REANIMATING THUMB EXTENSION WITH EXTENSOR INDICIS PROPRIUS TRANSFER IN CHILDREN WITH CONGENITAL CLASPED THUMB

M. El Kinani, P. Perrot, F. Duteille

GEM Congrès
December 19th 2019, Paris
The authors declare they have no conflicts of interest concerning this presentation.
Introduction

- Rare congenital disease
- «Thumb in palm »
- Deficient extensor tendon mechanism
- Syndromic cases > Isolated deformity

One aim to keep in mind

= Functional restoration
## Introduction

- **Classification:** McCarroll (1992) / Mih (1998)

<table>
<thead>
<tr>
<th>Type 1</th>
<th>Type 2</th>
<th>Type 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isolated MCP flexion</td>
<td>MCP flexion + contracture</td>
<td>MP adduction, IP hyperextension</td>
</tr>
<tr>
<td>Easily reducible</td>
<td>Hardly reducible</td>
<td>Unreducible</td>
</tr>
<tr>
<td>Extensor hypoplasia</td>
<td>Joint stiffness, ligament damage</td>
<td>Arthrogryposis</td>
</tr>
</tbody>
</table>

Most frequent
Material and methods

- Retrospective 2005-2019
- Children seen in consultation in our center with a congenital clasped thumb
- Orthopedic treatment alone or surgery needed
- Follow up: 6 weeks at least
- Assessments: active extension, subjective satisfaction
  (Geldmacher and SEEM scores are complicated in children)
Material and methods

- **Orthopedic treatment**

  - ALL CASES
  - Early phase ++
  - Daily stimulation by the parents, gazes
  - Help of physiotherapy if needed
  - *Orthesis: complicated when young*
Material and methods

- **Surgical intervention:**
  - Skin release on demand:
    - Z Plasty
    - Skin grafts
  - Tendinous transfer
Material and methods

Avoid sequelae on donor site  Dorsal hood must be kept intact
Material and methods
Material and methods

- « Pulvertaft technique » was used for suture
Material and methods

- **Post operative period:**
  - Plaster cast immobilization: extension and opening 1st commissure
  - For 6 weeks

- **Follow up:**
  - At 6 weeks
  - Then 3 months and long term
Results

- Among more than 20 patients seen in consultation: 6 needed surgery

- 3 bilateral (50%) = 9 hands

- Mean age at first consultation: 6 months [3 to 20]

- 1 isolated

- 5 (83%) had other malformations (orthopedic, cardiac)

<table>
<thead>
<tr>
<th>Classification</th>
<th>Number of cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 1</td>
<td>6</td>
</tr>
<tr>
<td>Type 2</td>
<td>2</td>
</tr>
<tr>
<td>Type 3</td>
<td>1</td>
</tr>
</tbody>
</table>
Results

- **Place for surgery:**
  - Mean age: 17 months
    - [10 – 20]
  - Mean duration of orthopedic treatment: 7 months

- **Per operative constatations:**
  - EPL present but thin and slender in all cases
  - 3 needed skin release (1 Z plasty, 2 skin grafts)
Results

- **At 6 weeks post operative:**
  - Thumb extension: present in all cases
  - Remain poor in one case (arthrogryposis)
  - One case of loss of extension (10°) on the index

- **Long term follow up** *(mean time follow up: 9 months)*
  - Active extension: 7 complete
    - 2 loss of ROM* (5 and 10°)
  - Subjective satisfaction (parents): 9/9

*ROM: range of motion*
For who and when should we propose a surgical procedure?

- Type 1: after failure in orthopedic treatment alone
- Type 2 and 3: case by case
- Age of 12 to 18 months
Discussion

- Why do we choose EIP tendon:
  - Route
  - PCSA similar to EPL
  - Reliability
  - Low morbidity
1) Identify and recognize « clasped thumb »
   (confusion with « trigger thumb »)

2) Early orthopedic treatment must be proposed first
   Except in complex malformation cases

3) When comes the time for surgery:
   Tendinous transfer using extensor indicis proprius
   - Quality of the results and reliability of the technique
   - Poor donor site morbidity
REANIMATING THUMB EXTENSION
WITH EXTENSOR INDICIS PROPRIUS TRANSFER
IN CHILDREN WITH CONGENITAL
CLASPED THUMB

M. El Kinani, P. Perrot, F. Duteille

GEM Congrès
December 19th 2019, Paris