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Original Scientific Paper

INDICATIONS FOR POSTERIOR ANKLE/HINDFOOT ARTHROSCOPY - MUCH MORE THAN JUST THE POSTERIOR ANKLE IMPINGEMENT SYNDROME

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SUMMARY – Posterior ankle/hindfoot arthroscopy has become an established technique for managing posterior ankle impingement syndrome. However, other indications of the posterior part of the ankle/hindfoot remain mostly uninvestigated. The aim of this study is to investigate the indications for posterior ankle/hindfoot arthroscopy performed as a solitary procedure and to report the outcomes. A total of 71 patients, who had undergone this procedure in our department over a period of nine years, were analysed. In all cases, the van Dijk et al. technique was followed. The most prevalent indication for posterior/hindfoot arthroscopy remains posterior ankle impingement syndrome in 59.15% of cases. Other indications included ten various posterior ankle/hindfoot pathologies, with the subtalar joint contracture being the most common one (15.49%). During the mean follow-up period of 79 (range, 24 - 127) months, there were 2 minor complications noted, both pertaining to transitory sensory deficits. The total median AOFAS Ankle-Hindfoot score significantly improved from 69 to 98, with the improvement noted regardless of the indication. The satisfaction rate with the procedure was 98.59%. This study has shown that posterior ankle/hindfoot arthroscopy is an efficient and safe orthopaedic tool for the treatment of various posterior ankle and hindfoot articular and periarticular pathologies.

Keywords: *posterior, ankle, hindfoot, arthroscopy, indications, outcomes, impingement syndrome, subtalar joint, osteoid osteoma, Achilles tendon*

INTRODUCTION

Posterior ankle/hindfoot arthroscopy is an orthopaedic tool that has gained popularity in recent decades[1,2]. It can be used either as a solitary method or combined with anterior ankle arthroscopy, tendoscopy or open surgical procedure[1,2]. One of the turning points was the development of a safe and reliable arthroscopic technique described by van Dijk et al. in 2000[3]. The cornerstone of this technique is the prone position of the patient, which allows a surgeon to use two direct posterior arthroscopic portals for accessing the posterior part of the ankle and subtalar joints. Besides, it makes various articular and periarticular structures reachable, subsequently rendering ankle distraction unnecessary, unlike former techniques which used the distraction to reach the posterior part of the ankle through anterior arthroscopic portals[1–3].

Initially, posterior ankle/hindfoot arthroscopy described by van Dijk et al. has been mainly used to treat posterior ankle impingement syndrome (PAIS)[1,3,4–9].

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This is reflected in the literature, where most of the publications describe arthroscopic PAIS management, while other indications are scarcely presented as case reports or case series[10-17]. For example, both Scholten et al.[10] and Ogut et al.[11] showed how utilising the van Dijk et al. technique can be used for intraosseous talar ganglion ablation or treating complex talus fractures. Furthermore, Bojanić et al.[12] successfully removed tibial osteoid osteoma using the same technique. Lately, attempts to treat neglected Achilles' tendon ruptures and talocalcaneal coalitions using the van Dijk et al. technique are being reported[13-17]. However, in the literature, we only found the works of Ogut et al.[18] and Chinnakkannu et al.[19] who presented treating various indications for posterior ankle/hindfoot arthroscopy and supported the effectiveness with follow-up results.

This study aims to investigate the indications for posterior ankle/hindfoot arthroscopy performed as a solitary procedure for treating various posterior ankle pathologies and to report on its effectiveness by analysing the mid-term outcomes.

METHODS

The institution's operation logs and patients' records were searched for posterior ankle arthroscopy procedures. From January 1st 2011, until January 1st 2020, 269 consecutive posterior ankle and hindfoot arthroscopies were performed. After data analysis, 83 patients met the criteria that they had undergone posterior ankle/hindfoot arthroscopy as a solitary procedure (Figure 1). These patients were invited to a final evaluation performed by an orthopaedic resident and a medical student, who were independent examiners, and not involved in the patients' care. The Institutional Ethics Committee approved this study.

