Surgical Intervention on Pediatric Orbital Floor Fractures Improves Enophthalmos but Does Not Affect Visual Outcomes: An Analysis of 72 Children with Isolated Orbital Floor Fractures

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Nothing to disclose
• Pediatric facial fractures are common
• Periorbital fractures are the third most common facial fracture\(^1\)
• Established algorithms for adult orbital floor fracture management
• Management of pediatric floor fractures is controversial

BACKGROUND

CLINICAL PRESENTATIONS

Restricted Upward Gaze

Enophthalmos

PURPOSE

• Aims:
  – Determine defect/orbit width ratio that is associated with the development enophthalmos
  – Predict long-term visual outcomes in children who present with visual disturbances
METHODS

- Retrospective review, 1991-2012
- 72 Children with isolated orbital floor fractures
- 76 Fractures
- Chart and radiographic review
  - Panoramic radiographs (66%)
  - Computed tomography (34%)
DEMOGRAPHICS

69% (50/72) MALE
AGE: 8.4 YRS +/- 4YRS
FOLLOW-UP: 14 MONTHS

Mechanism

- 23% Motor Vehicle Coll
- 36% Fall
- 17% Pedestrian Struck
- 24% Other

Fracture Patterns

- 48% Bilateral
- 24% Non-displaced/mini
- 17% Blow-out
- 6% Trapdoor
- 6% Other

October 5, 2014
33% Treated surgically
Surgical indications:
- Size of fracture (65%)
- Entrapment (17%)

<table>
<thead>
<tr>
<th>P&lt;0.05</th>
<th>SURGERY</th>
<th>CONSERVATIVE</th>
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<tbody>
<tr>
<td>Defect Width (mm)</td>
<td>20.7</td>
<td>7.8</td>
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<tr>
<td>Defect/Orbit Width ratio</td>
<td>0.54</td>
<td>0.32</td>
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</table>
RESULTS: VISUAL ACUITY

PRESENTATION
Visual Acuity:
- 19% Decreased (14/72)
- 81% Unchanged (58/72)

FOLLOW-UP
Visual Acuity:
- Unchanged 50% (7/14)
- Decreased 7% (1/14)
- Improved 43% (6/14)
RESULTS: ENOPHTHALMOS

ON ADMISSION
• 8% (6/72)
  – 4 Managed surgically
    • Complete resolution
  – 2 Managed conservatively
    • Complete resolution

AT FOLLOW-UP
• 4% (3/72)
  – Managed conservatively
    • Complete resolution
## RESULTS: SURGICAL OUTCOMES

<table>
<thead>
<tr>
<th>ENOPHTHALMOS</th>
<th>IMPROVEMENT VISUAL ACUITY</th>
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<td>SURGERY</td>
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CONCLUSIONS

• Surgical correction of floor defects eliminates enophthalmos
• However, enophthalmos, either acute or delayed, can potentially resolve without surgery
• Surgery does not improve visual acuity in patients presenting with decreased vision
• A definite defect/orbital width ratio for surgical intervention remains to be determined