FACTORS AFFECTING RELAPSE AFTER MANDIBLE DISTRACTION FOR HEMIFACIAL MICROsomia

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HEMIFACIAL MICROsomia

Incidence rate: 1/3500~1/5600

Facial asymmetry

Unilateral underdevelopment

- Mandible, maxilla, zygoma
- External & middle ear
- Associated soft tissue & muscle

Disclosure: The authors have no conflict of interest to declare in relation to the contents of this article
RELAPSE OF DOG

Controversy

PURPOSE

Access factors influencing the relapse
Define adequate amount of distraction
PATIENTS & METHODS


- Mean follow up: 4yrs (range: 1yr~12yrs)

- Mean age: 8.5yrs (range: 5yrs~37yrs)
  Male : Female = 18 : 7
  Rt. : Lt. (Affected side) = 14 : 11
OPERATIVE TECHNIQUE

1. Design & Exposure
2. Selection of pin site
3. Subtotal osteotomy
4. Pin insertion
5. Complete Osteotomy
6. Device application
## PATIENTS & METHODS

### Group by distraction amount

<table>
<thead>
<tr>
<th>Group 1</th>
<th>Group 2</th>
<th>Group 3</th>
<th>Group 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;10%</td>
<td>10%~20%</td>
<td>20%~30%</td>
<td>&gt;30%</td>
</tr>
</tbody>
</table>

### Group by initial severity

**affected / non-affected side**

<table>
<thead>
<tr>
<th>Group A</th>
<th>Group B</th>
<th>Group C</th>
<th>Group D</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;10%</td>
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</tbody>
</table>
PATIENTS & METHODS

- Serial AP cephalometry
- Facial height measuring
- Serial Panoramic view
- Mandible ramus height measuring

Measuring time

- T0(PreOp): Preoperative initial
- T1(EOD): End of distraction
- T2(LFU): Long term follow-up
PATIENTS & METHODS

Measurements

- **Ratio**: affected side / non-affected side
- Amount of distraction (%)
- Final amount of lengthening (%)
- Relapse (%)
RESULTS: OVERALL HEIGHT

- **T0 (PreOp):**
  - Mandible height: 0.800
  - Facial height: 0.902

- **T1 (EOD):**
  - Mandible height: 1.035
  - Facial height: 1.025

- **T2 (LFU):**
  - Mandible height: 0.948
  - Facial height: 0.856
RESULTS: OVERALL RATE

lengthening (%) maintenance (%) relapse (%)

Mandible height

Facial height

30.3% 15.0% 6.9% 5.3% 8.2% -16.1%
RELAPSE RATE
GROUP BY INITIAL SEVERITY

<table>
<thead>
<tr>
<th>Group</th>
<th>&lt;10%</th>
<th>10%~20%</th>
<th>20%~30%</th>
<th>&gt;30%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A</td>
<td>-6.6%</td>
<td>-8.0%</td>
<td>-8.9%</td>
<td>-8.2%</td>
</tr>
<tr>
<td>Group B</td>
<td>-13.5%</td>
<td>-13.7%</td>
<td>-13.5%</td>
<td>-13.7%</td>
</tr>
<tr>
<td>Group C</td>
<td></td>
<td></td>
<td>-39.8%</td>
<td>*P&lt;0.05</td>
</tr>
<tr>
<td>Group D</td>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>

*P<0.05
## RELAPSE RATE

**GROUP BY DISTRACTION AMOUNT**

<table>
<thead>
<tr>
<th>Group</th>
<th>&lt;10%</th>
<th>10%~20%</th>
<th>20%~30%</th>
<th>&gt;30%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>-4.9%</td>
<td>-8.6%</td>
<td>-7.7%</td>
<td>-9.7%</td>
</tr>
<tr>
<td>Group 2</td>
<td>-4.7%</td>
<td></td>
<td>-6.1%</td>
<td>-11.8%</td>
</tr>
<tr>
<td>Group 3</td>
<td></td>
<td></td>
<td></td>
<td>-28.5%</td>
</tr>
<tr>
<td>Group 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*P<0.05

[Bar chart showing relapse rate by distraction amount for different groups.]

- Mandible height
- Facial height

*Note: The data is presented with error bars, indicating variability in the measurements.*
CONCLUSION

Factors affecting Relapse

- Amount of distraction
  - Group 4 (>30%): Relapse ↑
  - More distraction, more relapse

- Initial severity
  - Group D (>30%): Relapse ↑
  - More severity, more relapse
CONCLUSION

For minimize relapse

- Adequate distraction amount
  - Less than 30% distraction
  - Not overcorrection
- Multistage distraction
- Enough post op orthodontics