A single surgeon performed all the procedures and organised pre- and postoperative care. Perioperative antibiotic prophylaxis was administered (intravenous

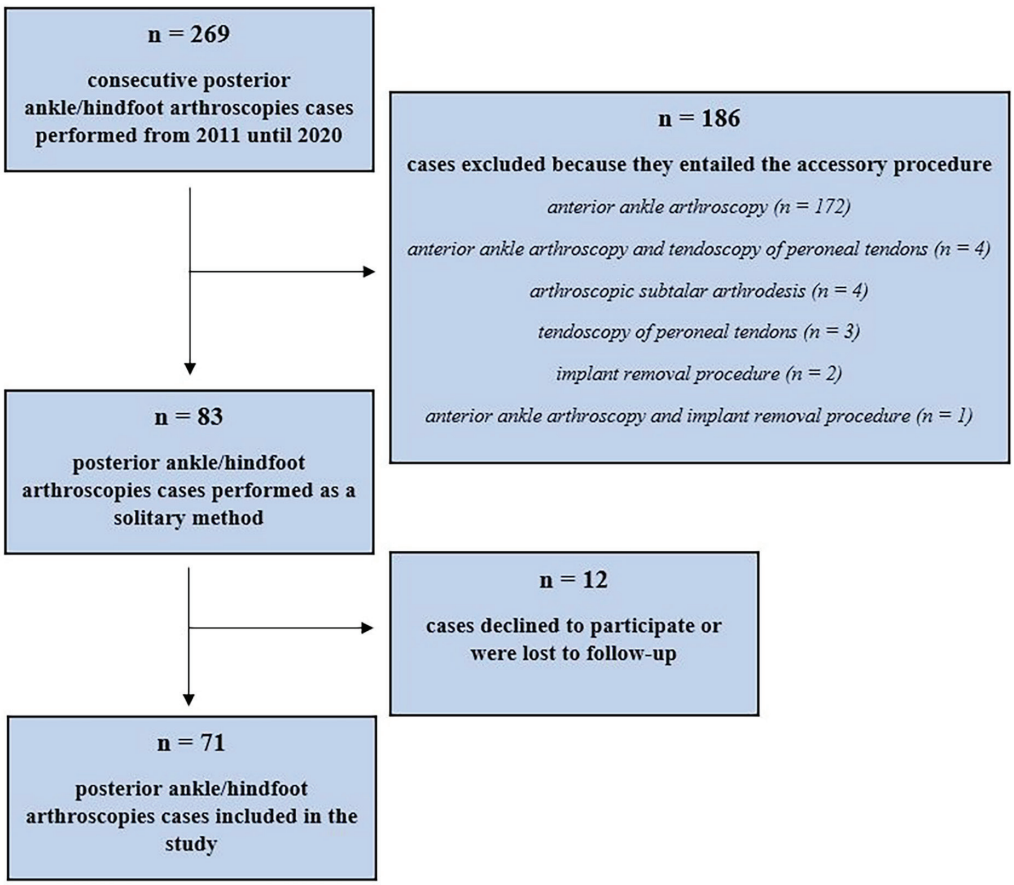

Figure 1. Flowchart of the patient enrolment in the study.

application of cephazolin or clindamycin in case of confirmed β-lactam allergies). The patients received spinal anaesthesia before being secured in the prone position. A thigh tourniquet was positioned but was not inflated in all cases. A 4.0 mm and 30° arthroscope with the gravity irrigation system in combination with standardised arthroscopic instruments were used to perform all the procedures. The Van Dijk et al. operative technique was stringently followed[3]. The posteromedial and posterolateral portals were used interchangeably as viewing or working portals for thorough inspection and intervention. In some patients, additional arthroscopic portals were used. For better visualisation of the subtalar joint, we used the anterolateral portal, which is made just above the angle of Gissane and is about 2 cm anterior and 1 cm distal to the fibular tip. In patients with neglected Achilles' tendon ruptures, after proper identification of the flexor hallucis longus tendon, we performed a tenotomy through an accessory portal positioned 1 cm below the tip of the medial malleolus.

Postoperative instructions depended on the performed procedure. Wearing a below-the-knee splint with the ankle in the neutral position at night for three weeks was mandatory for all patients except the ones operated on due to a neglected Achilles' tendon rupture. These patients required three weeks of non-weight-bearing while wearing a below-the-knee cast with the foot at 20° of plantar flexion. Afterward, the ankle was placed in a neutral position in a walker boot, and weight-bearing, as tolerated with crutches, was initiated. Finally, after a total of nine weeks, the walker boot was removed, and free movement of the ankle was allowed.

