ISAKOS CONGRESS 2025 | MUNICH GERMANY June 8–11

Higher Preoperative Range of Motion Predicts Good Mid-Term Outcomes in the Surgical Management of Talar Osteochondral Lesions

Ronny Lopes, MD
Centre Orthopédique Santy, Lyon, France
Thomas Amouyel, MD, Marcq En Baroeul, FRANCE

FIFA MEDICAL CENTRE OF EXCELLENCE | SANTY MEDICAL INNOVATION IN MOTION

Disclosure Information

Arthrex®

STEPS ORTHO

Implants Service Orthopédie
www.orthopedie-iso.com

ORTHO NOV

SFA

Follow

DOCT' UP

TROMA

Ankle-Go

Introduction

- Osteochondral lesions of the talus (OLT) are a frequent source of ankle pain in young adults.
- Conservative treatment often fails.
- Surgical decisions are often empirical.
- A new CT-arthrographic classification was developed to guide indications.
- This study evaluates its clinical utility.

Objectives

Primary Objective:

new algorithm ➡ AOFAS ≥ 80
at 1-year follow-up.

Secondary Objective:

Identify preoperative predictive factors for good surgical outcomes.

Study Design & Methods

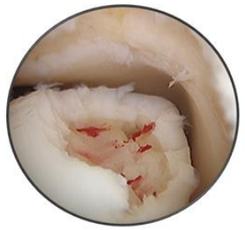
- **Prospective** observational multicenter study (French Arthroscopic Society)
- 86 patients with symptomatic OLT
- Mean follow-up: 15 months
- Minimum: 12 months

Inclusion: Failed 6-month conservative treatment

Exclusion: Grade ≥ II OA, systemic disease, recent fracture

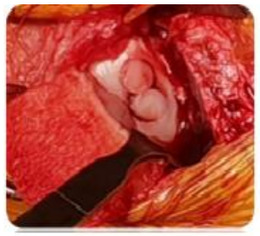
Surgical Procedures

Stage 1: Microfracture (49 patients)



Stage 2: Lift–Drill–Fill–Fix (2 patients)

Stage 3: Mosaicplasty (35 patients)



CT arthrographic classification system of osteochondral lesions of the talus.

	Maximum size	Maximum depth	Cartilage tear
Stage 1	<10mm AND <5mm	NU	
Stage 2	>10mm AND/OR >5mm	Absent	
Stage 3		Present	

NU: Not Useful

Additional Procedures

Ligament Reconstruction:

33 patients

Based on clinical/peroperative instability

PRP Injection:

29 patients in 2 centers

Used as adjuvant treatment in stage 1 & 3 OLT

Results

	Stage 1 ($n=49$)	Stage 2 ($n=2$)	Stage 3 ($n=35$)	Global ($n=86$)
Final AOFAS	83 ($\sigma=19$)	86 ($\sigma=20$)	81 ($\sigma=19$)	82 ($\sigma=19$)
Delta AOFAS	23 ($\sigma=21$)	31($\sigma=9$)	32 ($\sigma=22$)	27 ($\sigma=22$)
Final FAOS	80 ($\sigma=24$)	72($\sigma=22$)	77 ($\sigma=22$)	76 ($\sigma=23$)
Range of motion° (PF + DF)	38($\sigma=15$)	52($\sigma=4$)	37($\sigma=13$)	38 ($\sigma=14$)

Delta AOFAS = postoperative AOFAS – preoperative AOFAS, the results are presented mean and standard deviation

PF plantar flexion, *DF* dorsal flexion

Predictive Factors (Univariate)

Positive Predictors:

- Higher ROM (p = 0.033)
- Higher preop AOFAS/FAOS
- Presence of preop bone bruise

Negative Predictors:

- BMI ↑ (p = 0.038)
- Grade I OA (p = 0.044)

Predictive Factors (Multivariate)

Independent Predictors of Success:

- Preoperative ROM (OR = 1.08, p = 0.01)
- Absence of grade 1 OA (OR = 0.15, p = 0.008)

