

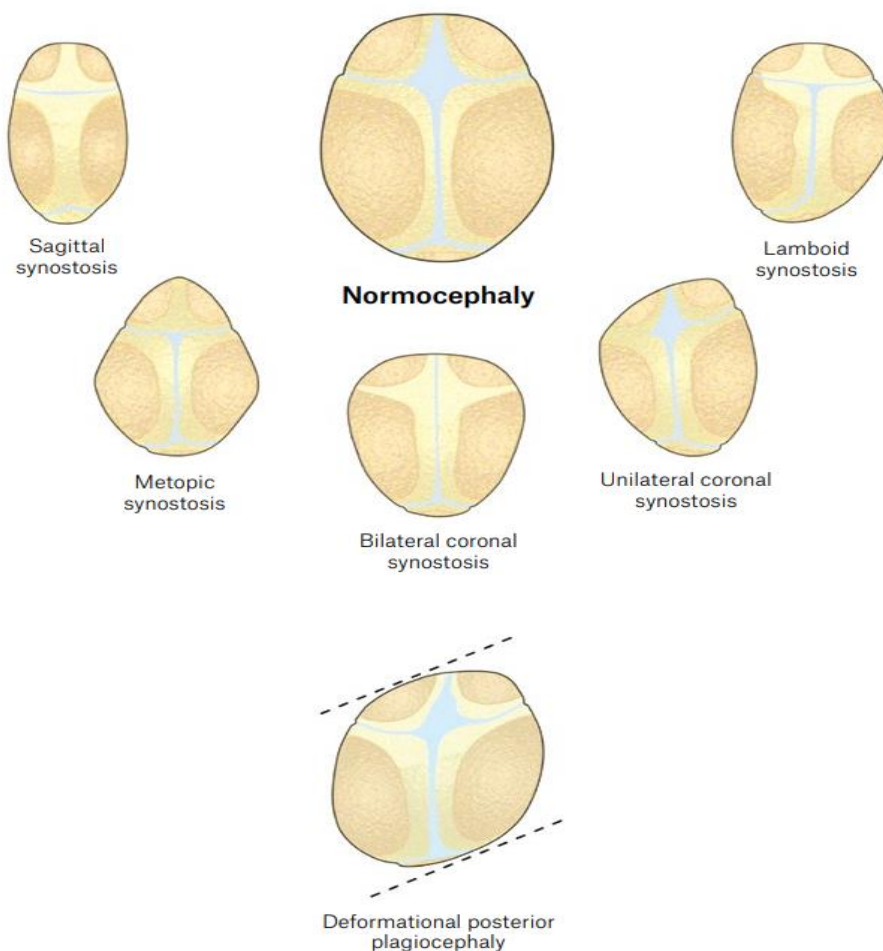
### Assessment of abnormal head shape in babies

There is a spectrum of abnormal head shapes and parental concern is common. Fetal moulding, prolonged labour and instrumental deliveries can all affect newborn head shapes and can make accurate assessment challenging on the post-natal ward and in cases of unusual head shape with no definite abnormality clinic review in 4-6 weeks may be warranted.

Craniosynostosis is the most common paediatric skull deformity requiring specialist craniofacial intervention and often initially presents as an abnormal head shape. Craniosynostosis is the premature fusion of one or more cranial sutures, which causes skull growth restriction in the plane perpendicular to the involved suture, with compensatory overgrowth in parallel planes. Syndromic craniosynostosis accounts for between 9.9% - 18.3% of all craniosynostosis cases and frequently involves multiple sutures with a wide range of extra-cranial organ systems affected.

Deformational plagiocephaly is the most common cause of abnormal head shape and arises as a result of repeated external pressure to an infant's skull for an extended time e.g. sleeping supine. Deformational plagiocephaly is self-limiting and improves as the child grows and spends less time lying down. Surgery is almost never indicated and so differentiating it from craniosynostosis is vital.

### The various distinctive head shapes in the axial plane showing types of craniosynostosis and deformational plagiocephaly



## Management/Referral Flowchart

### History

- Was unusual head shape present at birth?
- Has head shape changed or remained stable?
- Has it worsened or improved?
- Prenatal history
- Family history of similar conditions
- Developmental milestones
- Any other identifiable anomalies

### Examination

- Observe head shape from top down, sides, front and back
- Feel for anterior fontanelle – present or absent? Small or large? Soft or firm?
- Feel sutures – is there a ridge or is it flat? Metopic ridge? Overriding or visible sutures?
- Signs of syndromes involving craniosynostosis (e.g. syndactyly, dysmorphic facial features)

### Deformational plagiocephaly

- A parallelogram-shaped head when viewed from the top down
- Present, soft fontanelles
- No obvious ridging or visible sutures
- Anterior displacement of ipsilateral ear
- Head tilt
- May coincide with torticollis
- Contralateral facial flattening

### Craniosynostosis

- An abnormal head shape that coincides with the shapes in the figure above
- Vary widely depending on which suture is involved
- Absent, firm fontanelles
- Overriding or visible sutures with obvious ridging; may have metopic ridge
- Signs of syndromes involving craniosynostosis

### Measurements

- Head circumference
- Plot growth on growth chart

### Confirm the cause is likely deformational plagiocephaly

- Review again within 4–6 weeks (Angela's clinic or consultant clinic)
- Physio referral if torticollis is present

### Unable to exclude craniosynostosis

- Consultant review
- Email Angela Davidson who will arrange clinic review

### Reference

Lun KK, Aggarwala S, Gardner D, Hunt J, Jacobson E, Reddy R, Gianoutsos M, Rtshiladze. 2022. *Assessment of paediatric head shape and management of craniosynostosis*, **AJGP**, Vol 51, No. 1-2, Jan-Feb 2022