All patients, except those who were operated on due to a neglected Achilles' tendon rupture, started with active and passive range-of-motion exercises from the first postoperative day. Partial weight-bearing with crutches was allowed for the first two weeks. Another exception was when a marrow stimulation technique (microfractures) was used due to an osteochondral lesion of the talus. It was then required to touch-toe weight-bear (no more than 10 kg) with crutches for the first six weeks. Afterwards, the patients used crutches while gradually increasing the weight-bearing by adding a third of their body weight every two weeks. Formal physiotherapy was initiated two weeks following the procedure, except for those who were operated on due to a neglected Achilles' tendon rupture, with exercises that progressively increased the ankle strength and range of motion.

Outcomes were defined as the change in the preoperative and final follow-up American Orthopaedic Foot & Ankle Society (AOFAS) Ankle-Hindfoot score[20]. Additionally, a survey according to Abdelatif[21] was used to assess the patients' postoperative satisfaction.

Statistical analysis was performed with RStudio: Integrated Development for R (version 2022.07.1, PBC, Boston, MA, USA). Numerical data were expressed as median and range. The results of the AOFAS Ankle-Hindfoot score were tested using the Shapiro-Wilk test, which suggested significant deviation from normality; therefore, the Wilcoxon signed-rank test was used to assess the hypothesis. We considered $p < 0.05$ statistically significant.

RESULTS

A total of 83 patients were eligible; however, 71 (85.54%) were available and agreed to participate in the study. Relevant demographic and clinical data are presented in Table 1.

Standing anteroposterior and laterolateral ankle x-rays were obtained in every case. Furthermore, computed tomography (CT) was done in 13 (18.31%)

Table 1. Demographic and clinical data for the patients encompassed in the study (n = 71).

Male (*percentage*)	48 (*67.61%*)
Median age, years (*range*)	28 (*9 - 70*)
Right ankle operated (*percentage*)	37 (*52.11%*)
History of injury (*percentage*)	54 (*76.06%*)
Previously operated (*percentage*)	8 (*11.27%*)
Median follow-up period, months (*range*)	79 (*24 - 127*)
Median preoperative AOFAS Ankle-Hindfoot score (*range*)	69 (*25 - 88*)
Median final follow-up AOFAS Ankle-Hindfoot score (*range*)	98 (*10 - 100*)

AOFAS = American Orthopaedic Foot & Ankle Society

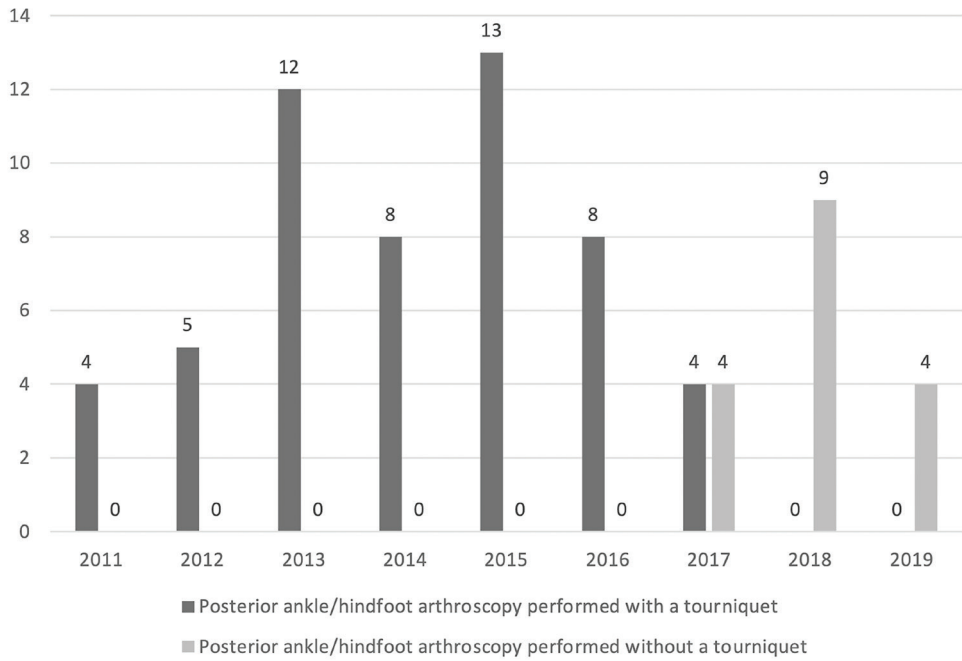

Figure 2. Distribution of performed ankle/hindfoot arthroscopies with or without the use of a tourniquet during a period from 2011 until 2019.

