Arthroscopic Treatment of Large and Massive Osteochondral Lesions of the Talus: A Prospective Cohort Study

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ABSTRACT

Introduction: The treatment of talar osteochondral lesions remains challenging, particularly in cases of large or massive defects, due to the limited intrinsic capacity of articular hyaline cartilage for repair or regeneration. **Objective:** To evaluate clinical outcomes and physical activity levels two years after surgery in patients with large or massive talar osteochondral lesions treated arthroscopically with debridement and microfracture of the subchondral bone. **Materials and Methods:** A short-term prospective descriptive cohort study was conducted, including 14 symptomatic patients with large or massive osteochondral lesions of the talus. All patients underwent anterior ankle arthroscopy involving debridement of devitalized cartilage and microfracture of the subchondral bone. At the two-year follow-up, clinical outcomes were assessed using the Foot and Ankle Ability Measure (FAAM), patient satisfaction, and the ability to perform physical activity. **Results:** The mean FAAM score for activities of daily living was 89% (range: 50–100%), and for sports activities, 78.8% (range: 43.7–100%). Thirteen patients reported being satisfied with the surgical outcome. No statistically significant association was found between FAAM scores and lesion size, volume, or location within the talus. **Conclusions:** Arthroscopic treatment of large and massive talar osteochondral lesions using debridement and microfracture of the subchondral bone yields high patient satisfaction and favorable clinical outcomes, with low complication rates at two years postoperatively.

Keywords: Osteochondral lesion; talus; debridement; microfracture; arthroscopy.
Level of Evidence: II

Tratamiento artroscópico de lesiones osteocondrales grandes y masivas del astrágalo. Estudio prospectivo de cohortes

RESUMEN

Introducción: El tratamiento de las lesiones osteocondrales astragalinas representa un desafío, especialmente el de las lesiones grandes y masivas, a causa de la pobre capacidad intrínseca de reparación o regeneración del cartílago hialino articular. **Objetivo:** Evaluar los resultados clínicos y la capacidad de realizar actividad física a los 2 años de la cirugía en pacientes con lesiones osteocondrales astragalinas grandes y masivas sometidos a un desbridamiento y microperforaciones del hueso subcondral por vía artroscópica. **Materiales y Métodos:** Se realizó un estudio descriptivo prospectivo de cohortes a corto plazo, que incluyó a 14 pacientes sintomáticos con lesiones osteocondrales astragalinas grandes o masivas sometidos a una artroscopia anterior de tobillo para realizar un desbridamiento del cartílago desvitalizado y microperforación del hueso subcondral. A los 2 años, se determinaron la evolución clínica mediante el FAAM, la satisfacción del paciente y la capacidad de realizar actividad física. **Resultados:** La media del FAAM fue del 89% para las actividades de la vida diaria y del 78,8% para la actividad deportiva. Los 13 pacientes refirieron estar satisfechos con el resultado de la cirugía. No se encontró una asociación estadísticamente significativa entre los resultados del FAAM y el área, el volumen y la localización de las lesiones en el astrágalo. **Conclusiones:** El tratamiento artroscópico de las lesiones osteocondrales astragalinas grandes y masivas mediante el desbridamiento del cartílago desvitalizado y las microperforaciones logra una elevada satisfacción y buenos resultados clínicos, con bajas complicaciones a los 2 años de la cirugía.

Palabras clave: Lesión osteocondral; astrágalo; desbridamiento; microperforaciones; artroscopia.
Nivel de Evidencia: II

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INTRODUCTION

Osteochondral lesions (OCLs) are defined as articular cartilage defects involving the underlying subchondral bone. They may be caused by multiple factors, including embolisms, defects in ossification, endocrine disorders, genetic predisposition, avascular necrosis, and others; however, trauma—either repetitive microtrauma or acute indirect trauma to the ankle—is currently the most widely accepted etiology.

Kappis first described OCLs in 1922,[1] and Berndt and Harty classified them in 1959.[2] In 2001, Scranton and McDermott[3] added a stage to the Berndt and Harty classification (stage 4), characterized by a large cyst beneath the articular surface.

OCLs can also be classified by size as small, large, or massive.

Chuckpaiwong et al.[4] proposed a cutoff of 15 mm in diameter based on lesion evolution after debridement and microfracture. Accordingly, lesions <15 mm in diameter are classified as small, and those >15 mm as large. A category for massive OCLs is reserved for lesions >3000 mm³, as defined by Raikin. Raikin[5] proposed that these massive OCLs >3000 mm³ be designated stage 6 of the Berndt and Harty classification. In a 2016 systematic review, Ramponi et al. lowered the cutoff from 15 mm to 10 mm.

Regarding OCL localization, Raikin et al.[6] divided the talar dome into 9 zones or "grids" to facilitate therapeutic analysis and to identify behavioral patterns of these lesions (Figure 1).

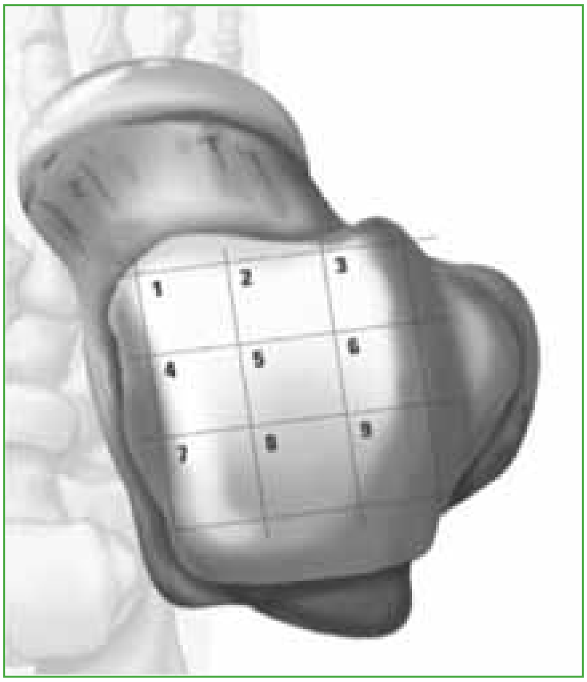

Figure 1. Raikin grid (division of the talar dome into 9 zones).

Treatment of OCLs remains a challenge due to the poor intrinsic capacity of articular hyaline cartilage to repair or regenerate. Several factors hinder repair, including the tissue's hypocellularity and the fact that chondrocytes are "imprisoned" in an extracellular matrix.[7] According to Brittberg and Winalski,[8] following articular cartilage injury, chondrocytes initiate a reparative response marked by cellular proliferation and increased proteoglycan synthesis. The repair obtained stimulates type I collagen, which produces fibrocartilage. This is important to mention because fibrocartilage does not have the same biomechanical properties as hyaline cartilage and, therefore, increases friction and induces greater wear.

In general, treatment selection depends on local factors (lesion location, size, and chronicity) as well as systemic factors (patient age, activity level, comorbidities, and hindfoot alignment).

Although conservative treatment is initially attempted with some success, approximately 50% of skeletally mature individuals remain symptomatic, at which point surgical intervention is considered.

Surgical treatment options are categorized as follows: palliative (debridement of devitalized cartilage), reparative (osteochondral stimulation procedures, such as microfracture of the subchondral bone following debridement) and replacement (implantation of autologous chondrocyte cultures or osteochondral grafts (autografts or allografts)).[9]

For OCLs measuring <15 mm in diameter, arthroscopic debridement and microfracture are the procedures of choice prior to considering more invasive techniques such as osteochondral autografting, allografting, or autologous chondrocyte implantation. Collagen, hyaluronic acid, or fibrin-based scaffolds are also used in conjunction with cultured chondrocytes or following subchondral bone stimulation to enhance the stability of transplanted or migrating cells. However, no comparative studies exist evaluating the efficacy of the various scaffolds or membranes used.