Other variables (sex, BMI, bone bruise):

not significant

Multivariate analysis of the factors of success of surgery

	Adjusted odds ratio	Confidence interval at 95%	*P* value
Preoperative range of motion	1.080	[1.020–1.150]	**0.01010**
Grade 1 osteoarthritis	0.147	[0.036–0.603]	**0.00773**
Preoperative MRI bone bruise	2.560	[0.725–9.060]	n.s
BMI	1.120	[0.918–1.360]	n.s
Male sex	1.100	[0.284–4.240]	n.s

Complications & Limitations

Complications:

- Nerve dysesthesia (8)
- CRPS I (9)
- DVT (1)

Limitations:

- Few stage 2 patients
- Multicenter heterogeneity

6 patients worsened after surgery

Most had grade 1 OA

Conclusion

The new OLT classification yields 65% success at 1 year.

Higher preoperative ROM and **absence of OA** predict better outcomes.

Preop joint mobility should be systematically evaluated.

References:

1. Chan VO, Moran DE, Shine S, Eustace SJ (2013) Medial joint line bone bruising at MRI complicating acute ankle inversion injury: what is its clinical significance? Clin Radiol 68:e519-523

2. Choi S-W, Lee G-W, Lee K-B (2020) Arthroscopic microfracture for osteochondral lesions of the talus: functional outcomes at a mean of 6.7 years in 165 consecutive ankles. Am J Sports Med 48:153–158

3. Dahmen J, Lambers KTA, Reilingh ML, van Bergen CJA, Stufkens SAS, Kerkhoffs GMMJ (2018) No superior treatment for primary osteochondral defects of the talus. Knee Surg Sports Traumatol Arthrosc 26:2142–2157

4. Dekker TJ, Dekker PK, Tainter DM, Easley ME, Adams SB (2017) Treatment of osteochondral lesions of the talus: a critical analysis review. JBJS Rev 5:e4

5. van Dijk CN, Verhagen RA, Tol JL (1997) Arthroscopy for problems after ankle fracture. J Bone Joint Surg Br 79:280–284

6. Doğar F, Uzun E, Gürbüz K, Topak D, Akar M, Bilal Ö, Güney A (2021) Comparison of arthroscopic treatment methods in talar osteochondral lesions: a multicenter, prospective, randomized clinical trial. J Am Podiatr Med Assoc 111:5

7. Drakos MC, Eble SK, Cabe TN, Patel K, Hansen OB, Sofka C, Fabricant PD, Deland JT (2021) Comparison of functional and radiographic outcomes of talar osteochondral lesions repaired with micronized allogenic cartilage extracellular matrix and bone marrow aspirate concentrate vs microfracture. Foot Ankle Int 42:841–850

8. de l' Escalopier N, Amouyel T, Mainard D, Lopes R, Cordier G, Baudrier N, Benoist J, Ferrière VD, Leiber F, Morvan A, Maynou C, Padiolleau G, Barbier O (2021) Francophone Arthroscopy Society (SFA): Long-term outcome for repair of osteochondral lesions of the talus by osteochondral autograft: a series of 56 Mosaicplasties®. Orthop Traumatol Surg Res 107:103075

9. Görmeli G, Karakaplan M, Görmeli CA, Sarıkaya B, Elmalı N, Ersoy Y (2015) Clinical effects of platelet-rich plasma and hyaluronic acid as an additional therapy for talar osteochondral lesions treated with microfracture surgery: a prospective randomized clinical trial. Foot Ankle Int 36:891–900

10. Guelfi M, DiGiovanni CW, Calder J, Malagelada F, Cordier G, Takao M, Batista J, Nery C, Delmi M, Dalmau-Pastor M, Carcuro G, Khazen G, Vega J (2021) Large variation in management of talar osteochondral lesions among foot and ankle surgeons: results from an international survey. Knee Surg Sports Traumatol Arthrosc 29:1593–1603

11. Guney A, Akar M, Karaman I, Oner M, Guney B (2015) Clinical outcomes of platelet rich plasma (PRP) as an adjunct to microfracture surgery in osteochondral lesions of the talus. Knee Surg Sports Traumatol Arthrosc 23:2384–2389

