Management of the Odd Shaped Head (Plagiocephaly)

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Background

- Positional plagiocephaly is the most common form of plagiocephaly which results from external pressure due to the head being in one position for extended periods – for example their sleeping position in a cot or car seat. It is benign and does not require treatment in most cases.
- Brachycephaly (occipital flattening) is commonest due to “back to sleep” position
- Other contributory factors include conditions in utero (for example oligohydramnios, maternal fibroids), multiple pregnancy, premature birth, and torticollis.
- Craniosynostosis is an important cause of plagiocephaly where one or more of the sutures fuse too early and requires surgical intervention.

Complications associated with craniosynostosis include:
- Increased intracranial pressure (ICP) and inhibition of brain growth from prolonged uncorrected restriction of cranial growth.
- Associated impairments in cognitive and neurodevelopment function, including global developmental delay, poor feeding, and weight gain.
- Deficits in vision, hearing, and speech due to cranial nerve involvement.
- Poor self-esteem and social isolation due to the abnormal appearance

	Positional plagiocephaly	**Craniosynostosis**
Age of onset	Several weeks post-natally	Present at birth
Head circumference	Normal rate of growth	Progessive slowing of growth
Causal factors	External pressure	Internal mechanisms
Diagnosis	Clinical examination	Clinical examination Imaging scans
Treating practitioner	GP +/- paediatrician	Craniofacial surgeon
Treatment	Counter positioning	Cranial expansion surgery

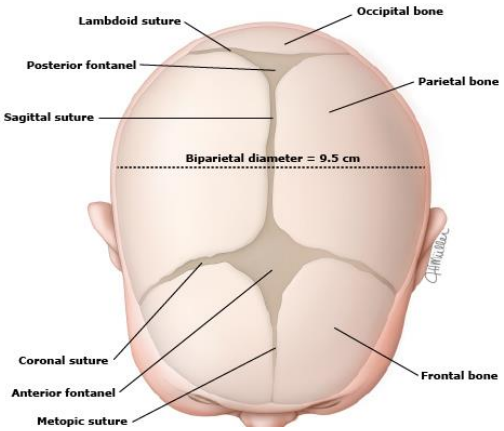
Assessment

Examine skull, face and neck:

Palpate for anterior and posterior fontanelles → Anterior fontanelle closes by 2 years
→ Posterior fontanelle closes at 2 months

Feel for ridging of sutures

Measure and plot head circumference. Serial monitoring is important if craniosynostosis is suspected.
Look for torticollis or a sternomastoid “tumour”

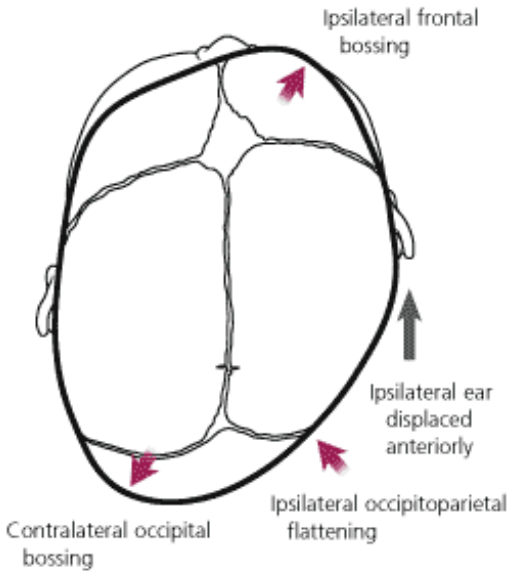


Top to toe examination for features to suggest genetic disorder e.g. facial dysmorphism, cardiac murmurs etc.

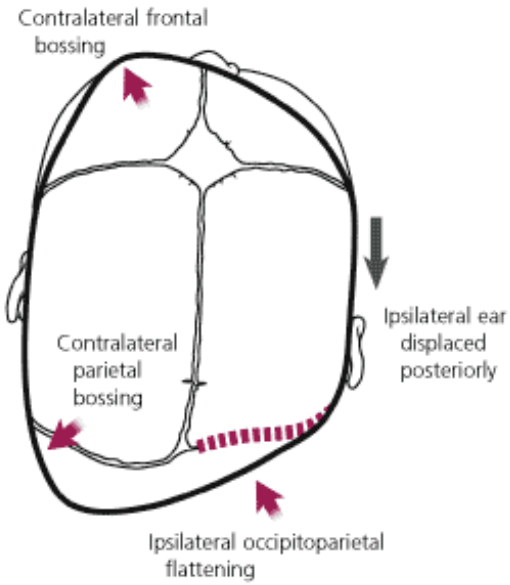
Distinguishing positional plagiocephaly from craniosynostosis is done by examining the patient from above and looking at the shape of the head.

In positional plagiocephaly, the head will take the shape of a parallelogram.
The skull and facial deformity with craniosynostosis is typically more severe than that of deformational plagiocephaly.

	Positional plagiocephaly	Craniosynotosis
Craniofacial features	Parallologram head shape Nose generally straight Ear more anterior on affected side	Rhomboid head shape Nose root deviates towards fused Suture On affected side: - Orbit enlarged - Eyebrow elevated - Ear posterior



Benign positional plagiocephaly



Unilateral lambdoid suture synostosis

Imaging

- ! Should only be done if significant concern for craniosynostosis e.g. premature closure of fontanelles, poor head growth on serial measurements.

Plain skull XR is modality of choice at BSUH.

Cranial CT may be performed at referral centre but is not routinely done in the first instance.

Management

If any concerns about craniosynostosis, the patient should be referred in the first instance to paediatric outpatients via their GP.

If there are ongoing concerns, they will be referred from clinic to the Great Ormond Street Hospital (GOSH) Craniofacial team via **https://www.gosh.nhs.uk/medical-information/clinical-specialties/craniofacial-information-parents-and-visitors/refer-patient-craniofacial-department**.

Discuss with CED Registrar or Consultant and refer urgently to GOSH if:

- ! premature closure of fontanelles with microcephaly.
- ! sutures seen to be prematurely closed clinically or on imaging
- ! any evidence of raised intracranial pressure e.g. bulging fontanelle (if patent), vomiting, irritability, sleepiness, eye changing (“sunsetting”).

The majority of cases of positional plagiocephaly can be managed by giving simple advice to parents which encourages natural improvement of the baby’s head shape.

- “Tummy time” – more time spent on their tummies when playing allows the natural correction process to begin. Ensure this is supervised time.
- Sleeping pattern – put anything exciting in the direction that encourages them to turn their head the other way.
- Counter positioning - A rolled up towel under the mattress can help the child sleep with less pressure on the flattest part of their head.
- Restriction in neck movement – refer to physiotherapy.

There is no clear evidence that helmets (cranial moulding devices) improve positional plagiocephaly. They have to be worn for 23 hours a day and for several months. These are not available through the NHS.

Parent information leaflet here
https://www.nhs.uk/conditions/craniosynostosis/