In large or voluminous OCLs, treatment remains controversial. On one hand, several authors—including Chuckpaiwong et al.[4] (105 cases), Choi (120 cases), and Ramponi et al.[10] (systematic review)—conclude that debridement and microfracture are ineffective for lesions exceeding 15 mm in diameter, 150 mm² in surface area, or 10.2 mm in diameter, respectively.

On the other hand, recent research has failed to demonstrate a significant correlation between lesion size and clinical outcome after debridement and microfracture. For instance, van Bergen et al.[11] reported no difference in clinical outcomes between OCLs <11 mm and >11 mm in diameter. Similarly, Kuni et al.[12] found no association between poor outcomes on the *American Orthopaedic Foot and Ankle Society* (AOFAS) score and lesion volume in a series of 22 patients with OCLs averaging 377 mm³.

An additional confounding factor is the wide variability in lesion measurement methods. There is no standardized protocol. Some studies use computed tomography, others rely on magnetic resonance imaging, and some assess lesions arthroscopically, despite the known low interobserver reliability of this method. There is also variation in the timing of measurement—some authors assess lesion size before debridement, while others do so afterward. Furthermore, the mathematical formulas used to calculate lesion area differ among studies.

All of this highlights the lack of robust evidence supporting the current therapeutic algorithms based primarily on lesion size.

OBJECTIVE

The main objective of this study was to evaluate clinical outcomes and the ability to engage in physical activity two years after surgery in patients with large and massive osteochondral lesions (OCLs) of the talus who underwent arthroscopic debridement and microperforation of the subchondral bone.

The hypothesis was that, after two years, patients would be able to resume physical activity following surgery.

MATERIALS AND METHODS

Prior to initiation, the study protocol was submitted for review and approved by the hospital's Department of Academic Development and Ethics Committee. All patients provided written informed consent preoperatively.

This study adhered to the STROBE guidelines. The STROBE checklist includes essential elements to be addressed in reports of the three main types of analytic epidemiologic studies: cohort, case-control, and cross-sectional designs.[13]

A prospective, descriptive, short-term cohort study was conducted on patients consecutively treated between June 2019 and November 2021 using a standardized surgical technique. During this period, 14 symptomatic patients with chronic large or massive talar OCLs were included.

All patients underwent anterior ankle arthroscopy involving debridement of devitalized cartilage followed by microperforation of the subchondral bone.

Inclusion criteria were: Skeletally mature patients with chronic ankle pain secondary to an OCL >15 mm in diameter; patients treated with arthroscopic debridement and subchondral bone microperforation; patients who had previously undergone surgery for the same condition using the same surgical technique; patients with concurrent ankle pathologies associated with talar OCLs, such as anterior impingement or chronic ankle instability.

Exclusion criteria included: Skeletally immature patients, patients with acute traumatic injuries, patients with OCLs <15 mm in diameter.

All OCLs were preoperatively classified using computed tomography (CT) according to their location based on the Raikin grid.[6] Lesion size was measured by determining the maximum dimensions in the anterior-posterior and medial-lateral planes, while depth was calculated using CT slices in the axial, sagittal, and coronal views. Lesion volume was calculated by multiplying the three dimensions, and lesion area was calculated using the ellipsoid correction formula (area = $\pi \times$ [coronal diameter / 2] $\times$ [sagittal diameter / 2]).

All procedures were performed by the same surgeon, a specialist in foot, ankle, and lower limb arthroscopy, using the same surgical technique in every case.

Surgical Technique

Anterior ankle arthroscopy was performed via anteromedial and anterolateral portals. Debridement of the osteochondral lesion (OCL) was carried out using a curette and shaver until a stable base was achieved. Any loose fragments or unstable cartilage were removed. Microperforation of the lesion base was then performed using a 1.8 mm diameter conical arthroscopic microfracture punch. The punch was inserted to a depth of at least 3 mm per pass, with perforations spaced 3–4 mm apart to avoid coalescence of the holes. The depth was verified until subchondral bone bleeding was visualized, indicative of bone marrow access and the potential for fibrocartilage formation. In large and massive cystic lesions, devitalized subchondral bone was resected with a curette until healthy bone was reached, where microperforations were then performed. Associated procedures were performed as indicated, such as lateral ligament repair or treatment of bone and soft tissue impingement. The pneumatic tourniquet was deflated before the end of surgery to confirm bleeding from the base of the lesion.

All OCL treatments and associated procedures were performed arthroscopically.

The postoperative regimen included a two-week period of non-weight-bearing, during which active and passive ankle mobility was permitted. Sutures were removed at two weeks, and weight-bearing was initiated. One month postoperatively, patients were allowed to walk without limitations on time or distance. At two months, they were permitted to resume running and engage in pre-injury physical activities. For those requiring ligament repair, a 90° cast boot was used for two weeks with non-weight-bearing, followed by a Walker boot for one month to allow ambulation. Physical activity was resumed at three months postoperatively in this group.

All patients followed the same clinical follow-up schedule: every two weeks during the first postoperative month, monthly until six months postoperatively, and a final evaluation at two years.

Clinical evolution and surgical complications were recorded. At two years postoperatively, patients completed the *Foot and Ankle Ability Measure* (FAAM), a validated self-reported outcome instrument for assessing musculoskeletal conditions of the lower limb. The FAAM includes 29 items across two subscales: 21 items for *Activities of Daily Living* (ADL) and 8 for *Sports*. Each item is scored on a 5-point scale (0 = unable to do; 4 = no difficulty). Maximum scores are 84 for ADL and 32 for Sports. A percentage is obtained from this score. Higher percentages indicate better functional status, with 100% representing no dysfunction.

Patient satisfaction with the surgical procedure at the two-year follow-up was assessed using a 5-point Likert scale: 5 = very satisfied; 4 = satisfied; 3 = neutral; 2 = dissatisfied; 1 = very dissatisfied. Patients were also asked to report their ability to participate in sports prior to surgery and at the two-year follow-up.

To minimize biases, the FAAM, satisfaction, and physical activity questionnaires were sent via email and completed by the patients independently, without the presence of medical personnel.

The mean patient age at the time of surgery was 38 years (range: 24–54). Of the 13 patients, 11 were male and 2 female. Eight OCLs involved the right ankle and five the left. No patients underwent bilateral surgery.

Five patients underwent additional arthroscopic procedures along with OCL treatment: three for anterior impingement, one for lateral ligament repair, and one for both.

Only one patient had previously undergone a similar surgical procedure for an OCL at another center by a different surgeon. In this case, arthroscopic debridement and microperforation were again performed. The remaining patients had no history of prior surgery of the affected ankle.

All data were recorded and managed using REDCap.[14] REDCap is a metadata-driven electronic data capture platform widely used in clinical and translational research.

Statistical Analysis

All statistical analyses were conducted using R software (R Core Team, 2022; R Foundation for Statistical Computing, Vienna, Austria) and RStudio (Posit Team, 2024; Boston, MA, USA).

Continuous variables are presented as mean (standard deviation [SD]) or median (interquartile range [IQR]), depending on the distribution. Categorical variables are reported as frequency and percentage (n [%]) (Table 1).

