Joint distraction in the treatment of hemophilic ankle arthropathy

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Disclosures

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Ankle joint distraction

- Effective in OA
- 3 retrospective cases in hemophilic arthropathy
  
  van Meegeren et al, Haemophilia 2012

- Prospective trial
Joint distraction

- A surgical procedure in which the two bony ends of a joint are gradually separated to a certain extent for a certain period of time
Incentive to evaluate joint distraction in OA

Treatment of equine deformities by actively repositioning the joint
Distraction to prevent damage (compression) of the joint cartilage

In some cases OA was present in the treated joint
- unexpected clinical improvement of the OA was observed

Van Valburg et al, Osteoarthritis Cartilage 1999
Ankle osteoarthritis scale

73% prolonged clinical benefit

Mean time following distraction: 10 ± 2.5 years, range 7-15 years

Ploegmakers et al, Osteoarthritis Cartilage 2005
Ankle distraction in OA

Marijnissen ACA et al, Arthritis Rheum 2002
Ploegmakers et al, Osteoarthritis Cartilage 2005
External fixators in hemophilia patients

- Indications
  - Distraction - contractures
  - Arthrodesis of infected joints
  - Treatment of open fractures

Kumar et al, Arch Orthop Trauma Surg 2010;
Lee et al, Haemophilia 2004;
Balci et al, Haemophilia 2014
Prospective pilot study

55

- ≥18 and <45 yr with hemophilic ankle arthropathy
  - Tibiotalar joint
  - Conservative treatment
  - Functional limitations

- 10 weeks distraction

- 3 yr follow-up
First prospective data

- 6 patients included

<table>
<thead>
<tr>
<th>Case</th>
<th>Age at time of distraction</th>
<th>Haemophilia</th>
<th>Treatment</th>
<th>Affected ankle</th>
<th>Distraction (weeks)</th>
</tr>
</thead>
<tbody>
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<td>1</td>
<td>21</td>
<td>B, &lt;1%</td>
<td>On demand</td>
<td>Left</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>25</td>
<td>A, &lt;1%</td>
<td>Prophylaxis</td>
<td>Right</td>
<td>10</td>
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<tr>
<td>3</td>
<td>33</td>
<td>A, &lt;1%</td>
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<td>Prophylaxis</td>
<td>Left</td>
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Ankle joint distraction

• Clotting factor replacement:
  – Bolus before surgery
  – Continuous infusion for 7 days
  – Day 7-14 intensified prophylaxis
  – After day 14 regular treatment protocol

  – Single bolus before removal of frame

• Adverse events:
  – No bleedings
  – Skin pin site infection in 4 patients, treated with oral antibiotics
    • 1 patient iv antibiotics as he was re-admitted for knee pain
Ankle osteoarthritis scale (AOS) – 6m

Pain
Disability
Total

% of maximum

pre  6 mo  pre  6 mo  pre  6 mo
Ankle osteoarthritis scale (AOS) – 12m

![Graph showing changes in pain, disability, and total scores over time.](image-url)
HAL at 12 months and VAS

HAL score (%)

Upper, Lower basic, Lower complex, Sum

VAS score

pre, 6 mo, 12 mo
## Functional tests

<table>
<thead>
<tr>
<th>Case F8 pref (sec)</th>
<th>F8 max (sec)</th>
<th>50m WT (sec)</th>
<th>6MWT (m)</th>
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<tr>
<td></td>
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<td>11.38</td>
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<td>18.08</td>
<td>16.63</td>
<td>14.25</td>
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</table>
Range of motion – complete arc

Lane et al, Haemophilia 2014
Preliminary results

- Safe procedure (with clotting factor replacement)

- First prospective results indicating clear reduction in pain and improvement of functionality with preservation of joint motion

- Reduction in bone cysts and edema

- Promising treatment to postpone ankle arthrodesis in (young) patients with haemophilic arthropathy
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Consensus atlas for the Pettersson score

Short url: goo.gl/lZo8wZ