Table 2. Demographic, clinical and outcome data for the patients encompassed in the study distributed by indications for posterior ankle/hindfoot arthroscopy (n = 71).

Diagnosis	Number of cases (%)	Male / Female	Cases with previous ankle surgeries	Revisions	Median preoperative AOFAS score	Median postoperative AOFAS score	Complications
Posterior ankle impingement syndrome	42 (59.15)	25 / 17	3	1	71	100	1
Subtalar joint contracture	11 (15.49)	10 / 1	5	4	58	90	1
Post-traumatic subtalar joint osteoarthritis	3 (4.23)	2 / 1	0	0	61	88	0
Osteochondral lesion of the talus	3 (4.23)	3 / 0	0	0	64	90	0
Tumour lesion*	2 (2.82)	2 / 0	0	0	49	75.5	0
Osteoid osteoma of the talus	2 (2.82)	2 / 0	1	0	76	100	0
Ganglion cyst of the ankle	2 (2.82)	1 / 1	0	0	75.5	86	0
Neglected Achilles tendon rupture	2 (2.82)	2 / 0	0	0	62.5	97	0
Avascular necrosis of the talus	2 (2.82)	0 / 2	0	0	28	63.5	0
Localised pigmented villonodular synovitis	1 (1.41)	0 / 1	0	0	88	100	0
Talar bone cyst	1 (1.41)	1 / 0	0	0	69	100	0

AOFAS = American Orthopaedic Foot & Ankle Society, * initial arthroscopic biopsy was followed by subsequent open ankle surgery

Table 3. Demographics and clinical data regarding patients who required revision procedure after posterior ankle/hindfoot arthroscopy (n = 5).

Sex / age (years)	Initial diagnosis	The period from the procedure until the revision (months)	The diagnosis that warranted revision	Revision procedure
M / 30	subtalar joint contracture	62	tarsal tunnel syndrome	posterior tibial nerve decompression within the tarsal tunnel
M / 24	posterior ankle impingement syndrome	7	anteromedial ankle impingement syndrome	anterior ankle arthroscopy for osteophytes removal
F / 46	subtalar joint contracture	40	peroneal tendinopathy	peroneal tendoscopy with the resection of low-lying peroneus brevis muscle belly
M / 30	subtalar joint contracture	15	anterolateral ankle impingement syndrome	anterior ankle arthroscopy for soft tissue adhesiolysis
F / 44	subtalar joint contracture	22	subtalar joint contracture	subtalar joint arthroscopy with adhesiolysis

M = male, F = female

cases, magnetic resonance imaging (MRI) in 25 cases (35.21%), and 33 (46.48%) patients underwent both diagnostic procedures. Tourniquets were applied in the first 54 (76.06%) cases, and afterwards, their use was abandoned on account of Dimnjaković et al.[22] study conclusions (Figure 2).

The most prevalent indication for posterior ankle and hindfoot arthroscopy was PAIS in 42 (59.15%) cases (Table 2). The patients operated with the indication of subtalar joint contracture had the most previous ankle surgeries. Moreover, in five (7.04%) revisions performed, subtalar joint contracture cases constitute four (80%) cases (Table 3). During the median follow-up period of 79 (range, 24 - 127) months, only two (2,8%) complications were observed. Both pertain to transitory sensory deficits of the lateral aspect of the foot, and they were considered minor complications according to Zwiers et al.[5].