Table 1. Variables evaluated.

Variable*	(n = 13)
Age	39 [27, 48]
Volume	1584 [784, 2100]
Area	170 [144, 224]
Side	5 (38.5)
Associated procedures	5 (38.5)
Complications	1 (7.7)
Satisfaction = 5	7 (53.8)
Would recommend = yes	13 (100.0)
Sport before surgery	4 (30.8)
Sport after surgery	10 (76.9)
FAAM Activities of daily living	92.80 [85.70, 98.80]
FAAM Sport	78.10 [56.20, 96.80]
Overall, how would you rate your current level of function?	
1	5 (38.5)
2	5 (38.5)
3	3 (23.1)
Level of function in activities of daily living	90 [80, 95]
Level of function during sport	85 [60, 95]
Change in sports activities	
I do sports now	6 (46.2)
I have never done sports	3 (23.1)
I have always done sports	4 (30.8)
Number of Raikin zones affected per patient	
1	2 (15.38)
2	9 (69.24)
3	2 (15.38)
Raikin zone (n = 26)(*) (*)	
1	2 (7.7)
3	1 (3.8)
4	9 (34.6)
6	4 (15.4)
7	7 (26.9)
9	3 (11.5)

*Categorical variables are expressed as n (%) and continuous variables as mean (SD) or median (interquartile range) according to the distribution.
**The total number of affected zones of all patients is considered.
FAAM = *Foot and Ankle Ability Measure*.

Linear mixed-effects regression models were considered, with the patient included as a random effects variable, to assess the association between the FAAM Activities of Daily Living (ADL) and FAAM Sport scores and each predictive variable (age, lesion area, lesion volume, and pre-injury sports participation). However, due to the small sample size, fitting a reliable regression model was not feasible. Therefore, bivariate associations are presented graphically.

Scatter plots were generated to visualize the relationships between FAAM ADL and FAAM Sport scores with lesion area and volume. Box plots were used to assess the association between Raikin zone and FAAM ADL and Sport scores.

RESULTS

Of the 14 patients who underwent surgery, 13 completed the 2-year follow-up. One patient could not be contacted for evaluation at the 2-year mark.

Nine lesions were located in the medial region of the talus: 2 affected only zone 4; 5 involved zones 4 and 7; and 2 extended across zones 1, 4, and 7. The remaining 4 lesions were lateral: 3 affected zones 6 and 9, and 1 involved zones 3 and 6.

Two patients presented with massive OCLs, with volumes of 6000 mm³ and 7140 mm³, respectively. The remaining cases involved large lesions, each with a diameter >15 mm.

The mean lesion area was 197 mm² (range: 108–420), and the mean lesion volume was 2136 mm³ (range: 432–7140) (Table 2).

Table 2. Data of the 13 patients included in the study.

Patient	Date of surgery	Age (years)	Lesion size (mm)	Volume (mm^3)	Area (mm^2)	Raikin zones	Side
1	Jun 5, 2019	33	17 x 14 x 10	2380	238	6 and 9	Right
2	Jul 10, 2019	41	16 x 14 x 8	1792	224	4 and 7	Right
3	Nov 13, 2019	54	20 x 8 x 7	1120	160	1, 4 and 7	Left
4	Jan 29, 2020	24	18 x 11 x 8	1584	198	4	Right
5	Jul 29, 2020	52	16 x 7 x 7	784	112	4	Right
6	Sep 26, 2020	25	16 x 10 x 6	960	160	3 and 6	Right
7	Oct 21, 2020	24	18 x 6 x 4	432	108	4 and 7	Right
8	Apr 28, 2021	48	17 x 10 x 12	2040	170	4 and 7	Left
9	Oct 20, 2021	49	10 x 21 x 10	2100	210	6 and 9	Left
10	Oct 30, 2021	43	20 x 21 x 17	7140	420	1, 4 and 7	Left
11	Oct 14, 2021	39	16 x 9 x 5	720	144	6 and 9	Left
12	Oct 13, 2021	36	15 x 8 x 6	720	120	4 and 7	Right
13	Nov 17, 2021	27	25 x 12 x 20	6000	300	4 and 7	Right

No intraoperative complications occurred. One patient developed neuralgia in the territory of the superficial fibular nerve during the immediate postoperative period, which resolved spontaneously within 6 months without the need for reoperation or medications beyond the standard postoperative pain protocol.

Only one patient required revision surgery within the 2-year follow-up period. At 18 months postoperatively, he developed anterior impingement-related pain and underwent a repeat anterior ankle arthroscopy for impingement resection and removal of an intra-articular loose body (Figure 2).

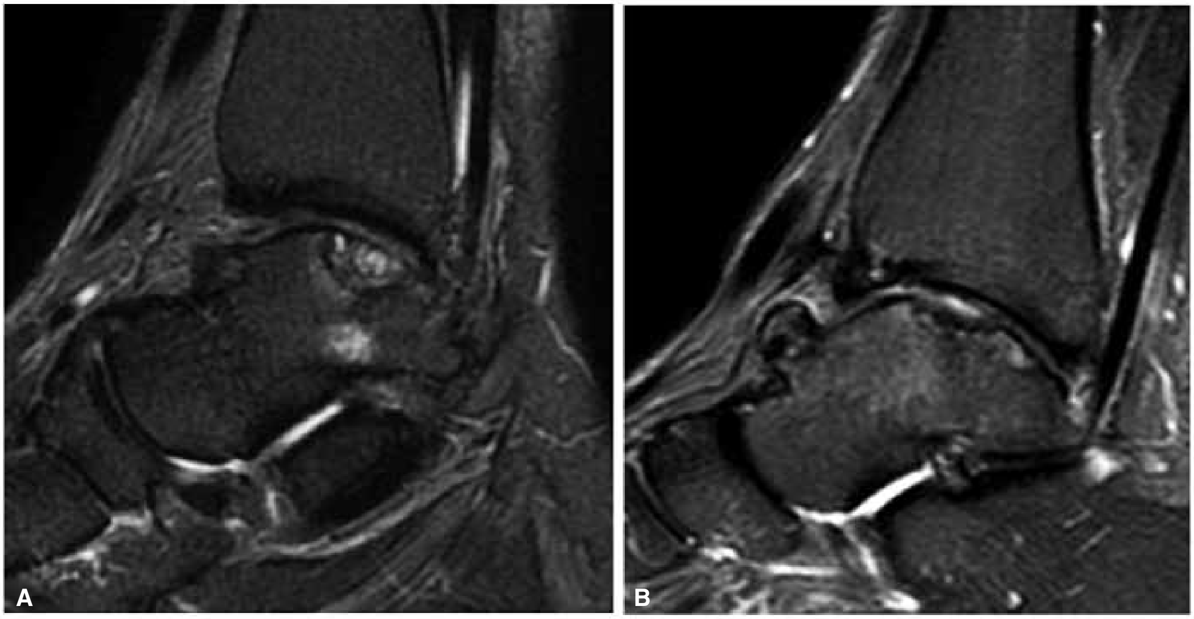

Figure 2. Magnetic resonance imaging of the ankle, sagittal view. **A.** Large osteochondral lesion in the talar dome, involving Raikin zones 4 and 7. **B.** Irregular fibrocartilage defect in the region of the previous lesion and development of symptomatic anterior bony impingement. Revision arthroscopy was performed to treat the impingement.

