlapped. The continuous line shows an overlapping border and the dotted line the border of the adjacent bone. For example, in the upper half of the coronal suture, the parietal is overlapped by the frontal but conversely it is overlapping the frontal in the lower half. So, the upper red line is dotted and the rest is continuous. In the lambdoid suture, the red and blue lines show the overlapping/overlapped denticulations or borders of the adjacent bones. This kind of suture allows the least or no motion for the occipital against the parietals and the parietals against each other. Note that the dentations of the parietal borders in coronal suture are more marked at the sides than at the summit to provide space for the parietal slide back and upward [7].

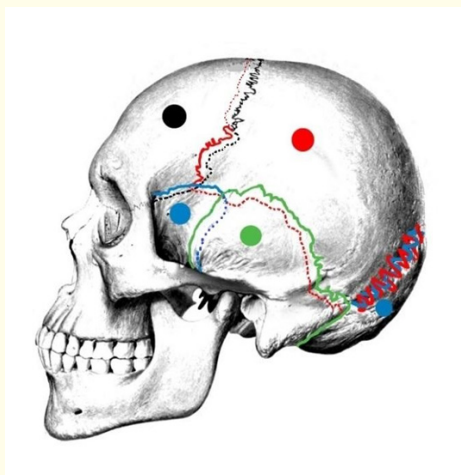


Figure 1: The skull bones in natural posture, differentiated with colors.

The most important thing in this figure is the definite place in the suture of frontal and parietal (coronal) where the overlapping border changes to overlapped one.

A young man's head. It is the typical head of all the individuals whose head bones are not displaced yet. The red dots show the outer ridges of the vault that is the natural form of a skull. In this case it is not known if his skull bears Wormian bones or not because his ossification period is not finished yet and also the force has not reached his head yet. Note that the sutures show a great tendency to obliterate as age advances since the sutures are not



Figure 2

distinct around almost 50s, [8]. It is a live example of previous picture (no.1). There is not any reported variation in the number of flat head bones, their forms and quality of sutures, overlapping or overlapped borders, therefore mentioned specs in all human being are the same. Any trivial difference in the forms and borders of the Flat bones are not so important to name them as variation.

Figure 3 This picture shows the displacements of head bones.

The yellow line denotes the natural form of the skull. the bones are differentiated with colours.

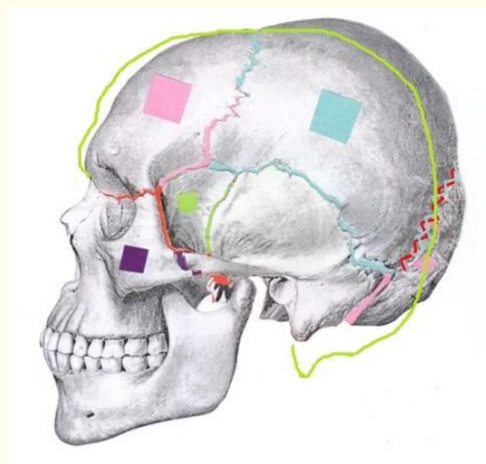


Figure 3

Frontal and occipital pink, prietal blue, zigomatic purple, the greater wing of sphenoid bone green. The lambdoid suture is shown with a red zig zag pattern and the natural form of head bones is drawn in green.

Basic definitions

Coloures in the sutures show which borders are overlapped. For example the frontal is pink and parietal is blue, thus in the upper half of coronal suture where the frontal is overlapping the prietal, it is blue because when the parietal slides up and back, its overlapped border appears. Vice versa in the lower half, the colour is pink that means the frontal overlapped border appears after the displacement of parietal. Also it is obvious that temporal overlaps the zigomatic bone and etc.

The lambdoid suture is shown as a zig zag pattern, it lacks the Wormian bones, so in this type of suture structure the borders of adjacent bones, two parietals and the occipital are so stuck together that they could have no motion, because of the lambdoid suture.

Basic definitions

In the presence of wormian bones in the lambdoid suture, the occipital bone becomes exposed to conditions of a loose connection, therefore it can have motion and also the two parietals.(The latter is shown in the following picture).

