Craniofacial growth following extended endoscopic sinonasal and skull-base surgery in children under two years of age

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Background:

Controversy has surrounded paediatric endonasal surgery due to concerns over adverse effects on long term nasal and facial growth. This controversy surrounds even more accepted surgeries such as septoplasty. Surgery involving the septal cartilage is important for facial growth especially in the areas of the sphenoid rostrum and perpendicular plates of the ethmoid, both areas frequently involved in surgery to the anterior skull base.

Objectives:

To evaluate the impact of extended endoscopic sinonasal and skull-base surgery on craniofacial growth when performed in children under the age of 2 years.

Methods:

We report a series of 5 cases of extended endoscopic paediatric sinonasal and skull-base surgery cases undertaken in infants and very young children under the age of 2 years. The mean age was 10 months. The surgery was performed at a UK tertiary paediatric centre.

All cases underwent transnasal endoscopic resection of anterior skull base and midface tumours with appropriate primary reconstruction. Imaging and clinical photography were recorded pre and post operatively. Subsequent surveillance imaging and further clinical photography over the following 5 years is presented

Results:

Facial regrowth and satisfactory bony remodelling is seen clinically and radiologically in all cases to date.

New formation of lamina-papyracea and cribriform-plate has also been seen and is demonstrated here.

No facial asymmetry has been noted.

Clinical & radiological evidence of facial regrowth

Odontogenic myxoma

Age: 12 months

Images: Pre-op

Age: 2 years

Images: 12 months post-op

Age: 3 years

Images: 24 months post-op

Radiological evidence of facial regrowth

Nodular fasciitis

Age: 9 months

Images: Pre-op

Age: 21 months

Images: 12 months post-op endoscopic medial maxillectomy and removal of lamina papyracea & orbital floor

Radiological evidence of facial regrowth

Nasal chondromesenchymal hamartoma

Pre-op image aged 12 months

New lamina & skull base at 12 months

1 month post craniofacial resection & Nasoseptal flap reconstruction

Symmetrical facial skeleton 5 years post op

Small frontal mucocoele developing with developing frontal sinus

Conclusions:

Extended endoscopic sinonasal and skull-base surgery in very young children can be performed without affecting ongoing facial growth.

This has not been seen in older children who have had similar surgery.

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