Peroneal Deepening Procedure with Low Profile Screws in Chronic Peroneal Tendon Dislocation

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NO CONFLICT TO DISCLOSE

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< Jae Wan Suh, MD>

- My disclosure is in the Final AOFAS Mobile App.
- I have no potential conflicts with this presentation.
Introduction

• Peroneal Tendon Dislocation
  • Relatively uncommon disorder, often misdiagnosed to ankle sprain

• Mechanism
  • Dorsi-flexion of the foot with powerful contraction of the peroneus tendon
  • Inversion injury with the foot in plantar flexion (stretch or avulse the Superficial peroneal retinaculum (SPR))
  • Convex or flat posterior fibular space
  • Chronic irritation or tear of peroneal tendon

• Fibro-osseous tunnel
  • Anterior wall
    Fibula
  • Lateral wall
    Superior Peroneal Retinaculum (primary restraint to instability)

Introduction

• Treatment

• Conservative treatment

• Surgical Treatment
  ✓ Rerouting of tendon
  ✓ Soft tissue reconstruction (SPR reattachment/reconstruction)
  ✓ Bony Procedure
    Bone block procedure

Groove deepening procedure

- Anatomical restoration of fibular
- Intratendinous stress diminishing
- Low recurrence
- Promising clinical results

→ has been gaining popularity recently

Lew C. Schon, FAI, 2005
We propose a novel way to perform peroneal groove deepening using 2 snap-off Spin® Screws to securely fix the fibrocartilaginous flap which prevents reduction loss.
Materials and Methods

- 2005.3-2009.3
- Chronic Peroneal Tendon Dislocation
- Consecutive 21 patients (Level III study)
- M:F = 17:4
- Mean Age = 31.4 year (18-66)
- Mean follow up period = 1.5 years
- Patient Evaluation – AOFAS score
- Patient Satisfaction

**Diagnosis**
- Provocation Test (Dorsiflexion-Eversion)
- MRI
  - Evaluating the status of peroneal tendon
  - Other adjacent soft tissue evaluation
Operative procedure

- After observing the posterior peroneal groove, a window-shaped flap was designed at 3cm proximal to the distal tip of the peroneous.
- The corticocancellous flap with cartilage was raised using small osteotome.
- After removing 5mm≤ of underlying cancellous bone with a burr, the flap was fixed with two snap-off Spin® screws.
- Tendon stability was confirmed with an ankle dorsiflexion-eversion test, and the SPR was repaired.

Postoperative Care

- Short leg cast or boot brace : 4 weeks
- Muscle Strengthening Exercise : 4 weeks
- Low level exercise : allowing after 8 weeks
- High level exercise : allowing after 12 weeks
Operative Procedure

5 mm
Results

**AOFAS Score**

- Preop. : 72 (52-90)
- Postop. : 96 (78-100)
- \((p<0.05)\)

**Patient Satisfaction**

- Excellent : 7
- Good : 4 \(\rightarrow 85\% (11/13)\)
- Fair : 2
- Poor : 0

**Combined operation**

- Peroneal tendon tubalization : 4 cases
- Hardware removal : 1 case

**Postop. Complication**

- Spin\(^\circledR\) screw removal d/t malposition : 1 case
- No recurrence until last follow up
- No peroneal irritation by screw
**Discussion**

**Brent KO et al.**
- Simple compression of fibrocartilage flap
- No fixation method
- **Unstable flap**

**Markus W et al.**
- Combined Method
- Technically simple
- Not secure the fibrocartilage flap stability
- **Unstable flap**

**Lew LC et al.**
- Transosseous suture fixation for fibrocartilage flap
- Technically hard method
- **Unstable flap**
Peroneal deepening using two Spin® screws may be **simpler, more rigid** fixation than other methods → leads to a **faster rehabilitation** & **resumption of athletic activities**
1. Adachi, N; Fukuhara, K; Tanaka, H; Nakasa, T; Ochi, M: Superior retinaculoplasty for recurrent dislocation of peroneal tendons. Foot Ankle Int. 27(12):1074-1078, 2006
5. Porter, D; McCarroll, J; Knapp, E; Torma, J: Peroneal tendon subluxation in athletes: fibular groove deepening and retinacular reconstruction. Foot Ankle Int. 26(6):436-441, 2005
8. Title, CI; Jung, HG; Parks, BG; Schon, LC: The peroneal groove deepening procedure: a biomechanical study of pressure reduction. Foot Ankle Int. 26(6):442-448, 2005