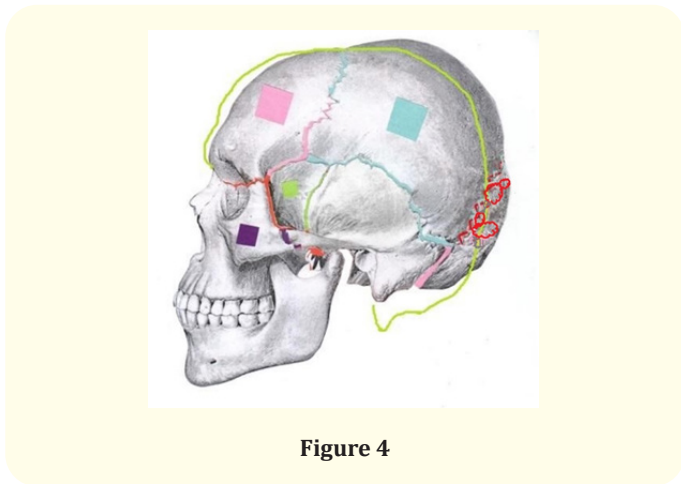


Figure 4

In Figure 4 the lambdoid suture contains some wormian bones.

Basic definitions

Sutures

The sutures are not the same. The following description reveals how the parietals function as doors or planes round their axis (sagittal suture). In the lambdoid suture because of its special form, limbosa, the parietals and occipital could hardly show movements.

At last, the temporoparietal suture, prepares the best situations for temporal and parietal to move freely in relation to each other.

The sutures are two kinds.

- The real suture (sutura Vera) in which the surfaces of the bones are separated by a layer of membrane continuous externally with the pericranium, internally with the dura mater. [9]

There are three kinds of real sutures.

- Sutura dentata, possesses a tooth-like form of the projecting articular processes (between the parietal bones).
- Sutura Serrata, the edges of the two articulating bones are serrated as a fine saw (between two portions of the frontal bone).
- Sutura limbosa, besides the dentated processes, there is a certain degree of beveling of the articular surfaces, so that the bones overlap one another, as the lambdoid suture [9].

The second kind of the sutures is the false suture (Sutura notha) in which the articulation is formed by roughened surfaces placed in apposition with one another, as the squamous suture, a kind of the false suture, in the temporoparietal suture that is formed by the overlapping of two contiguous bones of broad beveled margins [9].

Figure 5

A figure that shows an alive person with a head described in picture no 3. This type of baldness is called male pattern. The form of baldness is identical to the form of underlying Galea Aponeurotica (Figure 6) [10], a very tough tissue attached to the superior temporal lines of the temporals, which keeps the parietal bones in their utmost situation, preventing them from moving up too high. under the stress caused by volume change of the parietals, the blood veins act weakly and in addition the hair follicles are under pressure. The red line indicates the natural form of the vault. The natural form of the vault is shown in red.



Figure 5

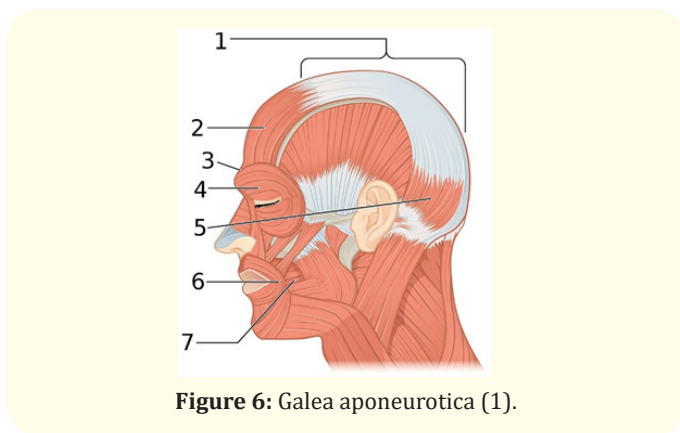


Figure 6: Galea aponeurotica (1).

