Sinus tarsi syndrome: primary classification system of etiology and pathogenesis

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My disclosure is in the Final AOFAS Program Book. I have no potential conflicts with this presentation.
Introduction

- Sinus tarsi syndrome may be connected with subtalar mild instability, ligament injury, arthrofibrosis or joint denervation.
- So far, there was no relatively systematic classification for its pathogenesis,
- Although many surgeons had tried to find some suitable treatments,
  - such as subtalar debridement and subtalar arthrodesis.
- These methods may be only symptomatic treatments without definite indications and results, and the prognosis of the disease could not be well judged.
Methods

- From Jan. 2006 to Dec. 2011
- 67 patients suffering from STS
- We analysed the etiological factors of all cases in order to categorize into following four situations:

1. subtalar inflammation
2. subtalar instability
3. peroneal spasm
4. local nervous disorders
Results

Pathological Mechanism:
Combined different situations into concrete classifications

**Type I: mild**
- IA. simple synovitis
- IB. simple subtalar instability
- IC. simple nervous disorders

**Type II: moderate**
- IIA. synovitis and nervous disorders
- IIB. synovitis and subtalar instability
- IIC. synovitis and peroneal spasm

**Type III: severe**
- IIIA. synovitis, subtalar instability and peroneal spasm
- IIIB. synovitis, nervous disorders and peroneal spasm
- IIIC. synovitis, subtalar instability and nervous disorders

**Type IV: profound**
- synovitis, subtalar instability, nervous disorders, peroneal spasm
Case

- Male
- 24y/o
- Policeman
- Spastic pain in left foot for 3 years
- Deny the history of ankle sprain
- The peroneal spasm started first time when he is sleeping suddenly
- Cramp again and again
- Severe pain and peroneal spasm when invert his ankle
- Lidocaine injection into tarsal sinus had not effect on changing the gait in our hospital

- Pain and spasm were relieved shortly after the surgery.

- But three months later, he came back, complaining of the same symptoms.

The first debridement of sinus tarsal

- Joint effusion
- Scar tissue proliferation
- Excise inflammatory synovium tissue in sinus tarsal
The **Second** Debridement:

* Cut off the branch of superficial peroneal nerve (red arrow)
* Drilling a hole in the lateral malleolus
* Put the nerve end into the hole (red circle)

However, no more than half year post-op

- Came back again, suffering from the very uncomfortable foot
- Any passive movement of his foot trigger severe pain
- The previous surgery was failed
Subtalar arthrodesis at last time

Analysis:

- **Stability** is very important for the nerve irritation control.
- **Inflammatory** stimulation can make the asymptomatic flatfoot to the **peroneal spastic flatfoot**.
We chose appropriate treatments on the basis of different Types.

**Type I**
- conservative treatments: medication (e.g. NSAIDs) and local lidocaine injection

**Type II**
- The first choice was sinus tarsi debridement under subtalar arthroscopy if conservative methods above were not effective
- And the second choice was selective denervation of the sinus tarsi

**Type III**
- Subtalar arthrodesis was the best and ultimate procedure when debridement and denervation did not work.