Nine of the 13 patients were unable to engage in physical activity prior to surgery due to pain during exertion. Of these, 6 resumed and maintained physical activity 2 years postoperatively, while 3 continued to experience pain or discomfort during activity. The 4 patients who were active preoperatively remained active after surgery.

All 13 patients reported satisfaction with the surgical outcome and indicated that they would recommend the same procedure to others with the same condition. The mean satisfaction score was 4.53 out of 5. Seven patients reported being very satisfied, and six were satisfied.

The mean FAAM ADL score was 89% (range: 50–100%), and the median score was 93.4% (Figure 3). When asked to subjectively rate their level of function in daily activities, the mean reported score was 83% (range: 50–100%).

Regarding specific ADLs, 84.6% of patients reported no difficulty performing housework, while 15.4% reported moderate difficulty (Figure 4). The most challenging ADL was walking uphill: 53.8% reported no difficulty, 38.5% reported slight difficulty, and 7.7% reported moderate difficulty (Figure 5).

The mean FAAM Sport score was 78.8% (range: 43.7–100%), and the median score was 84% (Figure 6).

When asked to assess their functional level during sports activities, the mean score was 80.4% (range: 50–100%). The most difficult sport-related task was starting and stopping quickly (Figure 7).

No statistically significant associations were observed between FAAM scores and lesion area, volume, or location. As illustrated in Figures 8-13, scatter plots revealed flat regression lines, indicating no meaningful correlations.

Patients were also asked to self-rate their current level of function as normal, almost normal, abnormal, or severely abnormal. Five patients rated their function as normal, five as almost normal, and three as abnormal (Figure 14).

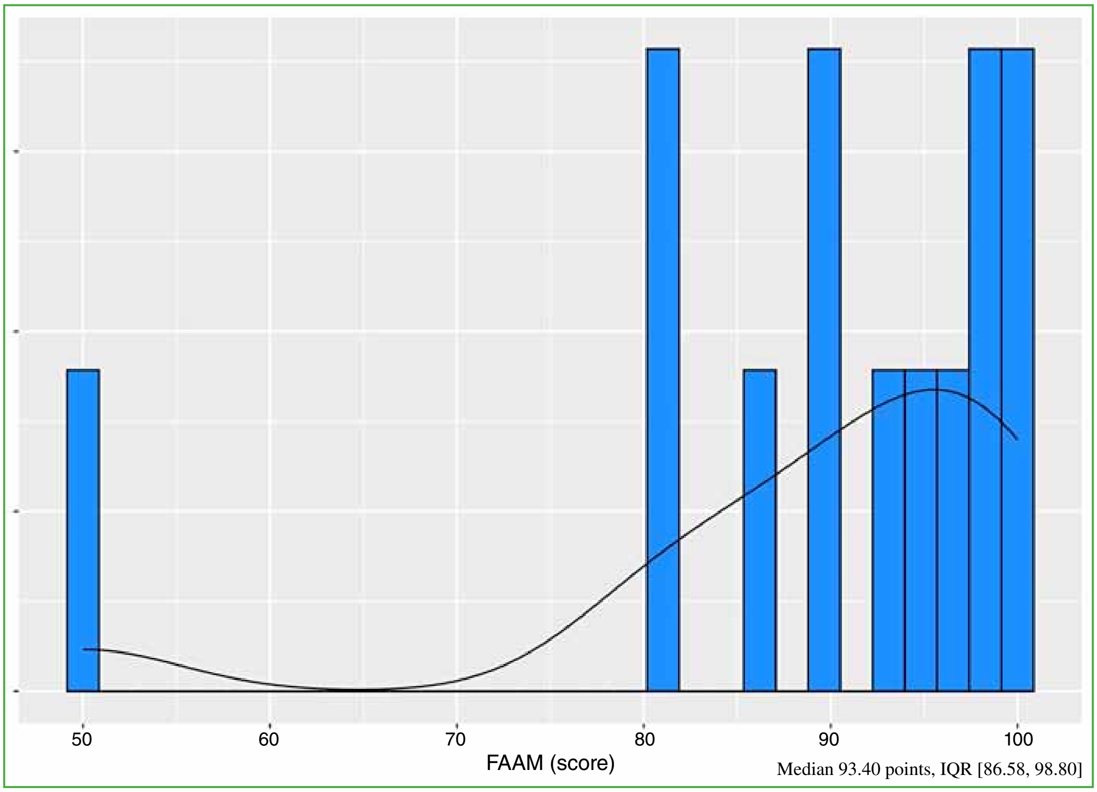

Figure 3. *Foot and Ankle Ability Measure* (FAAM) *Activities of Daily Living* (ADL) scores of the 13 patients evaluated 2 years postoperatively.

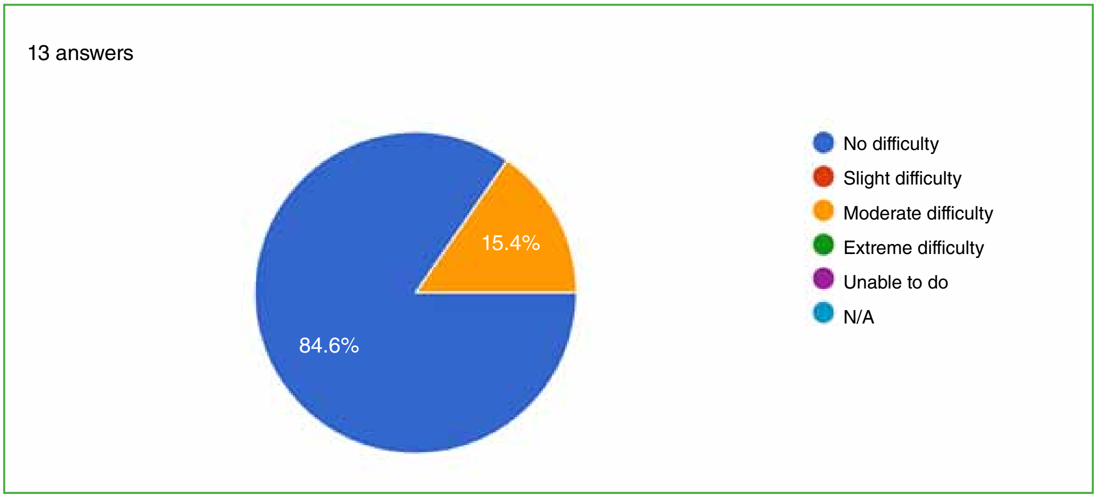

Figure 4. Difficulty performing household chores.

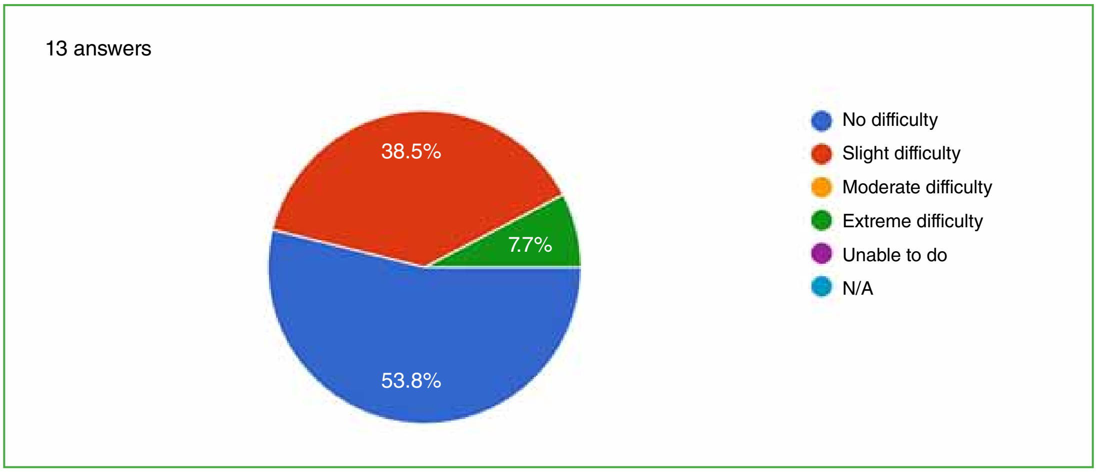

Figure 5. Difficulty walking uphill.

