



ISAKOS
CONGRESS
2023



Boston
Massachusetts
June 18–June 21

All-inside endoscopic anatomic reconstruction leads to satisfactory functional outcomes in patients with chronic ankle instability

C. Charpail, S. Guillo, H. Odagiri,
F van Rooij, T. Bauer, A. Hardy





ISAKOS
CONGRESS
2023



Boston
Massachusetts
June 18–June 21

Disclosures:

Dr Bauer : consultant for Arthrex

Funding: Ramsay Santé for statistical analysis and manuscript preparation



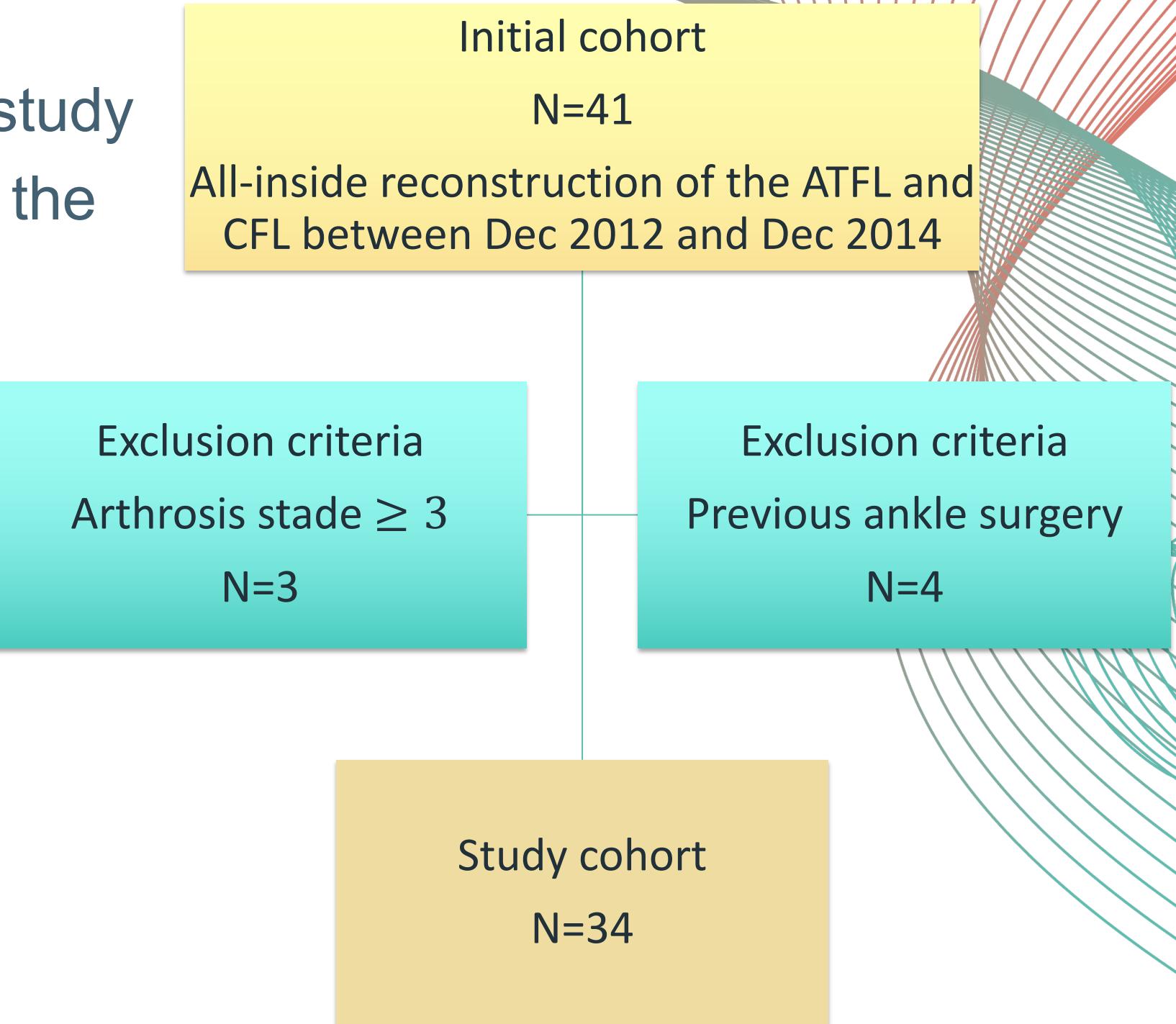
Introduction

- Ankle sprain: most frequent sport injury
- Risk: chronic instability
- Multiple surgeries described: anatomical and non-anatomical
- Purpose: to evaluate the functional scores and complication rates of an all-inside anatomic reconstruction technique to treat Chronic Ankle Instability (CAI) at a minimum follow-up of 24 months