12. Guney A, Yurdakul E, Karaman I, Bilal O, Kafadar IH, Oner M (2016) Medium-term outcomes of mosaicplasty versus arthroscopic microfracture with or without platelet-rich plasma in the treatment of osteochondral lesions of the talus. Knee Surg Sports Traumatol Arthrosc 24:1293–1298

13. Hansen OB, Eble SK, Patel K, Cabe TN, Sofka C, Deland JT, Drakos MC (2021) Comparison of clinical and radiographic outcomes following arthroscopic debridement with extracellular matrix augmentation and osteochondral autograft transplantation for mediumsize osteochondral lesions of the talus. Foot Ankle Int 42:689–698

14. Hurley ET, Stewart SK, Kennedy JG, Strauss EJ, Calder J, Ramasamy A (2021) Current management strategies for osteochondral lesions of the talus. Bone Joint J 103-B:207–212

15. Kerkhoffs GMMJ, Reilingh ML, Gerards RM, de Leeuw PAJ (2016) Lift, drill, fill and fix (LDFF): a new arthroscopic treatment for talar osteochondral defects. Knee Surg Sports Traumatol Arthrosc 24:1265–1271

16. Lamb J, Murawski CD, Deyer TW, Kennedy JG (2013) Chevrontype medial malleolar osteotomy: a functional, radiographic and quantitative T2-mapping MRI analysis. Knee Surg Sports Traumatol Arthrosc 21:1283–1288

17. Lambers KTA, Dahmen J, Altink JN, Reilingh ML, van Bergen CJA, Kerkhoffs GMMJ (2021) Bone marrow stimulation for talar osteochondral lesions at long-term follow-up shows a high sports participation though a decrease in clinical outcomes over time. Knee Surg Sports Traumatol Arthrosc 29:1562–1569

18. Lopes R, Geffroy L, Padiolleau G, Ngbilo C, Baudrier N, Mainard D, Benoist J, Leiber Wackenheim F, Cordier G, Dubois Ferriere V, Freychet B, Barbier O, Amouyel T (2021) Proposal of a new CT arthrographic classification system of osteochondral lesions of the talus. Orthop Traumatol Surg Res 107:102890

19. Manzi J, Arzani A, Hamula MJ, Manchanda K, Dhanaraj D, Chapman CB (2021) Long-term patient-reported outcome measures following particulated juvenile allograft cartilage implantation for treatment of difficult osteochondral lesions of the talus. Foot Ankle Int 42:1399–1409

20. Pereira GF, Steele JR, Fletcher AN, Clement RD, Arasa MA, Adams SB (2021) Fresh osteochondral allograft transplantation for osteochondral lesions of the talus: a systematic review. J Foot Ankle Surg 60:585–591

21. Pinar H, Akseki D, Kovanlikaya I, Araç S, Bozkurt M (1997) Bone bruises detected by magnetic resonance imaging following lateral ankle sprains. Knee Surg Sports Traumatol Arthrosc 5:113–117

22. Puddu L, Altamore F, Santandrea A, Mercurio D, Caggiari G, Della Sala S, Marinetti A, Tessarolo F, Rigoni M, Manunta AF, Cortese F (2020) Surgical treatment of talar osteo-chondral lesions with micro-fractures, mesenchymal cells grafting on membrane, or allograft: Mid-term clinical and magnetic resonance assessment. J Orthop 21:416–420

23. Steadman JR, Rodkey WG, Rodrigo JJ (2001) Microfracture: surgical technique and rehabilitation to treat chondral defects. Clin Orthop Relat Res 391(Suppl):S362-369

24. Vannini F, Filardo G, Altamura SA, Di Quattro E, Ramponi L, Buda R, Giannini S, Faldini C (2021) Bone marrow aspirate concentrate and scaffold for osteochondral lesions of the talus in ankle osteoarthritis: satisfactory clinical outcome at 10 years. Knee Surg Sports Traumatol Arthrosc 29:2504–2510