Hand and finger’s wounds caused by iron fences in children: 
A 5 years-old epidemiologic study in a « SOS main pédiatrique »

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No conflict of interest
INTRODUCTION

- Hand wounds in children = 31% of hand injuries
  - Fingertips lesions (children) +++

- Iron fences wounds
  - Specific in children population
  - Damaging wounds
  - Risks of associated lesions
Goals of study

1. Incidence and evaluation of neuro-vascular and tendinous lesions in iron fences wounds
2. Secondary complications
3. Specific treatment?
Retrospective (2013 – 2017) and epidemiologic study

Inclusion criteria
- Age < 18 y.o
- Iron fences wound
- Minimum last follow-up one year

Exclusion criteria
- Degloving lesions
- Ring Finger
METHODS: Description

- Palmar vs dorsal wounds
- Lesions’ topography
  - Areas according to IFSSH (International Federation of Societies for Surgery of the Hand)
METHODS: Perioperative lesions

- Skin lesions
  - Longitudinal wound
  - Soft tissue defect
- Lesions of anatomical structures
  - Vessels and nerves
  - Tendons and pulleys
Infections (phlegmon, arthritis)

Skin complications (necrosis, retractile scars, camptodactylies)

Revision surgery
59 patients with iron fences wounds
- 6% of total hand wounds
- 46 ♂ - 13 ♀
- Mean age: 13.7 ± 0.7 ans

Localisation
- Dorsal n=1
- Palmar n=58
RESULTS: lesions’ topography

Affected fingers (%)

- F1: 15
- F2: 37
- F3: 61
- F4: 56
- F5: 20

Wounds' localization (%)

- A1: 14
- A2: 24
- A3: 4
- A4: 4,4
- A5: 4,4

[Diagram of hand with lesions' topography]
RÉSULTATS: Lesions (19%)

- Vascular and nervous lesions (19%)
- Tendinous and pulleys lesions (10%)
- Opening joint (5%)
- Associated fractures (1,7%)
- Skin damages (3,4%)
### RÉSULTATS: Complications

17% (n=10)

<table>
<thead>
<tr>
<th>Post operative complications</th>
<th>Number</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin necrosis</td>
<td>1</td>
<td>Local flap</td>
</tr>
<tr>
<td>Sensory disorder</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Retractile scars</td>
<td>8 (13,5%)</td>
<td>Z flaps</td>
</tr>
<tr>
<td>PIP camptodactylies (&gt;60°)</td>
<td>5 (8,5%)</td>
<td>Tenoarthrolysis</td>
</tr>
</tbody>
</table>

6 revisions > 6 months
DISCUSSION

- Mechanism hardly described in literature
  

- Palmar localisations, in areas 1 et 2

- Simple skin lesions (81%)

- Primary repair of tendons
  
DISCUSSION

- Good scar evolution

- 8 patients with retractile scars
  - Flexion creases non respected (longitudinal wounds)
  - Inflammatory processus → pathological scar (cheloid and retractile)

→ flaps or plasty in emergency?
Retractiles scar treatment: **conservative**

- Early mobilization
- Soft tissue massage
- Wearing brace


- **Surgical if continuation after 6 months**
  - Z flaps
  - Tenoarthrolysis

CONCLUSION

Low incidence (6%)
- Lesions (19%)
- Skin lesions (81%)

Complications (17%)
- Retractile scars (13.5%)

NO preventive flaps
THANK YOU FOR YOUR ATTENTION