Comparison of prognosis between Absorbable suture versus Nonabsorbable suture in open modified Broström procedure

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Disclosure

No conflict to disclosure

Extended distal chevron osteotomy

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Out disclosures are in the Final AOFAS Mobile App.
We have no potential conflicts with this presentation.
Absorbable vs Nonabsorbable Suture in MBO

**INTRODUCTION**

- **Classification of Ankle ligament injury & Treatment**
  - **Type I**
    - Stable ankle to clinical testing (with anesthesia, if necessary)
      - Symptomatic treatment
  - **Type II**
    - Unstable ankle with positive anterior drawer test and positive talar tilt test or both
      - **Group 1:** Non-athlete or older patient
        - Functional treatment
      - **Group 2:** Athlete or high-demand patient
        1. Type A: Negative radiographic stress test
           - Functional treatment
        2. Type B: Positive tibiotalar radiographic stress test
           - Surgical repair
        3. Type C: Subtalar instability
           - Functional treatment

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INTRODUCTION

• Open modified Broström procedure
  – Clinical standard for ankle instability
  – Non absorbable suture
    • M/C in suture method
    • Advantage
      – Good failure strength
      – Permanence
    • Complication
      – Irritation on sutured site
      – Surface tenderness
      – Tendinosis, sometimes even result to tendon rupture.

PURPOSE

• To Compare with clinical outcome using different suture method in lateral ankle instability
  – between absorbable suture material & non-absorbable suture material.
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**MATERIALS & METHOD**

- **Patient select**
  - Between July 2011 and May 2015, Retrospectively
  - Duration of FU ≥ 12month
  - Underwent surgical repair or reconstruction of the ATFL and/or the CFL by a single surgeon (prof. Kang)
  - We divided by two group
    - Non-absorbable suture group
      - 2-O Fiberwire®, Arthrex, Naples, FL
    - Absorbable suture group
      - 0-Vicryl®, Ethicon, Sommerville, NJ

- **Exclusion criteria**
  - Hypermobility syndrome patient
    - Beighton score of 4/9 or greater
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**MATERIAL & METHOD**

- Evaluation of clinical outcomes
  - Receive subjective questionnaire (>1 yrs after surgery)
  - Foot and Ankle Disability Index (FADI)
  - American Orthopaedic Foot and Ankle Society (AOFAS)
  - Number of Re-sprain patient
  - Satisfaction score with outcome

- Ankle stress radiographs (Talar tilt test) – on POD 1 year
  - Comparison between two group
Absorbable vs Nonabsorbable Suture in MBO

- Modified Broström procedure
## RESULT

- Table 1. Demographic data

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Patients (N=96)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age – yr</strong></td>
<td>33.16 [14–72yr]</td>
</tr>
<tr>
<td><strong>Sex – no.(%)</strong></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>63(65.6)</td>
</tr>
<tr>
<td>Female</td>
<td>33(34.4)</td>
</tr>
<tr>
<td><strong>Suture material – no.(%)</strong></td>
<td></td>
</tr>
<tr>
<td>Non-absorbable</td>
<td>50(52.1)</td>
</tr>
<tr>
<td>Absorbable</td>
<td>46(47.9)</td>
</tr>
<tr>
<td><strong>Minimum 1 year f/u – no.(%)</strong></td>
<td></td>
</tr>
<tr>
<td>Mean f/u: 2.5yrs</td>
<td>(1.0–4.7yrs)</td>
</tr>
</tbody>
</table>
RESULT

- Table 2. Comparison between 2 groups in FADI & AOFAS score

<table>
<thead>
<tr>
<th>Suture material</th>
<th>FADI</th>
<th>AOFAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-absorbable</td>
<td>87</td>
<td>83</td>
</tr>
<tr>
<td>Absorbable</td>
<td>91</td>
<td>87</td>
</tr>
<tr>
<td>P value (&lt;0.05)</td>
<td>.553</td>
<td>.372</td>
</tr>
</tbody>
</table>

- Table 3. Comparison between 2 groups with Ankle stress radiographs

<table>
<thead>
<tr>
<th>Suture material</th>
<th>Preoperative Talar tilt angle (°)</th>
<th>Postoperative Talar tilt angle (°)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-absorbable</td>
<td>14.4</td>
<td>5.3</td>
</tr>
<tr>
<td>Absorbable</td>
<td>13.7</td>
<td>6.1</td>
</tr>
<tr>
<td>P value (&lt;0.05)</td>
<td>.396</td>
<td>0.512</td>
</tr>
</tbody>
</table>

Statistical analysis: Mann-Whitney test
- Statistical Package for the Social Sciences (SPSS) ver. 19.0 (Chicago, IL, USA) -
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RESULT

- Table 4. Comparison between 2 groups with number of times Re-sprain & Percentage of patient satisfaction

<table>
<thead>
<tr>
<th></th>
<th>Patient satisfaction (%)</th>
<th>Patient of Re-sprain (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-absorbable</td>
<td>92</td>
<td>1</td>
</tr>
<tr>
<td>Absorbable</td>
<td>96</td>
<td>1</td>
</tr>
</tbody>
</table>

- Re-sprain times and Patients satisfaction percentage are almost equal.

- There was only 1 patient of resprain in either non-absorbable and absorbable suture group

  → both two patient underwent revision surgery.
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**CONCLUSION**

- It is considered good result to use **Absorbable suture** in open modified Broström procedure
  - Absorbable suture produce patient’s **high function and activity level** same as Non-absorbable suture
  - Absorbable suture also produce **high patient satisfaction**
  - Absorbable suture has **no irritation and surface tenderness** on incision site

**LIMITATION**

- There is difference of suture method
  - Absorbable suture material has less irritability
  - We **performed more suture tie** using absorbable material because it has less irritability
  - It may effect the results
REFERENCE