Orbital Asymmetry in Children with Congenital Ptosis

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Introduction

- Congenital ptosis is a condition attributed to isolated dysgenesis of the levator palpebrae superioris.
- **This study is the first to report orbital asymmetry associated with congenital ptosis.**

Methods

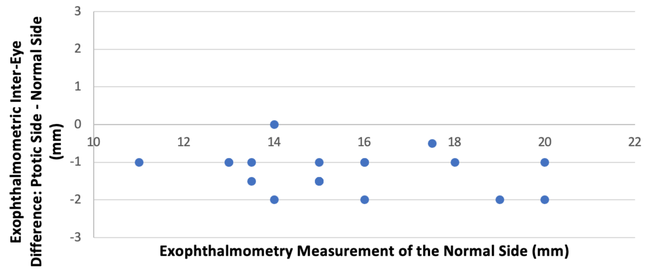
- Prospective observational study with REB approval.
- Inclusion: all children with congenital ptosis from 2023-5.
- Exophthalmometry performed by 2 independent observers. Average inter-eye differences were calculated.
- Measurements were obtained upright in clinic, or for younger children, under anaesthesia at the time of ptosis surgery.
- Where cooperation permitted, axial length was measured using optical biometry.

Results

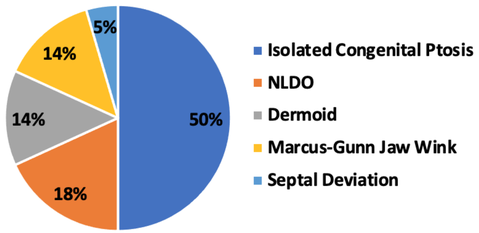
	Frequency (n=22)
Age	7.4 ± 7.3 years
Sex	12 (55%) Female
Laterality	11 (50%) Right 5 (23%) Bilateral
Associated Syndrome	Blepharoptosis-Phimosis-Epicanthus Inversus (n=1)

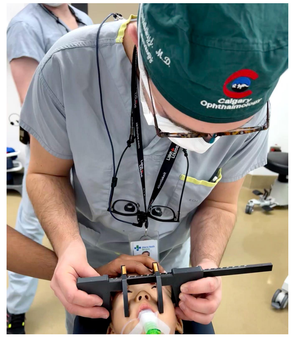
Table 1. Patient Characteristics

Bland Altman Plot Demonstrating Relative Enophthalmos on the More Ptotic Side



Orbitofacial Comorbidities





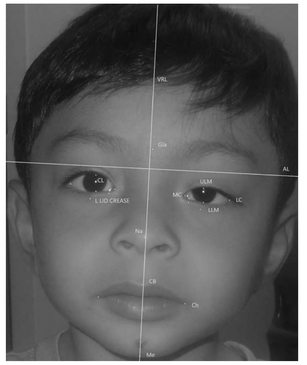
Exophthalmometry consistently demonstrated relative enophthalmos on the more ptotic side (n=21, 95%), with an average of -1.23 ± 0.51 mm of inter-eye difference (p<0.001).

Relative enophthalmos was independent of differences in axial length (R^2 = -0.02, p=0.41) or age (R^2 = 0.03, p=0.45) by multiple linear regression.

For the more ptotic side, average difference in axial length was -0.10 ± 0.36 mm between eyes, which was not significant (p=0.29).

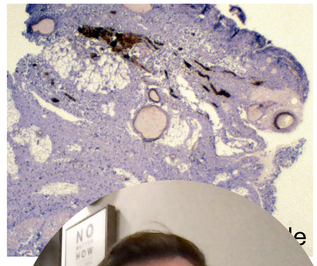
Discussion

- Congenital ptosis was reliably associated with relative enophthalmos independent of globe size, and a high incidence of other orbital conditions.
- In addition to another Calgary study demonstrating other tissues involved in this condition (e.g. Müller's and septum),[2] and hemifacial hypoplasia previously reported in the literature,[1] these results suggest that deficits in orbital volume, or other processes in orbital embryogenesis, may also be implicated in congenital ptosis.
- Our group is excited to be pursuing novel MRI studies in the near future to further study the orbits of children with congenital ptosis.



The ptotic side of the face is often nondominant in children with congenital ptosis. [1]

Histopathology demonstrating hypoplastic Müller's muscle in a child with congenital ptosis[2]



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