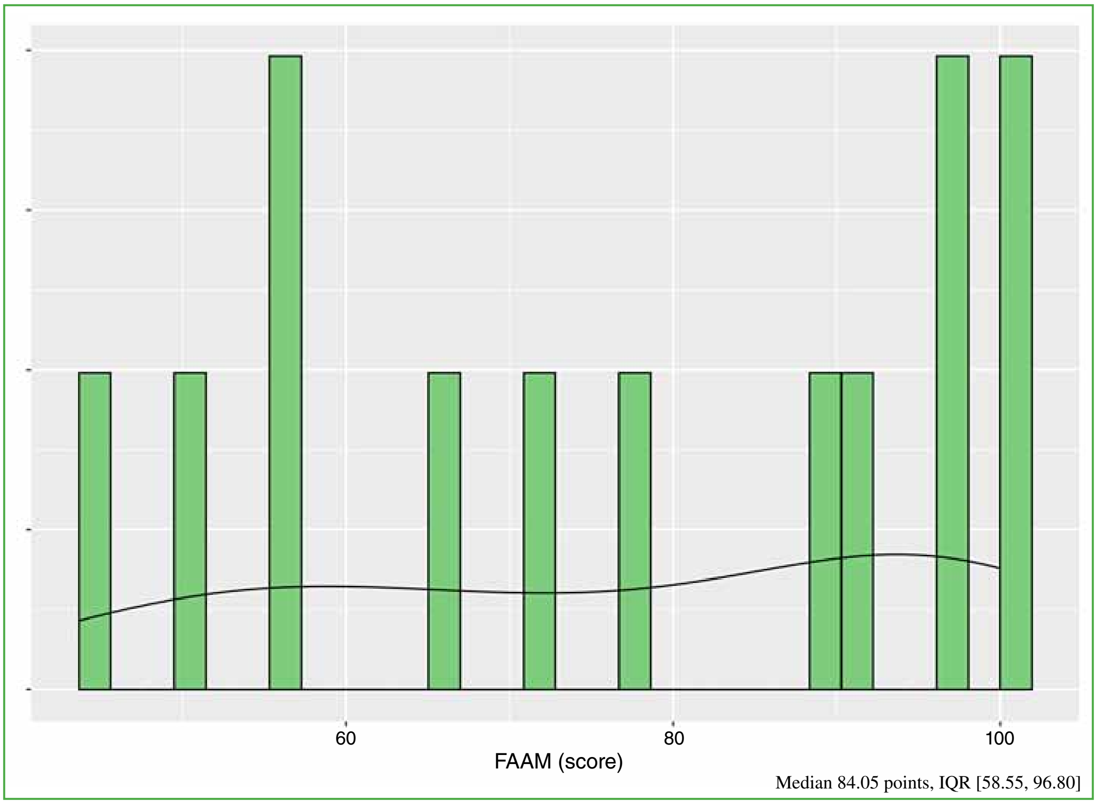

Figure 6. FAAM Sport scores of the 13 patients evaluated 2 years after surgery.

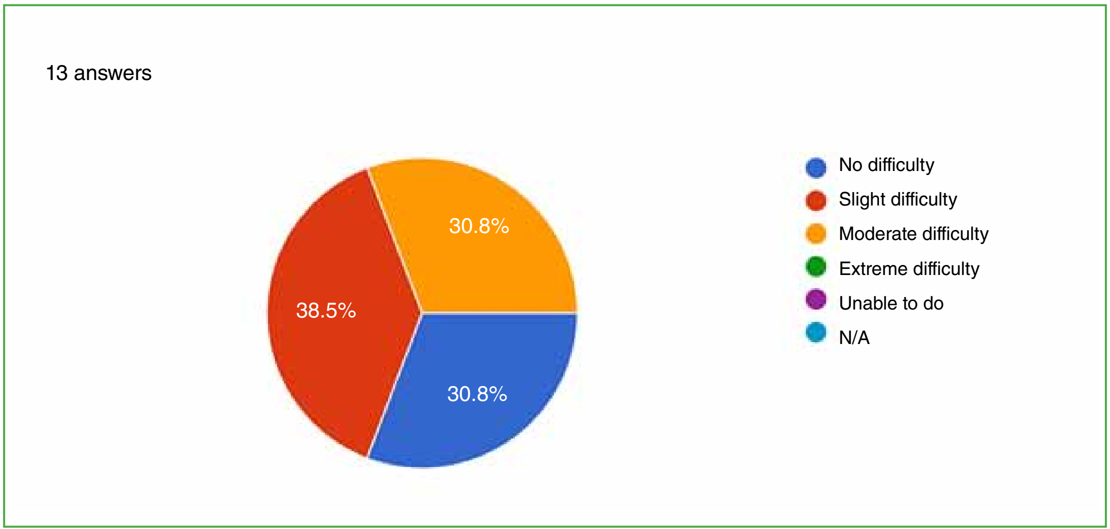

Figure 7. Difficulty in starting and stopping quickly.

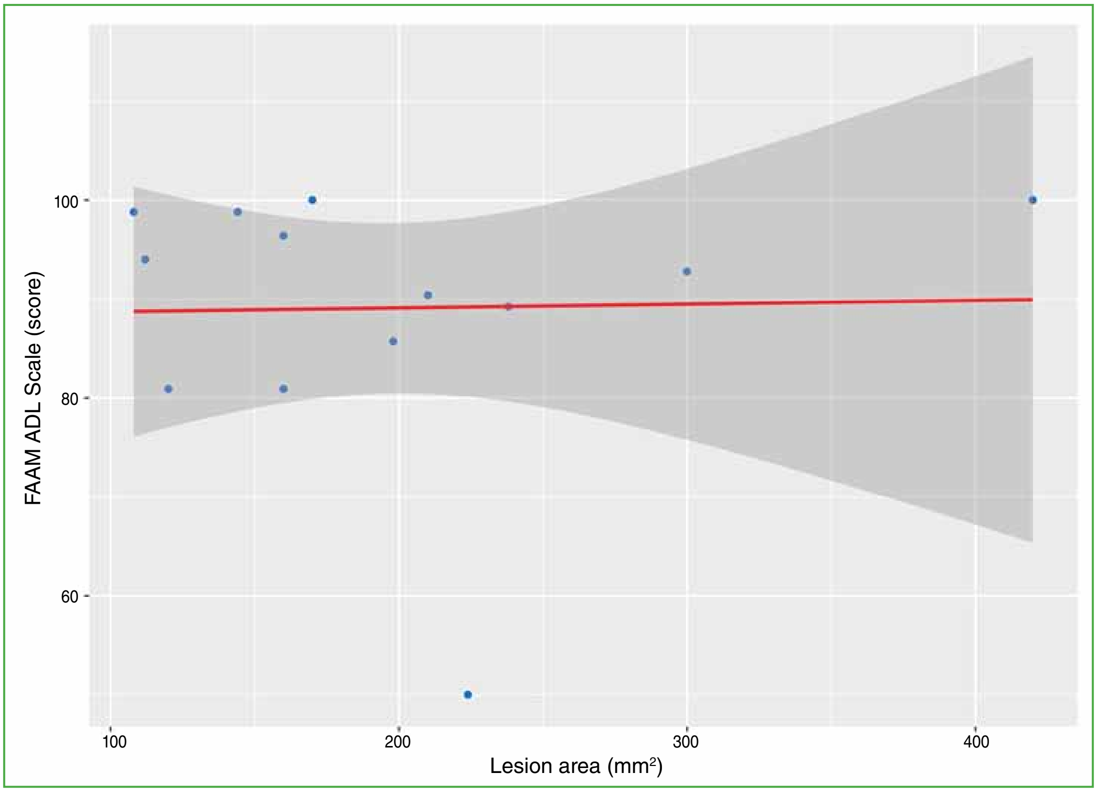

Figure 8. Scatter plot of the relationship between the FAAM Activities of Daily Living score and lesion area.