Basic definitions

The occipital is the first head bone that engages with the upcoming force. The structure of the occipital bone resembles a vertebra. It possesses a basilar part like a body, two lateral portions as transverse processes, a posterior part that matches the spinous process and condyles which articulate with the superior articular surfaces of the atlas. When the force reaches up, its posterior part is pushed up and the anterior part of the basilar part is pulled down. It adopts the slope angle like the angle between the adjacent articular surfaces of vertebrae.

Parietal bones displacement

Two parietal bones are attached together through a site called the sagittal suture. It is a sutura dentata, in which there are denticulations without overlapping, not as it was in the lambdoid suture, therefore, it could act like a door hinge for the two parietal bones. At the time the occipital bone is elevated, the parietal bones move up so that the lateral sides move inward or get closer to each other.

So, the movement of the parietal bones alone without the lambdoid suture is possible, but when we consider their movement in relation to functioning of the lambdoid suture then two possibilities may take place

- **No Wormian bones:** As it was mentioned before, the lambdoid suture was a real suture showing more aspects of overlapping interlocked denticulations, would not allow any movement of the parietal bones. The engagement of interlocked denticulations is so heavy and tight that it would not allow the parietal bones, turn inward round their axis (the sagittal suture). Therefore, they move up firmly attached together keeping their posture fixed to each other. In this case, the tightening of the galea aponeurotica would not happen, because there is no change in the positions of the parietal bones, therefore there is no hair loss.

- **Wormian bones in the lambdoid suture:** So, the suture is deprived of the strong binding between the occipital and parietal bones; the wormian bones, as medium, allow the occipital to move and push the parietal bones and they turn inward round the sagittal suture (while the sagittal sinus is protected). The inferior part of parietal bones gets closer while moving up. In this case, because the galea aponeurotica is tightened, hair losing appears in the individuals.

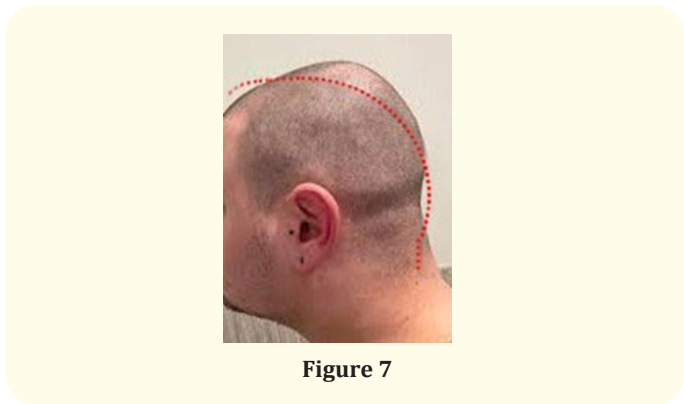


Figure 7

In this case, the head bones are displaced. He is a man aged about 30 -35 and thus the natural form of head bones has changed because nearly by 25 all bones are completely ossified And the last phase; around 50's the sutures are fused [11]. he has Wormian bones in the lambdoid suture. The red dots show the natural form of vault of the skull.

Figure 8

This is also a picture of a man's head which shows the movement of Parietals. The red dots show the natural outer borders of the head bones.



Figure 8

In this picture the level of hair loss is not very high. The degree of hair loss depends on the degree of strengthening of the galea aponeurotica and also the degree of the displacement of parietals.

Figure 9

The picture shows another pattern of hair loss. It was mentioned before that the . Galea Aponeuritica was firmly attached to the temporalridges, but in this case it is possibly loosely attached or the parietals were not moved up so high, So the scalp layers are not greatly pressed.Note that the place that hair is not too much, is between the frontal and paretalbones so it can be said that the two parts of parietals that has no hair, at the sumitt of the vault, is more under the presure caused by Galea Aponuritica.



Figure 9

More pictures

Four more pictures are brought to certify the generalization of baldness in males. The last one is an x-ray.

Shabcherag` s shape or triangle shape

The result of head bones displacement is a palpable ridge in the middle of back part of vault.



