Fronto-orbital advancement and anterior cranial vault remodeling in unicoronal craniosynostosis treatment

Authors:

Martínez Plaza A, Saura Rojas E, Marín Fernández AB, Monsalve Iglesias F, Bullejos Martínez E, Ochandiano Caicoya S
(Craniofacial Congenital Disorders Unit in Virgen de las Nieves University Hospital, Granada, Spain)

Introduction

Unicoronal cranioynostosis is the second most common type of craniosynostosis. It is a congenital disorder whose pathogenesis seems to be related with a mutation in EFNB1 gene in one third of cases. It manifests clinically in the form of frontal and supraorbital rim retraction in the side of the fused suture, compensatory contralateral frontal bossing, nasal deviation and orbital and facial asymmetry.

Fronto-orbital advancement (FOA) and anterior cranial vault remodeling is the "gold-standard" treatment. Its benefits are the improvement in orbital shape and frontal simmetry, the improvement in cerebral blood flow and a potential cognitive and speech enhancement.

Material and methods/ Case report

We present the case of a female patient diagnosed within the first weeks of life with left unicoronal craniosynostosis. Clinically she presented homolateral supraorbital retraction, frontal flattening and compensatory temporal bossing, slight inercanthal distance increase, contralateral nasal deviation and divergent strabismus. CT scan showed premature fusión of left coronal suture with homolateral orbital volumen augmentation.

Surgery was indicated when patient was 11 months old. We performed fronto-orbital advancement and bifrontal craniectomy with 180 degrees rotation (frontal remodeling). Reabsorbable miniplates and mesh were used to stabilise frontoorbital bar convexity and advancement.

Results:

A fronto-orbital bar advancement of 2 cms along with the frontal remodeling managed the objetive of frontal simmetry. Better orbital content adaptation corrected the divergent strabismus. No surgical nor postsurgical complications were detected.

Conclusions

Surgical procedure and aesthetic and funcional considerations are always based on surgeon perspective and experience. In our hands, between 6 and 12 months old is the optimal age to manage excellent results and a low recurrence rate.