The total median preoperative AOFAS Ankle-Hindfoot score from an initial 69 (range, 25 - 88) significantly improved to 98 (range, 10 - 100) at the final follow-up ($p < 0.001$). If we only analyse cases where posterior ankle/hindfoot arthroscopy was done due to PAIS, there is a statistically significant increase from a preoperative median AOFAS Ankle-Hindfoot score of 71 (range, 51 – 86) to a median score of 100 (range, 78 – 100) at the final follow-up ($p < 0.001$). Moreover, if we take into account only the cases where the posterior ankle/hindfoot arthroscopy was done as a solitary method for an indication other than PAIS, analysis shows a significant increase in AOFAS Ankle-Hindfoot score from a preoperative median of 61 (range, 25 - 88) to 90 (range 10 - 100) at the final follow-up ($p < 0.001$).

According to the survey by Abdelatif[21], only one patient (1.41%) was dissatisfied with the treatment outcome, while most patients were either extremely (94.36%) or moderately (4.23%) satisfied. Furthermore, 70 (98.59%) patients felt that their ankle function improved postoperatively. However, 3 (4.23%) patients claimed that they would not undergo the same procedure if they knew what it entails.

DISCUSSION

This study's results confirm that PAIS is the most frequent indication for posterior ankle/hindfoot arthroscopy performed as a solitary procedure following the van Dijk et al. technique[1,4-9,18,19]. Likewise, Spennacchio et al.[23], in a systematic review of 766 cases who had undergone posterior ankle/hindfoot arthroscopy by van Dijk et al. technique concluded that PAIS is the most common indication for the procedure in 54.18% of cases, which is in line with our findings of 59.15%.

However, like Ogut et al.[18] and Chinnakkannu et al.[19] report, our study also shows that this arthroscopic approach can be safely and efficiently used to treat even more posterior ankle/hindfoot pathologies, such as talus osteoid osteoma and bone cysts ablation, managing

localised pigmented villonodular synovitis (LPVNS) and avascular necrosis of the talus (Table 4).

PAIS is a pain syndrome involving the posterior periarticular space of the ankle caused by different pathoanatomical features commonly distinguished in bony or soft tissue pathologies[24-27]. While in other studies, the distinction between bony and soft tissue pathologies is made, we decided to group them all together while identifying eight (19.04%) out of 42 cases where soft tissue alone was the cause of PAIS[18,19].

Table 4. Distribution of the patients by indication for posterior ankle/hindfoot arthroscopy included in Ogut et al. (5), Chinnakkannu et al. (6) and the current study.

Area of pathology	Indications for posterior ankle/hindfoot procedure	The study by Ogut et al. (5) (percentage)	The study by Chinnakkannu et al. (6) (percentage)	The current study (percentage)
Periarticular hindfoot area	Posterior ankle impingement syndrome	14 (23.73)	144 (57.60) *	42 (59.15) #
	Flexor hallucis longus pathology	11 (18.64)	36 (14.40)	/
Tibiotalar joint	Osteochondral defects	13 (22.03)	14 (5.60) §	3 (4.23)
	Osteoarthritis	4 (6.78)	/	/
Subtalar joint	Osteoarthritis	4 (6.78)	26 (10.40) Δ	3 (4.23)
	Joint contracture	/	4 (1.60) †	11 (15.49)
	Tarsal coalition	/	12 (4.80) ~	/
Other	Talar bone cyst	4 (6.78)	/	1 (1.41)
	Synovial chondromatosis	2 (3.39)	3 (1.20)	/
	Peroneal tenosynovitis	4 (6.78)	/	/
	Infection (septic arthritis)	/	4 (1.60)	/
	Pigmented villonodular synovitis	2 (3.39) +	/	1 (1.41) ^
	Neglected Achilles tendon rupture	/	2 (0.80)	2 (2.82)
	Calcaneofibular impingement	/	2 (0.80)	/
	Osteoid osteoma of the talus	/	/	2 (2.82)
	Avascular necrosis of the talus	/	/	2 (2.82)
	Ganglion cyst of the ankle	/	/	2 (2.82)
	Tumour lesion	/	/	2 (2.82)
	Talus bone fracture	1 (1.69)	1 (0.40)	/
	Gout	/	1 (0.40)	/
	Equinus foot deformity	/	1 (0.40)	/
TOTAL		59 (100)	250 (100)	71 (100)

* in 95 out of 144 cases, posterior impingement ankle syndrome was the only indication, in 27 cases it was identified in combination with flexor hallucis longus pathology, in 13 cases with osteochondral defect, in 5 cases with subtalar osteoarthritis and in 4 in combination with flexor hallucis longus pathology and with osteochondral defect; # in 8 out of 42 cases, soft tissue cause for posterior ankle impingement syndrome was identified; § in all 14 cases, predominant osteochondral defect was combined with posterior ankle impingement syndrome; Δ in 5 out of 26 cases the cause was subtalar non-union; † joint contracture cause by subtalar impingement syndrome; ~ all cases had subtalar joint contracture; + diffuse pigmented villonodular synovitis; ^ localised pigmented villonodular synovitis.