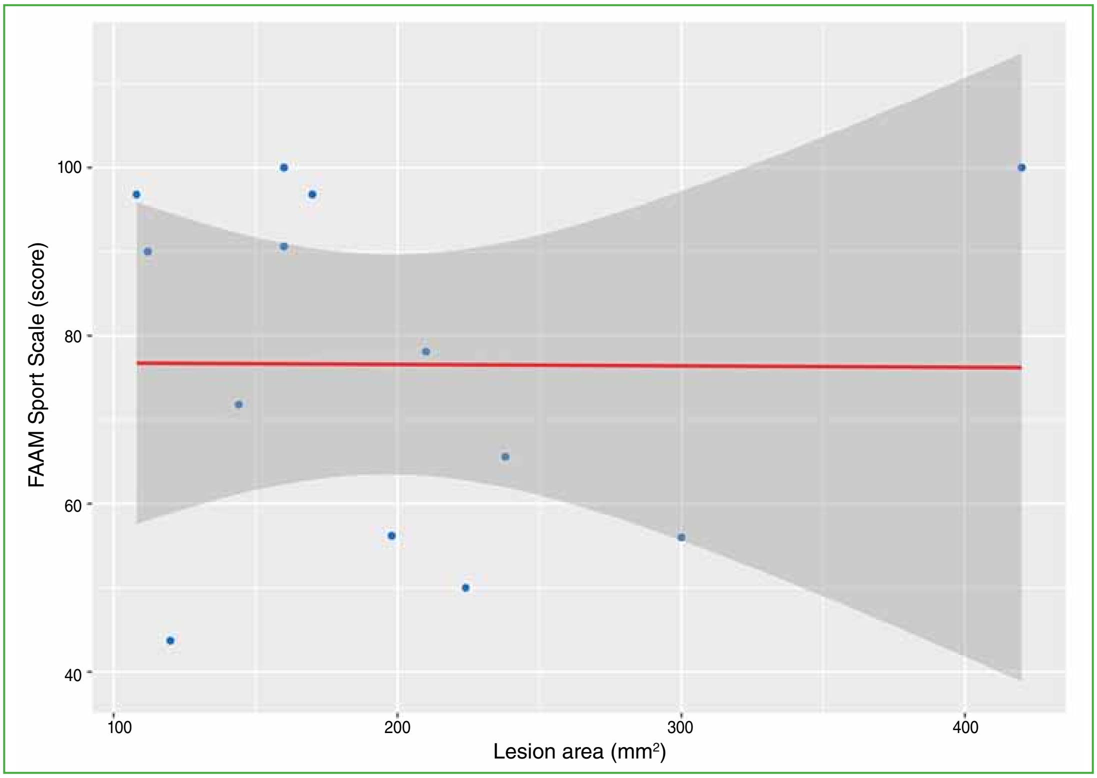

Figure 9. Scatter plot of the relationship between the FAAM Sport score and lesion area.

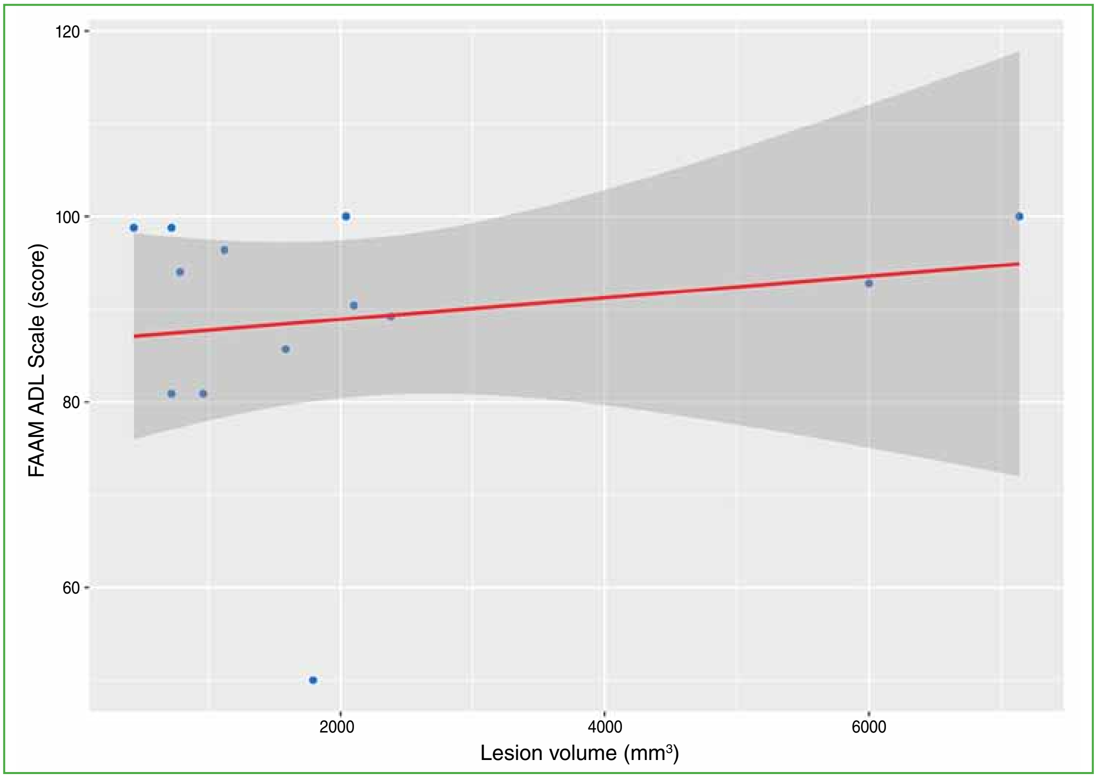

Figure 10. Scatter plot of the relationship between the FAAM Activities of Daily Living score and lesion volume.