Materials and methods

- Retrospective, monocentric study
- One surgeon who described the technique: S. Guillo



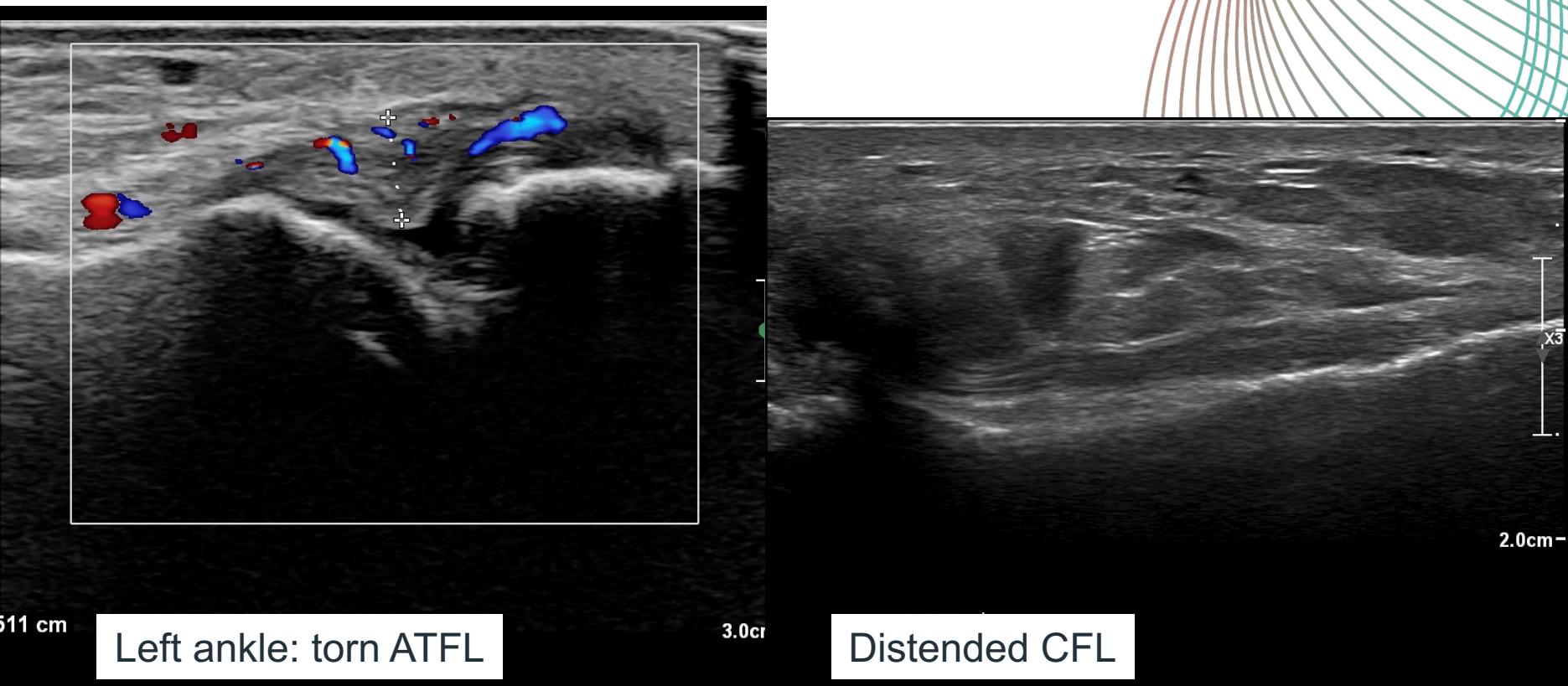
ISAKOS
CONGRESS
2023



Boston
Massachusetts
June 18–June 21

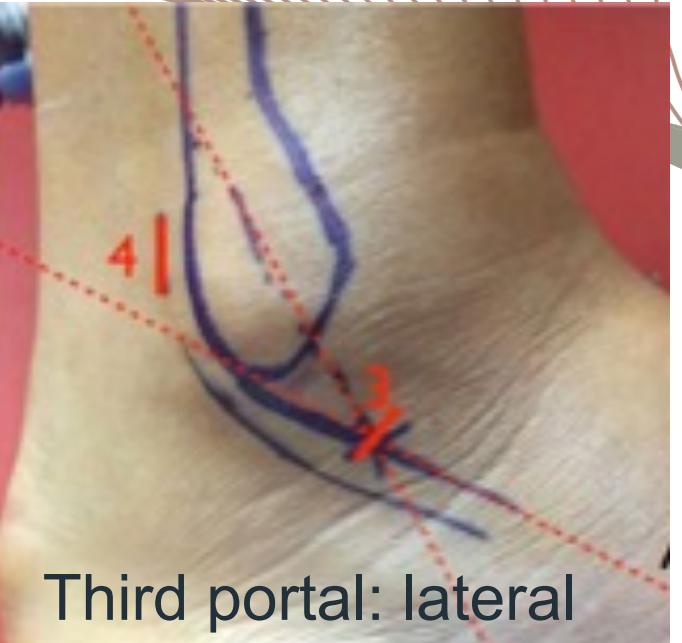
Materials and methods

- Diagnosis of instability:
 - Failure conservative treatment
 - Minimum 3 months after last ankle sprain
 - Feeling of instability
 - Laxity
 - Sonographic diagnostic by an expert musculoskeletal radiologist

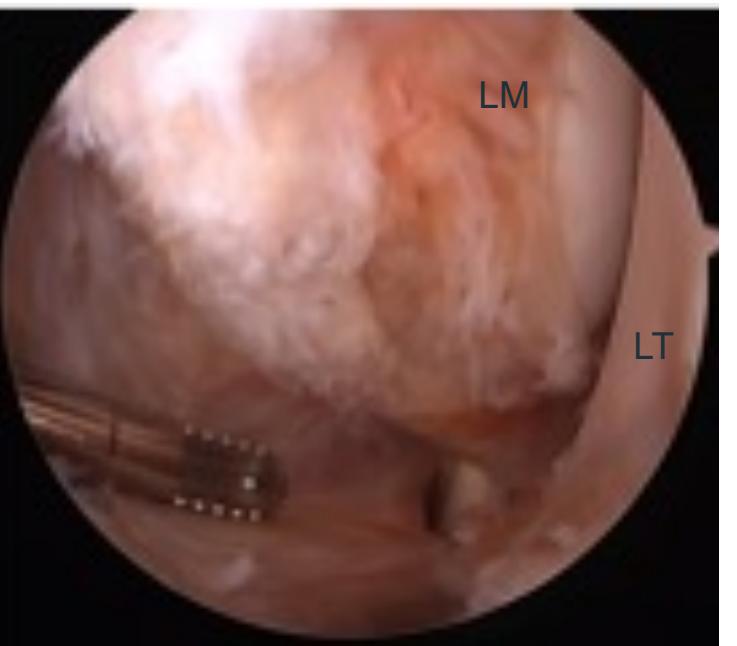


Materials and methods

- Surgical technique, described by S. Guillo
- 3 portals: anteromedial, anterolateral and lateral
- 5 steps:
 - 1) Lateral gutter debridement
 - 2) Drilling of the calcaneal and fibular tunnels through the lateral portal



Third portal: lateral



LM: Lateral Malleolus
 LT: Lateral side of the Talus
 No remaining ATFL



ISAKOS
 CONGRESS
 2023



Boston
 Massachusetts
 June 18–June 21

Materials and methods

- 3) Drilling of the talar tunnel through the anterolateral approach
- 4) Positioning of the Gracilis graft, at first in the talar tunnel with an interference screw, then in the fibula with an endobutton
- 5) Fixation in the calcaneal tunnel with an interference screw



LT: Lateral side of the Talus

TF: Talar Footprint of the ATFL



Final aspect of the ligamentoplasty

Materials and methods

- Postoperative rehabilitation:
 - Aircast 3 weeks
 - Partial weightbearing and mobilisation at D15
 - Inversion and eversion movements at D45
 - Sports M5
- Clinical evaluation:
 - American Orthopaedic Foot and Ankle Society (AOFAS)
 - Karlsson score
 - Ankle Activity Score (AAS)
 - Satisfaction (0-10)
 - Reoperation
 - Instability
 - Eversion/inversion deficiency



Results

| Patients | M/F | Age | BMI | Dominant foot | complications | reoperations | instability | Eversion/inversion deficiency |
|----------|------|-----------------|-----------------|---------------|---------------|--|-------------|-------------------------------|
| N=34 | 25/9 | 35,6 (16-53) | 25,6 (18-37) | 50% | 1 hematoma | 6 1 hematoma 5 removals of endobutton | 0 | 0 |