Chinnakkannu et al.[19] showed that 95 out of 144 (65.97%) PAIS cases were solely bony impingements, while the rest had a combination of bony impingement with a concomitant cause such as flexor hallucis longus muscle pathology, osteochondral lesion or subtalar joint osteoarthritis.

The median age of patients in our study was 28 years (range, 9 to 70), similar to the results of Ogut et al.[18] and Chinnakkannu et al.[19] However, while Ogut et al.[18] and our study encompassed above 60% males, Chinnakkannu et al.[19] research included 60% females. The minimal follow-up period in Chinnakkannu et al.[19] and this study was 24 months, while in Ogut et al.[18] publication was limited to only 6 months. Ogut et al.[18] reported an increase in mean AOFAS Ankle-Hindfoot score from 57 preoperatively to 86 postoperatively, compared to our study where the total median preoperative AOFAS Ankle-Hindfoot score increased from an initial 69 to 98 at the final follow-up.

This study presents 29 (40.84%) out of 71 cases where posterior ankle/hindfoot arthroscopy was performed as a solitary procedure and the indication was not PAIS. These cases include a variety of indications with the most common being subtalar joint contracture in 11 out of 29 (40.74%) cases. The other 9 indications are mostly represented as a single case. We will focus on the indications whose management using the van Dijk et al. technique is not available in the literature.

Besides the case report in which Bojanić et al.[12] described the removal of an osteoid osteoma from the posteromedial portion of the distal tibia using the van Dijk et al. technique, there are no other similar publications. Nevertheless, this study presents two new cases of ablation of osteoid osteoma from the posterior part of the talus using posterior ankle/hindfoot arthroscopy (Figure 3). Both patients had complete symptom resolution following the procedure and were

