

Quantitative Outcomes of Endoscopic Strip Craniectomy For Metopic Craniosynostosis

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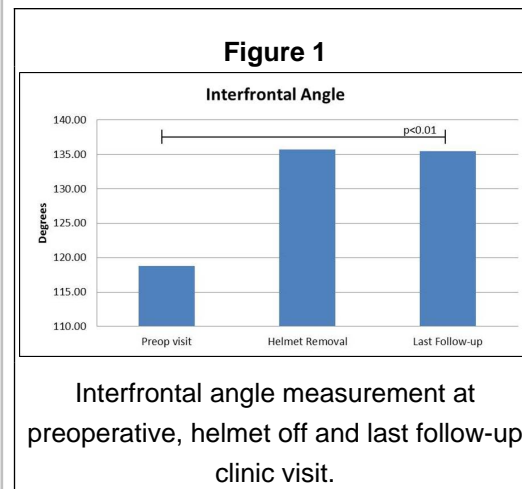


Introduction

The goal of this study was to present quantitative results of early treatment of infants with metopic craniosynostosis using endoscopic strip craniectomy with postoperative helmet therapy, with over 2 year follow-up.

Methods

This was an IRB-approved, retrospective study to examine the results of consecutive patients with metopic craniosynostosis who had undergone minimally invasive endoscopic strip craniectomy followed by helmet therapy. Preoperative and follow-up clinical parameters were collected from patient charts. The severity of trigonocephaly was assessed by measuring the interfrontal angle (IFA), as described by Wood et al on preoperative CT 3D reconstructions as well as 2D pictures both pre- and postoperatively.



Results

There were 7 patients (4 male, 3 female), mean age at surgery 2.76 months (range 1.8 to 4.1 months), with mean follow-up of 2.02 years. Mean operative time was 91.4 minutes and mean EBL was 57.1 ml. Mean length of stay was 1.14 days. Trigonocephaly was significantly improved from a preoperative IFA of 118.8 degrees to 135.4 degrees in follow-up ($p<0.01$). The mean IFA in follow-up was within normal limits. Head circumference percentile was not significantly changed in follow-up. There was a statistically significant improvement in the inner-to-outer canthal distance ratio ($p<0.01$) in follow-up, showing an improvement in hypotelorism. There were no dural tears, CSF leaks, infections, or other significant morbidities, and there were no serious complications related to the use of helmet therapy. All patients achieved excellent aesthetic results judged by photograph comparisons.

Conclusions

This study showed quantitative improvement, using IFA, in patients treated with endoscopic strip craniectomy for metopic craniosynostosis at over 2 year follow-up. Endoscopic strip craniectomy for metopic craniosynostosis is a safe and effective treatment associated with excellent results.

Learning Objectives

- 1) Describe the role of endoscopic strip craniectomy in the treatment of infants with metopic synostosis as a safe and effective therapeutic alternative associated with excellent results.
- 2) Identify IFA as an objective measure that could be used by clinicians to assess cranial deformity and its correction postoperatively.
- 3) Recognize the advantages of endoscopic strip craniectomy with regard to minimal blood loss, decreased length of stay, and low complication rates.

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