Figure 10



Figure 11



Figure 12

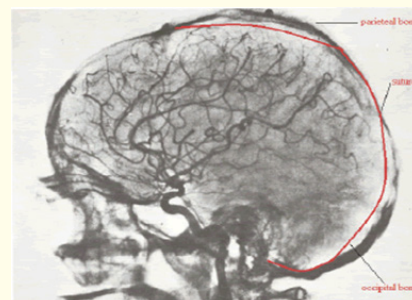


Figure 13

Basic definition

In the movement of the parietals, it was mentioned that they slide up and backwards. As the result of This motion the roof of the sagittal suture becomes palpable under the skin that looks like a triangle which the author named Shabcherag shape. To study it, an x-ray image (Figure 14) is represented showing and proving the head bones displacement in a patient [12].

In figure a bald man is seen, his Shabcherag` s shape is not so prominent, because the parietals are not pushed to a high degree, the galea aponeurotica is not much tightened. There is hair on the scalp yet.

In picture 17 an x-ray [12] of a man is represented. It is evident that he has hair loss to a high degree. His shabcherag's shape is very prominent surely palpable under his skin.

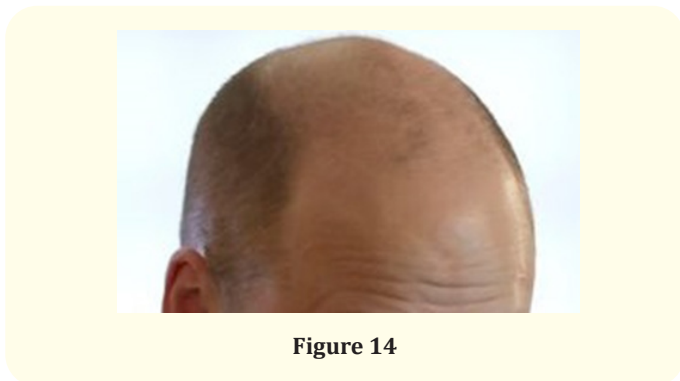


Figure 14

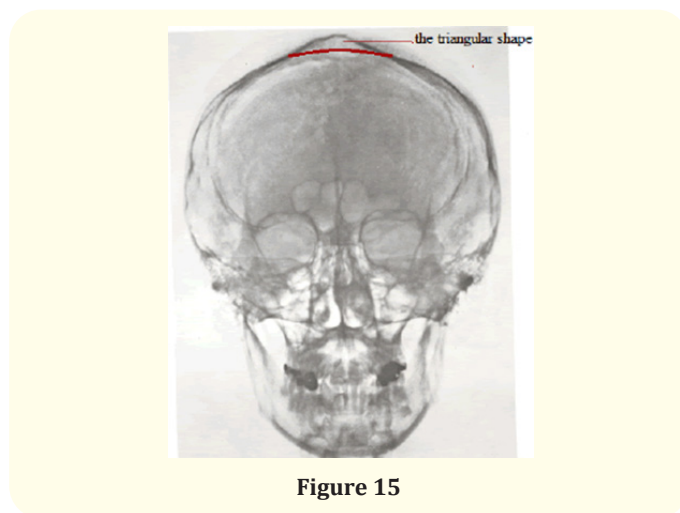


Figure 15

Conclusion

The essay verified nearly all the features of baldness in males called male pattern or hereditary baldness, but studying the female hair loss needs to be described in another article. The difference between male and female hair loss is that men generally start losing hair in the front and area near the temporal region, while women show to lose hair from the central area of the scalp. Also, female hair loss will not end up with high baldness, whereas male hair loss can end up with a very high degree of baldness. Hair loss (also known as male pattern baldness) in this article is considered to be the result of the lumbar dorsiflexion or backward flexion of the vertebral column, but it would not reject the comorbidity of two or more causes of baldness. Causes with genetic origins, infectious, hereditary, related to hormones and etc. The findings stated in this essay should be considered in studying alopecia areata, (in which) the patient may lose hair from a single area (alopecia areata classical type), the whole scalp and eyebrows (alopecia totalis), or from the entire body (alopecia universalis) [13].

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14. Shabcheragh* : Shabcheragh is the name of my deceased mother, who I named the triangular shape in her memorandum.