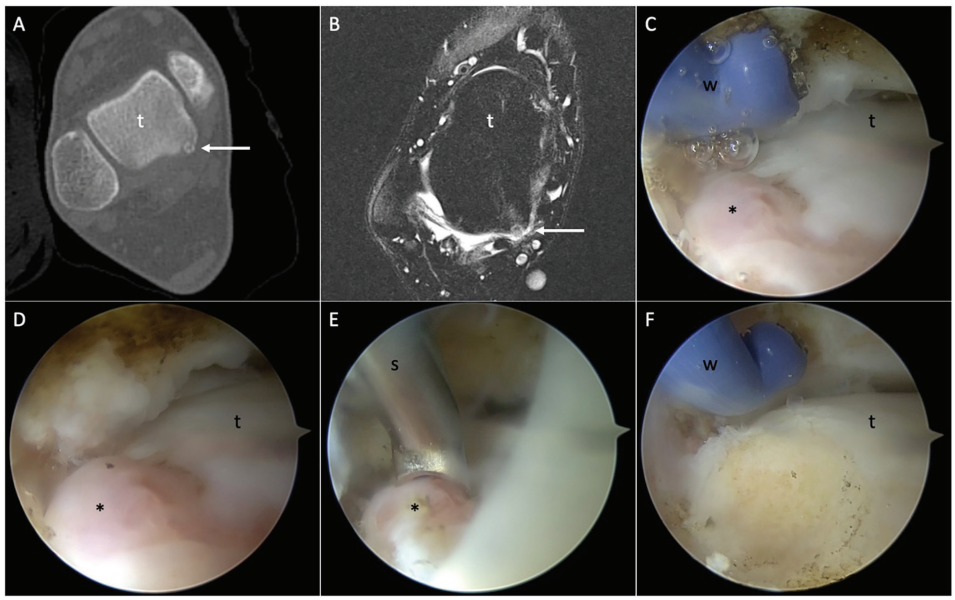

Figure 3. Images depicting a posterior ankle osteoid osteoma case were included in the study. A – an axial computed tomography image of the ankle with an osteoid osteoma (arrow) situated on the posteromedial aspect of the talus (t); B – an axial magnetic resonance image of the ankle with an osteoid osteoma (arrow) situated on the posteromedial aspect of the talus (t) with visible surrounding bone oedema; C – an intraoperative posterior ankle arthroscopy image, with the arthroscope in the posterolateral portal, showing adhesiolysis with a radiofrequency wand (w) through the posteromedial portal in order to reveal osteoid osteoma (asterisk) situated on the posteromedial aspect of the talus (t); D – an intraoperative posterior ankle arthroscopy image, with the arthroscope in the posterolateral portal, after adhesiolysis showing the position of the osteoid osteoma (asterisk) situated on the posteromedial aspect of the talus (t); E – an intraoperative posterior ankle arthroscopy image, with the arthroscope in the posterolateral portal, demonstrating ablation of the osteoid osteoma (asterisk) with an arthroscopic spoon (s); F – an intraoperative posterior ankle arthroscopy image, with the arthroscope in the posterolateral portal, after complete removal of the osteoid osteoma from the talus (t).

without complications during follow-up. Thus, using the van Dijk et al. arthroscopic technique instead of the open surgical procedure for intra-articular posterior ankle/hindfoot osteoid osteoma ablation can be recommended[3,12]. Furthermore, the same technique was in two cases successfully used for tumour lesion biopsy followed by a second act open surgical procedure.

LPVNS within the posterior ankle/hindfoot is very rare, and it has been usually managed with open surgery[28]. In this study, we used the Van Dijk et al. technique for the management of LPVNS in the posterior ankle compartment[3]. This is, to our knowledge, only the third known case of management of LPVNS in this part of the ankle, using the van Dijk posterior ankle/hindfoot arthroscopy[29,30]. No recurrences were noted in our case, during 66 months of follow-up, which was also confirmed by the postoperative MRI.

Lui[31] presented 89 cases of arthroscopic/endoscopic foot and ankle ganglion cyst ablation. Amongst these, 62 (69.66%) were intraarticularly situated and the van Dijk et al. technique was used in five cases [3,31]. Although Lui[31] reported that the total recurrence rate was 12%, most of them refer to ganglion cysts around the extensor tendons of the foot. Interestingly, intra-articular cyst ablation had a recurrence rate of 5%, while using the van Dijk et al. technique within the posterior ankle compartment had no recurrences[3,31]. In our study, arthroscopic removal of the ganglion cyst from the posterior part of the ankle was successfully performed using the van Dijk et al. technique in two cases. The diagnosis was confirmed by histopathological analysis after the removal. Both patients made a complete recovery with no recurrences during the follow-up period.

Mont et al.[32] reported the results of 11 patients (17 ankles) who underwent core decompression under fluoroscopy for symptomatic avascular necrosis of the talus before the collapse. Interestingly, in three cases, they performed arthroscopically guided core decompression using standard anteromedial and anterolateral portals. During the mean follow-up period of 7 years (range, 2-14), 14 (82.35%) ankles had an excellent or good outcome.[32] The remaining three ankles had a poor clinical outcom, requiring tibiotalar fusion at a mean of 13 months (range, 5-20) after core decompression[32]. It has been shown that the chances of success in the treatment of avascular necrosis of the talus are higher when it is not caused by trauma, regardless of the stage of the disease[33]. Both cases of non-traumatic avascular necrosis of the talus in our study were treated by arthroscopically guided core decompression with a 4.0-mm drill. In contrast to Mont et al.[32], we used posterior ankle/hindfoot arthroscopy to guide the procedure. In both our cases, the patients were satisfied with the result without the need for further surgical intervention.

Two nerve-related complications (2.82%) were noted confirming that the van Dijk et al. technique is safe and reliable. Zengerink and van Dijk[34] reported complications in 2.25% of the cases while Donnenwerth and Roukis[35] reported complications in 3.76% of the cases using this technique. Similarly, Ogut et al.[18] reported a complication rate of 3.39% out of 59 cases, while Chinnakkannu et al.[19] reported a higher complication rate of 6.40%.

