# An evaluation of pre- and postoperative cosmesis following calvarial remodelling for sagittal synostosis.

Mr Joseph Ward[1], Mr William McAlister[2], Mr Dilip Srinivasan[3], Mr Desi Rodrigues[4], Mr Guirish Solanki[4], Mr Stephen Dover[4], Mr Nicholas White[4], Hiroshi Nishikawa[4]

[1]University of Birmingham

[2]University of Nottingham

[3]University Hospital of North Staffordshire

[4]Birmingham Children's Hospital

Introduction

Surgical intervention for sagittal synostosis is used to improve appearance and reduce the risk of raised intracranial pressure. We investigated how operative intervention alters cosmesis.

Methods

A retrospective analysis of digitally archived clinical photographs was undertaken on all patients that underwent calvarial remodelling between 2004 and 2009. A trained assessor, independent of the service, reviewed all pictures identifying the presence of scaphocephaly, frontal bossing, bi-temporal hollowing and occipital bullet in each patient. The independent assessor reviewed one set of pre-operative clinical photographs and all follow-up clinical photographs.

Results

Seventy-three patients with non-syndromic single-suture sagittal synostosis were included. An improvement in cosmesis was identified in 61.6% of cases, whilst no change occurred in 34.2% and 4.1% deteriorated. The most common characteristics of sagittal synostosis identified were frontal bossing (98.6% pre-op vs. 73.9% post-op), scaphocephaly (90.4% vs. 61.6%), bi-temporal hollowing (39.7% vs. 34.2%) and occipital bullet (20.5% vs. 11.1%).

Discussion

Patients with sagittal synostosis present with a range of phenotypes including any or all of the described characteristics. Post-operatively there was an improvement in all of these, however bi-temporal hollowing was the most difficult to correct. Calvarial remodelling should be tailored to the patient to correct individual characteristics.