Assessing Lateral Ankle Instability Following Modified Broström Procedure Early Results of a Retrospective Analysis

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Disclosures

The potential conflicts of interest with this presentation are:

Chris Vasileff – None
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John G Anderson MD – Consultant: Stryker, Biomet, BESPA
Donald R Bohay MD – Consultant: Stryker, Biomet, BESPA
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Surgical Treatment

- Injuries of the lateral ankle ligaments (ATFL, CFL, ankle capsule) are typically repaired with a Broström-Gould procedure.

- Damaged ligaments are tightened and reattached in addition to securing the inferior retinaculum to the distal fibula.
Surgical Procedure

- Gastrocnemius recession extends the length of the muscle through an incision in the mid-calf.
- Allows increased dorsiflexion and creates a larger contact surface between the inferior tibia and superior talus.
- Theoretically, improving dorsiflexion with the gastroc recession puts the ankle mortise in a more anatomical and stable position, thereby reducing complaints of pain and instability associated with arch collapse (plantar fasciitis, metatarsalgia, Achilles tendinopathy).
Objectives

**Primary objective:**
To assess lateral ankle stability following isolated modified Broström procedure versus concomitant modified Broström and gastrocnemius recession.

**Secondary objectives**
- Optimal surgical technique
- Complication rate and overall patient outcomes
- Post-op outcomes in patients with osteochondral defects
Methods

❑ **Design:**
  - Retrospective chart review with patients from the Orthopedic Associates of Michigan

❑ **Inclusion Criteria**
  - All patients ≥ 14 years old
  - Patients must have undergone a modified Broström procedure at a Spectrum Health or Metro Health facility from 1/1/2002 – 12/31/12 by Drs. Anderson, Bohay, or Maskill

❑ **Exclusion Criteria**
  - Any concurrent procedure that, in the opinion of the investigator, affects weight bearing status (Hindfoot fusion, lateralizing calcaneal osteotomy)
  - Genetic defect in collagen (Ehlers-Danlos, Marfan)
  - Insufficient documentation
Demographics

513 total patients with 122 who received gastrocnemius recession in conjunction with modified Broström

- Age - 35.57 (14-85)
- M:F - 182:331
- BMI - 29.49 (17.6-65.8)
- Smokers - 30.6%
Results

• VAS Pain Score
  ▫ Pre-Op
    ▪ Modified Broström: 5.48
    ▪ Concomitant Gastrocnemius Recession: 6.18
      ➢ $P = 0.014$

• VAS Pain Score
  ▫ Post - Op
    ▪ Modified Broström: 1.32
    ▪ Concomitant Gastrocnemius Recession: 1.11
      ➢ $P = 0.513$
Results

• VAS Pain Score
  ▫ Change
  ▪ Modified Broström: (-) 4.05
  ▪ Concomitant Gastrocnemius Recession: (-) 5.14
    ➢ $P = 0.011$

• AOFAS Ankle-Hindfoot Stability
  ▫ Post-Op
  ▪ Gastrocnemius Recession - 86.6%
  ▪ Modified Broström - 76.8%
Discussion

• Pain
  ▪ Patients receiving gastrocnemius recession with a modified Broström had increased pain pre-operatively but equivalent pain postoperatively as those receiving isolated Broström
  ▪ Patients with modified Broström and concomitant gastrocnemius recession had statistically significant improvement in VAS pain scores compared to patients receiving isolated Broström

• Stability
  ▫ Substantial difference (~10%) comparing post-op stability in patients who received Gastrocnemius recession
Discussion

- Limitations
  - Incomplete charts/Lost to follow up
  - Missing VAS scores
  - Complication rate
  - Unable to assess calf strength
    - Pre-op vs Post-op
  - Surgical technique
  - Consideration of cosmetic issues
  - Retrospective study
References