Ribbans et al.[7] published a systematic review in which they compared the management of PAIS using either open surgery or arthroscopic/endoscopic techniques. The authors reported higher complication rates with open surgery (11.20%, 40 out of 357 cases) compared to the van Dijk et al. technique (3.98%, 16 out of 402 cases). Dimnjaković et al.[36] analysed 29 studies using the van Dijk et al. technique for the management of PAIS and reported 7.39% (63 out of 852 cases) mostly minor and transitory complications. Only 6 out of 63 (9.52%) noted complications are considered major according to Zwiers et al.[5].

A total of 95.77% of patients involved in this study confirmed that they would undergo the same procedure under the same circumstances again. Zwiers et al.[8] reported that 80% of patients would undergo the same procedure, while Rakha and Sallam[37] reported 100%. In addition, our study showed a high patient satisfaction rate of 98.59%, which is consistent with the results of other studies[38-41].

Although the original van Dijk et al. technique suggested the use of a tourniquet for the procedure, after conducting our research about the tourniquet use in ankle arthroscopy, we stopped using it[3,22]. Therefore, 17 (23.94%) cases were operated on without the use of a tourniquet. Similarly, Weiss et al.[42] reported that they performed an excision of the os trigonum with the technique of van Dijk et al. without using a tourniquet.

The limitation of this study is its retrospective nature. Despite having a high participation rate of 85.54%, bias during questioning of the patients could not be eliminated. Nonetheless, this is a monocentric study where a single surgeon operated on all the patients.

This study has shown that posterior ankle/hindfoot arthroscopy is an efficient and safe orthopaedic tool for the treatment of posterior ankle and hindfoot articular and periarticular pathologies. While its main indication remains PAIS, it may also be indicated in other pathologies in this area, ranging from different posttraumatic conditions to different tumours as well as avascular necrosis.

DISCLOSURE OF CONFLICT OF INTEREST

The authors state that they don't have any conflict of interest.

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Sažetak

INDIKACIJA ZA ARTROSKOPIJU STRAŽNJEG DIJELA GLEŽNJA IMA PUNO VIŠE OD SAMOG STRAŽNJEG SINDROMA SRAZA

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Artroskopija stražnjeg dijela gležnja postala je uobičajena operacijska tehnika za liječenje stražnjeg sindroma sraza gležnja. S druge strane, korištenje te tehnike za druge indikacije u području stražnjeg dijela gležnja i dalje se istražuje. Cilj ovog istraživanja bio je analizirati indikacije za artroskopiju stražnjeg dijela gležnja kod bolesnika kod kojih je taj zahvat načinjen kao samostalan zahvat te prikazati rezultate i komplikacije provedenog liječenja. Istraživanje obuhvaća 71 bolesnika kod kojih je tijekom devetogodišnjeg razdoblja načinjen taj zahvat i koji su pristali sudjelovati u njemu. U svim je slučajevima zahvat načinjen prema tehnici koju su opisali van Dijk i sur. Najčešća indikacija za taj zahvat i u našem je istraživanju bila stražnji sindrom sraza gležnja i to u 59,15% slučajeva. Od drugih indikacija najčešća je bila kontraktura subtalarnog zgloba u 15,49%, a sveukupno je bilo 10 različitih indikacija zbog kojih je načinjen taj zahvat. Tijekom praćenja od 79 mjeseci (raspon, 24-127) primijećene su dvije manje komplikacije i to prolazni gubitak osjeta s lateralne strane gležnja i stopala. Ukupni zbroj bodova dobiven AOFAS upitnikom porastao je sa 69 prije zahvata na 98 na pregledu provedenom u svrhu istraživanja uz napomenu da je poboljšanje zabilježeno kod svih indikacija. Gotovo svi su bolesnici (98,59%) bili zadovoljni s načinjenim zahvatom. Rezultati istraživanja ukazuju da je artroskopija stražnjeg dijela gležnja sigurna i učinkovita metoda u liječenju različitih ozljeda i oštećenja u stražnjem dijelu gležnja.

Ključne riječi: *gležanj, artroskopija, endoskopija, indikacije, ishod liječenja, stražnji sindrom sraza, subtalarni zglob, osteoid osteom, Ahilova tetiva*