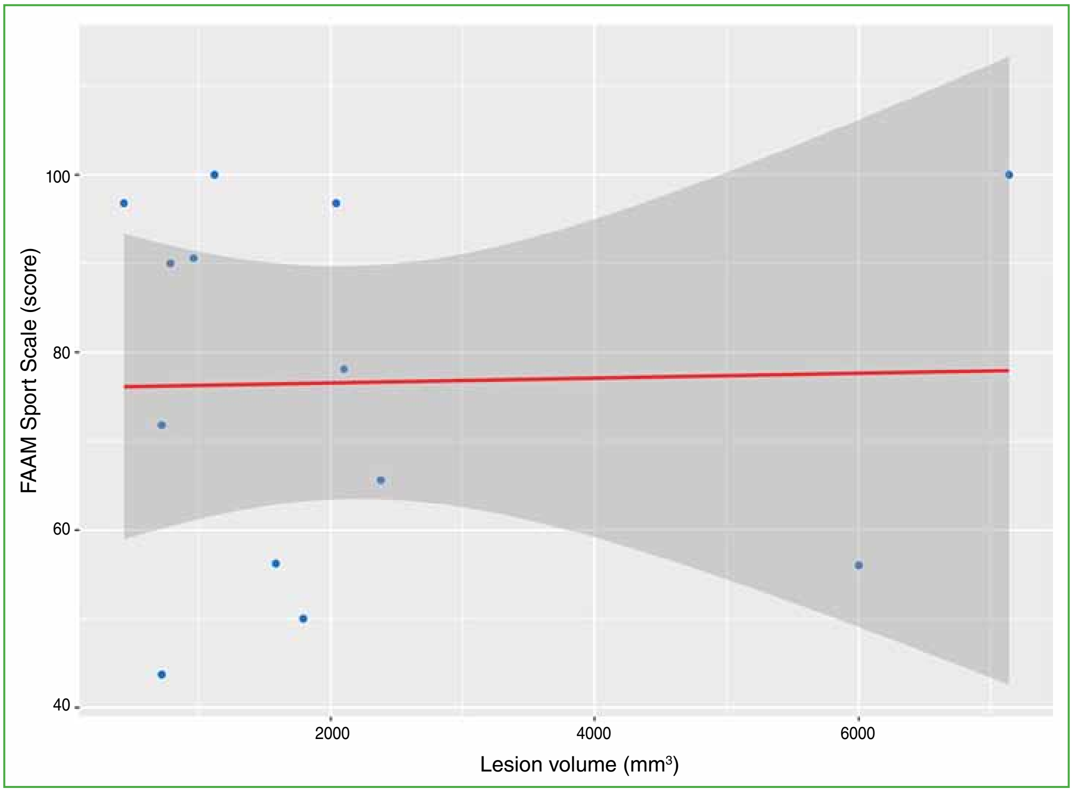

Figure 11. Scatter plot of the relationship between FAAM Sport score and lesion volume.

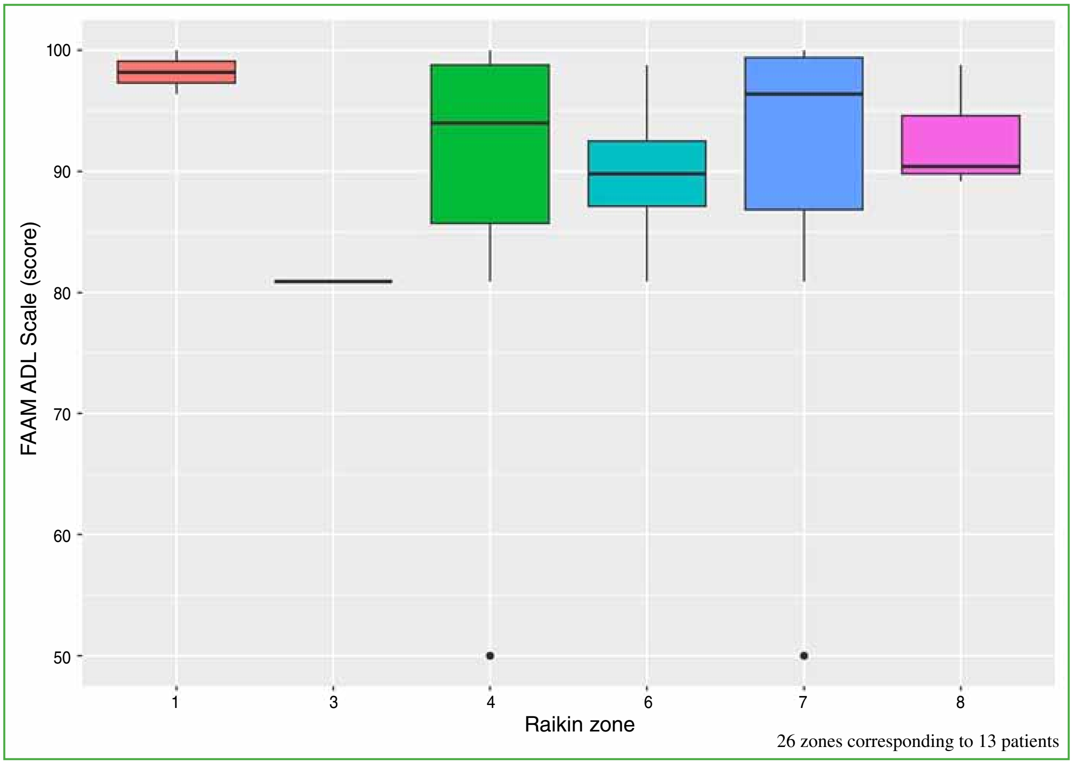

Figure 12. Box plot: FAAM ADL score by Raikin zone.

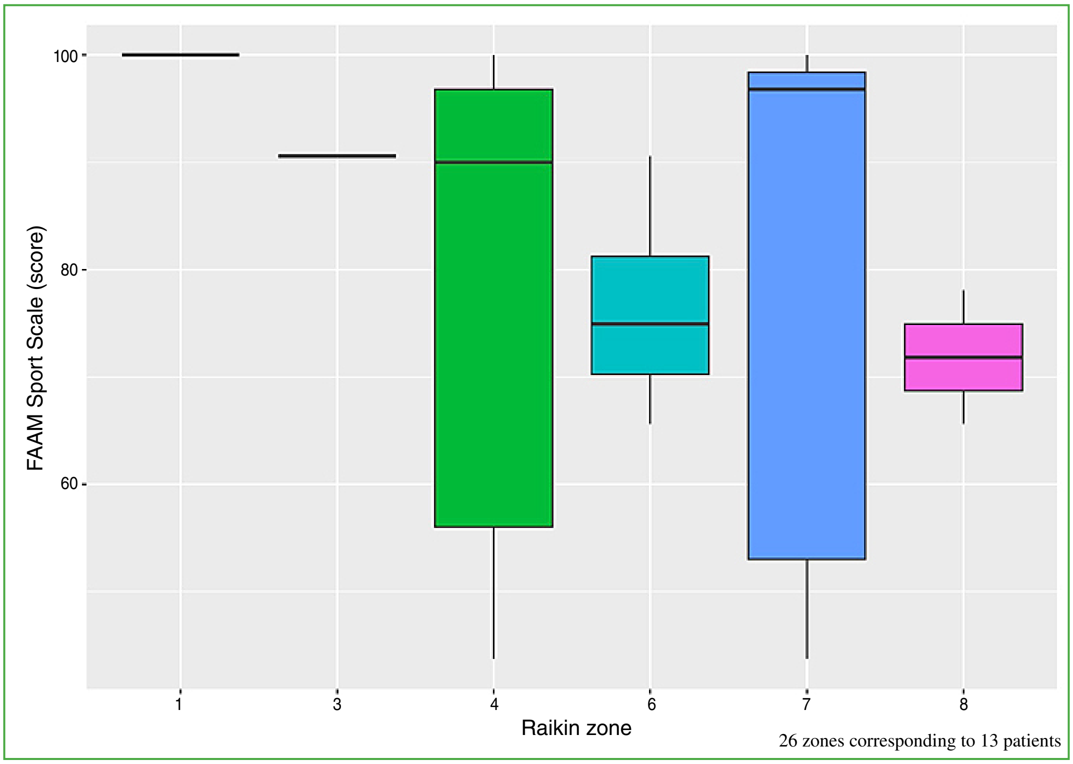

Figure 13. Box plot: FAAM Sport score by Raikin zone.

