The Syndesmotic Insufficiency in Mobile Bearing TAR – A Challenging and Underestimated Problem

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Joe Wagener

My disclosure is in the Final AOFAS Mobile App. I have no potential conflict with this presentation.
The Issue

Subsequent dissociation of distal tibiofibular joint after Total Ankle Replacement with progressive pain and cyst formation leading to failure of TAR

Weight bearing radiographs: widening of distal tibiofibular joint and cyst formation TAR
The Solution

Fusion of the distal tibiofibular joint
Revision of TAR

Alternative?

Postoperative x-ray
The Questions

Why did the TAR fail?

What did we miss?

Iatrogenic cause?

Etiologic cause?

???
The Purpose

The purpose of this study was to retrospectively review the patients who developed a syndesmotic insufficiency, which lead to revision surgery, after TAR in our centre.

With the goal to identify possible red-flags in preoperative planning for mobile bearing 3-component TAR
The History of the presented case

60 year old male patient with pronation-trauma 2003-12-21

Maisonneuve Fracture and ORIF
The History of the presented case

Same patient 3 years later with progressive OA and Implantation of TAR

Massive posttraumatic OA and Implantation TAR 2007-4-2
The History of the presented case

3 years later: progressive Destabilisation and cyst formation leading to revision

Missed syndesmotic insufficiency and Revision TAR at 3 years post implantation
Patients

20 patients (females, 12; males, 8)

Missed instability of distal tibio-fibular joint appearing 3.5 years (range 0.8-9.5 years) after primary TAR

Patient’s records, preoperative and postoperative radiographs and intraoperative fluoroscope images were reviewed especially with regard to previous ankle or lower leg fractures.

Functional outcome was assessed with the use of the American Orthopaedic Foot&Ankle (AOFAS) hindfoot score.
Mean follow-up after syndesmotic fusion was 3.5 years.

No intraoperative complications.

Median AOFAS Score at last FU was 72.5.

3 possible risk factors for failure were identified.
Risk factors for failure

1: The nature of trauma: Weber-C-Type fractures or Maisonneuve-Type fractures were found in 13 of 20 cases.

2: A defect in the lateral tibial plafond after pilon fracture or in stage 4 PTTD with valgus malalignment of ankle joint, was found in 3 cases. We concluded that the defect lead to a subsequent valgus tilt of the tibial component, acting as a stress riser in the distal tibio-fibular joint.

3: The remaining 4 cases showed a high tibial resection during primary TAR probably leading to an iatrogenic lesion of the anterior and posterior distal tibio-fibular ligaments.
Discussion

Knowing the etiology of posttraumatic osteoarthritis of the ankle joint is mandatory to identify a syndesmotic insufficiency in the preoperative work-up for mobile bearing 3-component TAR.

Due to these findings, our surgical protocol for TAR was adapted accordingly.

If one or more of the risk factors are present during surgery we suggest performing a primary distal tibio-fibular fusion.

AND

A possible alternative may be fixed bearing or 2-component TAR as implant of choice in these challenging patients.
References