ISAKOS
CONGRESS
2023



Boston
Massachusetts
June 18-June 21

Results



ISAKOS
CONGRESS
2023



| | Preop | Postop | Progression |
|---------------|--------------|---------------|--------------|
| | Median | Median | Median |
| Follow up (M) | | 48,7 (24-70) | |
| AOFAS | 60,3 (28-77) | 94,3 (78-100) | 34 (14-68) |
| KARLSSON | 49 (17-77) | 87,2 (62-100) | 38,3 (5-60) |
| AAS | | 5,6 (2-9) | -0,1 (-4- 0) |
| Satisfaction | 5,7 (2-9) | 8,6 (2-10) | 8,6 (2-10) |

Discussion

Open
Arthro + mini-
open
Percutaneous

Reconstruction
Guillo's technique

Risk of nerve
lesion

Non
anatomical

anatomical

No sural
nerve lesion

Better scores



Conclusion

- Advantages of the arthroscopic techniques
- Excellent results at 2 years
- Benefits in hypermobility, repair failure
- Necessity long-term follow up
- Need to improve the fibular fixation



References

- de Asla RJ, Kozanek M, Wan L, Rubash HE, Li G (2009) Function of anterior talofibular and calcaneofibular ligaments during in-vivo motion of the ankle joint complex. *J Orthop Surg Res* 4:7
- Dierckman BD, Ferkel RD (2015) Anatomic reconstruction with a semitendinosus allograft for chronic lateral ankle instability. *Am J Sports Med* 43(8):1941–1950
- Guillo S, Odagiri H, van Rooij F, Bauer T, Hardy A. All-inside endoscopic anatomic reconstruction leads to satisfactory functional outcomes in patients with chronic ankle instability. *Knee Surg Sports Traumatol Arthrosc.* 2021 Apr;29(4):1318-1324. doi: 10.1007/s00167-020-06130-1. Epub 2020 Jun 30. PMID: 32607815
- McKay GD, Goldie PA, Payne WR, Oakes BW (2001) Ankle injuries in basketball: injury rate and risk factors. *Br J Sports Med* 35(2):103–108
- Guillo S, Bauer T, Lee JW, Takao M, Kong SW, Stone JW, Manganone PG, Molloy A, Perera A, Pearce CJ, Michels F, Tourne Y, Ghorbani A, Calder J (2013) Consensus in chronic ankle instability: aetiology, assessment, surgical indications and place for arthroscopy. *Orthop Traumatol Surg Res* 99(8 Suppl):S411–419
- Guillo S, Takao M, Calder J, Karlsson J, Michels F, Bauer T (2016) Arthroscopic anatomical reconstruction of the lateral ankle ligaments. *Knee Surg Sports Traumatol Arthrosc* 24(4):998–1002
- Halasi T, Kynsburg A, Tallay A, Berkes I (2004) Development of a new activity score for the evaluation of ankle instability. *Am J Sports Med* 32(4):899–908
- Jung HG, Kim TH, Park JY, Bae EJ (2012) Anatomic reconstruction of the anterior talofibular and calcaneofibular ligaments using a semitendinosus tendon allograft and interference screws. *Knee Surg Sports Traumatol Arthrosc* 20(8):1432–1437
- Karlsson J, Peterson L (1991) Evaluation of ankle joint function: the use of a scoring scale. *Foot* 1(1):15–19
- Lopes R, Andrieu M, Cordier G, Molinier F, Benoist J, Colin F, Thes A, Elkaim M, Boniface O, Guillo S, Bauer T (2018) Arthroscopic treatment of chronic ankle instability: prospective study of outcomes in 286 patients. *Orthop Traumatol Surg Res* 104(8s):S199–s205
- Rigby RB, Cottom JM (2019) A comparison of the “All-Inside” arthroscopic Brostrom procedure with the traditional open modified Brostrom-Gould technique: a review of 62 patients. *Foot Ankle Surg* 25(1):31–36
- SooHoo NF, Shuler M, Fleming LL (2003) Evaluation of the validity of the AOFAS clinical rating systems by correlation to the SF-36. *Foot Ankle Int* 24(1):50–55
- Youn H, Kim YS, Lee J, Choi WJ, Lee JW (2012) Percutaneous lateral ligament reconstruction with allograft for chronic lateral ankle instability. *Foot Ankle Int* 33(2):99–104