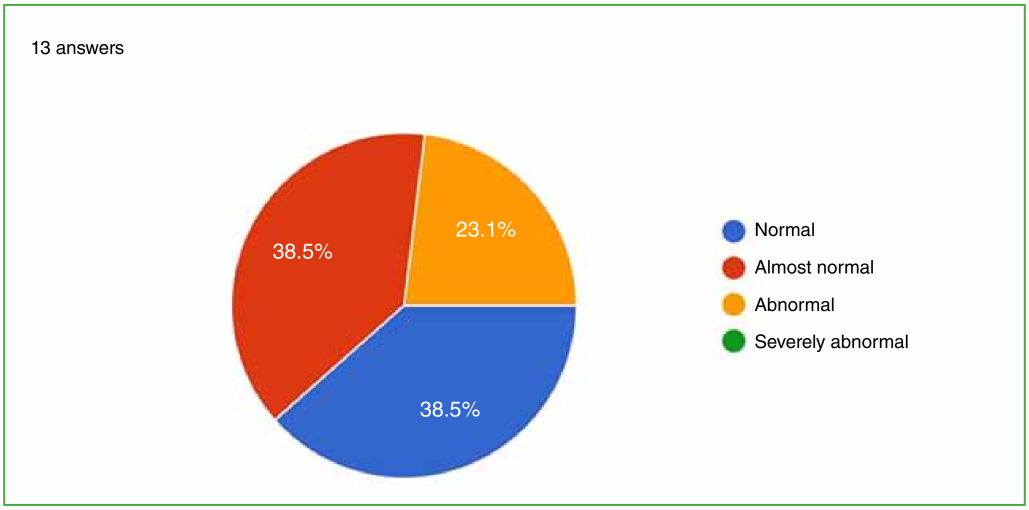

Figure 14. Patient-reported classification of current functional level.

DISCUSSION

Our experience in treating large and massive OCLs with frozen cadaveric osteochondral grafts has been positive. In our previously published series of 8 patients, the average improvement in the AOFAS score was 34.5 points, with a mean follow-up of 47 months.[15]

For large defects, osteochondral allografts offer advantages, as they allow filling of lesions of various sizes and shapes without donor site morbidity in other regions of the patient. However, this type of surgery requires a prolonged non-weight-bearing postoperative period, during which patients are unable to participate in sports or work activities for extended durations. In daily practice, this is a common reason for patients to decline surgery. These individuals often live with pain that prevents them from engaging in sports but still allows them to work with the help of analgesics.

Given the inability—or refusal—of some patients to undergo procedures with extended recovery times, we sought less invasive alternatives with quicker rehabilitation to address pain. For this reason, we opted for an arthroscopic approach involving OCL debridement and subchondral bone microperforation, similar to the protocol used for OCLs <15 mm in diameter, aiming to relieve pain and restore physical activity until definitive treatment could be pursued.

Microperforation treatment seeks to stimulate the subchondral bone to induce fibroblast recruitment and generate fibrocartilage repair. It has been reported that 75% of cases achieve good outcomes at 3 years, with significant pain relief. In certain studies, neofibrocartilage survival has been reported at 95% at 4 years and 92% at 7 years in non-massive OCLs.[16,17]

Although lesion size has traditionally been the main criterion for indicating this procedure, a systematic review by Ramponi et al.[10] highlights the considerable variability in lesion measurement methods. This variability complicates comparisons between studies and limits the validity of treatment guidelines based on lesion size. Standardization of OCL measurement techniques would enhance the statistical reliability of correlating lesion size with treatment outcomes.

Repair of OCLs by microperforation generates a fibrocartilage layer covering the subchondral bone. This fibrocartilage is primarily composed of type I collagen with few chondrocytes, unlike native hyaline cartilage, which contains predominantly type II collagen and more chondrocytes. Type I collagen fibrocartilage is structurally and biomechanically inferior to natural hyaline cartilage. This has been demonstrated in knee OCLs,[18] where long-term studies of femoral condyle microfractures show increasing failure rates after 5 years and 39% of patients requiring further surgery by year 12.[19]

However, the literature on talar lesions shows more favorable results. Becher et al.[20] reported good to excellent outcomes and high satisfaction at 6 years, and van Bergen et al.[11] demonstrated similar outcomes at 12 years. Nonetheless, some studies note surgeon hesitation to use this technique due to concerns about declining functional scores over time, inadequate lesion filling, and failure to return to pre-injury levels of sports participation.

In response to these concerns, biologic adjuvant therapies have been proposed for cartilage repair, including hyaluronic acid, platelet-rich plasma (PRP), and pluripotent stem cells. Unfortunately, there is a lack of medium-term (>5 years) and long-term (>10 years) outcome data in the literature; most studies report only short-term results. In a randomized study, Guney et al.[21] compared isolated microfracture with microfracture plus PRP, and found no significant differences in FAAM or AOFAS scores at 4 years. Hannon et al.[22] and Karnovsky et al.[23] evaluated microfractures combined with autologous bone marrow concentrate stimulation and similarly reported no differences in outcomes at 3 and 6 years.

Conversely, Görmeli et al.[24] observed better AOFAS and visual analog scale scores in patients treated with microperforations plus PRP compared to those treated with microperforations alone or microperforations plus hyaluronic acid in OCLs <15 mm.

The additional cost of adjuvant therapies must also be considered, especially given the lack of consistent long-term outcome data and the variability of these costs depending on the technique used.

Despite these limitations, the concept of biological augmentation for OCLs is supported by the *International Consensus Meeting on Cartilage Repair of the Ankle*,[25] where experts unanimously agreed that biological augmentation may be beneficial for lesions treated with microperforation.

Biologic adjuvants may improve long-term outcomes of microperforation procedures, but larger, long-term studies are required to justify their use and associated costs.

Currently, there is no validated scoring system specifically for OCLs. Most studies assess clinical outcomes using the AOFAS score. In this study, we employed the FAAM instrument, a validated, patient-reported outcome measure for musculoskeletal conditions of the leg, ankle, and foot.

The limitations of this study include the small sample size—although we found no national or international literature presenting large series of large or massive OCLs—the short duration of follow-up, and the absence of a control group. We did not request postoperative imaging studies. While some might consider this a limitation, the purpose of this study was to focus on patient-reported outcomes and satisfaction. Previous research has shown a poor correlation between clinical outcomes and postoperative radiographic findings in the ankle.[26]

CONCLUSIONS

Arthroscopic treatment of large and massive talar osteochondral lesions (OCLs) by debridement of devitalized cartilage and microperforation of the subchondral bone provides good clinical outcomes in terms of activities of daily living and sports performance, with a low complication rate and high patient satisfaction at 2-year follow-up.

Further studies with a larger sample size are needed to rule out small sample size as the reason for the lack of statistically significant associations between the studied variables. Continued follow-up of patients is also necessary to compare short-term clinical outcomes with medium- and long-term results, as well as to evaluate outcomes with the addition of biological adjuvant treatments.

This study may serve as a foundation for comparison with future cases of OCLs treated using this technique, both with and without biological augmentation.

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