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Fronto-orbital remodeling in plagiocephaly treatment

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The aim of surgery in craniosynostosis is to prevent or treat functional problems, if present, and to obtain a better craniofacial shape in terms of symmetry and proportion, without interfering with normal growth. Cranioplasty, that is reshaping and repositioning of cranial bone segments, is the first choice in the treatment in growing patient, because autologous bone grafts provide the lowest morbidity and don' t interfere with growth.

This presentation will show the surgical steps and the technique to obtain an adequate morphology in plagiocephaly.

A sample of 40 patients affected by anterior plagiocephaly were treated in the cranio-facial department of Fondazione Istituto Neurologico C.Besta from January 2001 to December 2012. They had an age ranging from 5 to 26 months (average 8 months). All were treated at first with a cranioplasty. The pre and post operative evaluation included clinical and ophtalmological examination, CT and photographic evaluation. The pre op, intra op and follow – up photographic study was done by standardization of the pictures, by the same six projection, the same magnification, and with a landmarks to reproduce the same position of the head.

Long-term follow up (60 month) demonstrates that in simple craniosynostosis the fronto-orbital shape is correct and symmetric, no lack of ossification or large deformity on the cranial vault are found, ocular globe position and vision are adequate except in 25% of the plagiocephalies in which a convergent strabismus required surgery on the extrinsic globe muscles.

Cranioplasty is the first choice in the treatment of craniofacial synostosis in growing patients. The surgical technique we have shown allows a more accurate remodelling of the bone either when a simple two dimensional bending is needed or when a complex torsion is required. This technique allows also an easy and effective stabilization of the bone after repositioning, preventing bone resorption. Accurate planning providing overcorrection of the defect in both remodelling and repositioning can probably partially compensate for recurrence of the phenotype.