

## Plagiocephaly

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**Conflicts of Interest:** Nil

## Abstract

plagiocephaly can be defined as asymmetric shape of the head due to unilateral flattening. Plagiocephaly can be divided into two pathogenic groups.

- (1) Synostotic plagiocephaly
- (2) Non synostotic plagiocephaly.

There is a type of deformational plagiocephaly (DP) also called positional plagiocephaly (PP). Deformational or positional plagiocephaly is an acquired condition. Craniosynostosis is a congenital condition whose incidence is 1/2000 live births. In a study conducted in 2012, prevalence was found to be 12% -22%. During routine dissection of head and neck region in the department of Anatomy, All India Institute of Medical Sciences, Bhopal, we came across a case of plagiocephaly means oblique head. After dissecting scalp the whole scalp had been removed exposing only the bony skull vault. On close observation of all the sutures, we found premature closure of the lambdoid suture on right side. There was partial fusion of the upper part and complete fusion of the lower part of the right side lambdoid suture. It means craniosynostosis of lambdoid suture on right side. This was causing

flattening of that site. We also observed bulging or bossing of right frontal area. Due to craniosynostosis of lambdoid suture on right side the brain was not getting enough space to grow on posterior direction, so the frontal part of the brain getting growing leading to right side frontal bossing. There is bilateral coronal synostosis leading to brachycephaly.

**Keywords:** skull, positional, oblique, synostosis, right side.

## Introduction

The word plagiocephaly means oblique head. The Greek word plagios mean oblique and Kephaly means head. So plagiocephaly can be defined as asymmetric shape of the head due to unilateral flattening. Plagiocephaly can be divided into two pathogenic groups—

- (3) Synostotic plagiocephaly
- (4) Non synostotic plagiocephaly.[1]

There is a type of deformational plagiocephaly (DP) also called positional plagiocephaly (PP). Deformational or positional plagiocephaly is an acquired condition. Craniosynostosis is a congenital condition whose incidence is 1/2000 live births. In a study conducted in 2012, prevalence was found to be 12% -22%. The

severity of DP/PP can be tested with the help of Hutchinsons' severity score taking diagonal difference of the skull.

Mild-3mm < DD < 10mm

Moderate – 10mm < DD < 12mm

Severity -DD > 12mm. DP or PP are non synostotic plagiocephaly.

The various risk factors for DP are- A low educational level, Young maternal age, Bottle-feeding, First-born infants, Supine positioning, Premature births, Prolonged intubation, Male gender, Multiple pregnancy. etc. [2] Deformational plagiocephaly or positional plagiocephaly is due to non-synostotic condition. Basically, its due to external forces which are present when child is placed supine. These forces deform the shape of the skull.[3] Craniosynostosis is a premature fusion of skull sutures leading to frontal, parietal or occipital plagiocephaly. In positional plagiocephaly skull has rhomboid shape and in synostotic plagiocephaly skull has trapezoid shape.[4] Due to synostosis this will not allow the brain to grow inside the solid skull. This can cause brain damage, delayed development, problems with thinking. Physicians' advice to open the space between the skull bones to allow proper and adequate growth of the brain. They advise to wear helmets after surgery to protect the brain and reshape of bones.[5]

### Case Report

During routine dissection of head and neck region in the department of Anatomy, All India Institute of Medical Sciences, Bhopal, we came across a case of plagiocephaly means oblique head. After dissecting scalp the whole scalp had been removed exposing only the bony skull vault. On close observation of all the sutures, we found premature closure of the lambdoid suture on right side. There was partial fusion of the

upper part and complete fusion of the lower part of the right-side lambdoid suture. It means craniosynostosis of lambdoid suture on right side. This was causing flattening of that site. We also observed bulging or bossing of right frontal area. Due to craniosynostosis of lambdoid suture on right side the brain was not getting enough space to grow on posterior direction, so the frontal part of the brain getting growing leading to right side frontal bossing. There is bilateral coronal synostosis leading to brachycephaly.

### Discussion

K Mansour, B. Mohsen Hasan, D. Bahman in 2013 mentioned in his study that Craniosynostosis is a premature fusion of skull sutures leading to frontal, parietal or occipital plagiocephaly. In positional plagiocephaly skull has rhomboid shape and in synostotic plagiocephaly skull has trapezoid shape. [4] Positional plagiocephaly typically consists of right or left occipital flattening with advancement of the ipsilateral ear and ipsilateral frontal bone protrusion, resulting in visible facial asymmetry. Occipital flattening may be self-perpetuating in that once it occurs, it may be increasingly difficult for the infant to turn and sleep on the other side.[5]

S. Faris, B.S. Miriam Nuno, D. Moise Mark. Krieger and. D. Doniel in 2013 found that plagiocephaly is mostly found on right side. Craniosynostosis found along the lambdoid suture is very infrequent. Though infrequent, it characteristically presents with bossing in the occipitomastoid region and posterior shifting of the ear along with bilateral coronal synostosis which has the potential to present with brachycephaly.[6]

## Conclusion

A proper knowledge of plagiocephaly, its type may lead a paediatrician to come into a differential diagnosis of delayed milestone development.

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## Legend Figures

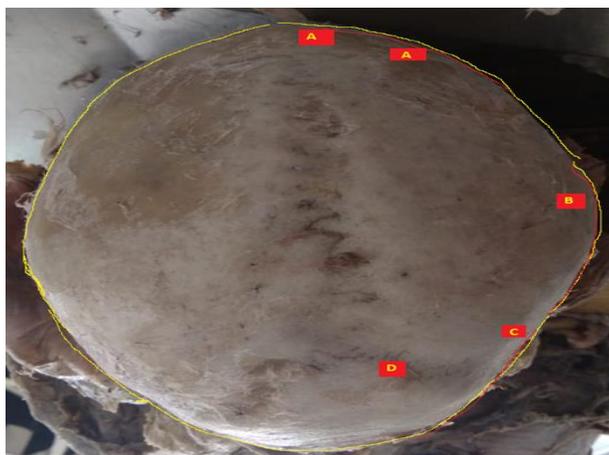


Fig 1:

- A- Frontal bossing(right)
- B- Occipitomastoid bossing(right)
- C- Craniosynostosis of lambdoid suture. (right)
- D- Lambdoid suture.

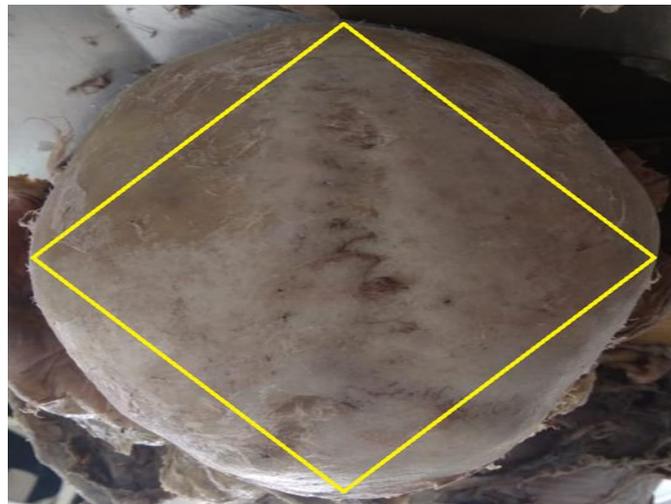


Fig 2: Rhomboid shape of skull in plagiocephaly.