Midterm Functional Outcomes of Arthroscopically Treated Recalcitrant Osteitis Pubis in Competitive Soccer Players

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Background: Outcomes after arthroscopic debridement for isolated osteitis pubis in athletes are unknown, and midterm results following this method have not been established.

Purpose/Hypothesis: To evaluate the safety and efficiency of arthroscopic treatment for recalcitrant osteitis pubis in competitive soccer players. It was hypothesized that this treatment modality would yield clinical improvement in functional and patient satisfaction scores compared with preoperative values.

Study Design: Case series; Level of evidence 4.

Methods: At a single center, 10 consecutive male soccer players (mean age, 23.6 ± 4.4 years; range, 19-32 years) with a mean follow-up period of 72.2 ± 13.4 months (range, 60-97 months) were evaluated. All patients presented with symptomatic osteitis pubis and failed to respond to nonoperative treatment. Arthroscopic pubic symphysiectomy was performed in the supine position, and penile manipulation was performed in all cases to mitigate risks associated with neurovascular structures and the root of the penis. Outcome measurements were time to return to sports, visual analog scale (VAS) for pain, Nirschl Phase Rating Scale (NPRS), Nonarthritic Hip Score (NAHS), modified Harris Hip Score (mHHS), and patient satisfaction. Preoperative and postoperative radiographs were also assessed.

Results: The mean time to return to sports was 4.6 ± 1.7 months (range, 3-8 months). The mean VAS pain score decreased from 9.3 ± 0.8 (range, 8-10) to 0.2 ± 0.4 (range, 0-1) (P = .005). The mean NPRS decreased from 6.6 ± 0.5 (range, 6-7) to 0.3 ± 0.5 (range, 0-1) (P = .004). The mean NAHS increased from 35.8 ± 16.7 (range, 14-72) to 98.2 ± 2.7 (range, 93-100) (P = .005). The mean mHHS increased from 47.4 ± 10.6 (range, 27-60) to 98.2 ± 4.5 (range, 86-100) (p = .005). The mean patient satisfaction was 9.7 ± 0.7 (range, 8-10). Scrotal swelling was observed in 4 patients, which was resolved 36 to 48 hours postoperatively.

Conclusion: Arthroscopic treatment of osteitis pubis may be an option for recalcitrant cases when nonoperative treatment fails. However, further studies are needed to determine whether this technique and the outcomes of this study can be reproduced.

Keywords: arthroscopy; athlete; groin pain; osteitis pubis; pubic symphysiectomy; soccer

Osteitis pubis in athletes is a painful and inflammatory overuse injury of the pubic symphysis and its supporting structures.[22] The pubic ramus, cartilagineous structures around the pubic symphysis, and the musculotendinous and ligamentous structures of the anterior pelvis are occasionally affected by this condition.[3] Osteitis pubis tends to occur more frequently in athletes, particularly those who participate in stop-and-go sports involving jumping, twisting, kicking, sprinting, or sudden directional changes.[20] Rugby, ice hockey, American football, and soccer are among the sports in which these activities are most practiced.

Osteitis pubis is seen in up to 18% of all male soccer players every year.[12] The disease is currently considered one of the most debilitating pain syndromes for athletes, causing considerable morbidity and leading to time away from training and competition, potentially making it a career-ending injury. Moreover, this issue can have a dramatic economic impact on professional sports clubs and organizations if players fail to return to the field.

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In osteitis pubis, biomechanical overload causes a bony stress response in the parasymphyseal pubic bone and degenerative changes in the fibrocartilagenous tissue of the pubic symphysis.[23] Patients typically present with central pubic or medial groin pain that can be exacerbated by rectus abdominis contraction or hip adduction against resistance.[8] This pain can arise from repetitive microtraumas as well as with simple daily movements after sports activities. Some patients may even experience discomfort while performing basic activities such as putting on pants or getting out of bed. Pain in osteitis pubis can be differentiated from other types of groin pain, such as core muscle injury and sports hernia, by provocation tests, namely single adductor, squeeze, and bilateral adductor tests.[1,24] A detailed history, physical examination, pelvis radiographs, and magnetic resonance imaging (MRI) are the cornerstones of the diagnosis.

The nonoperative treatment of this disease involves a combination of rest, use of anti-inflammatory medication, physical therapy, oral glucocorticoids, and corticosteroid injections directly into the pubic symphysis.[1,9] While these nonoperative methods are typically the first-line treatment,[17,22] a small percentage of patients (5%-10%) may not respond to conservative methods and may require a variety of invasive surgical techniques such as curettage, retropubic placement of extraperitoneal endoscopic mesh, wedge resection, total resection, or even arthrodesis.[18] However, most of these surgical techniques carry significant risks, such as pubic instability and subsequent arthrodesis due to excessive damage to the ligamentous structures of the joint, as well as hemospermia and prolonged scrotal swelling.[18,25]

In surgical treatment of osteitis pubis, arthroscopic debridement was first described by Matsuda et al[14] in 2010 and has gained popularity over the past 2 decades.[6,10,14,15,16] However, to our knowledge, the midterm outcomes of this method have not yet been demonstrated in the literature. In a multicentric case series, Matsuda et al[14] investigated the outcomes of arthroscopically treated patients with the combined diagnosis of femoroacetabular impingement (FAI) and osteitis pubis.[15] The authors reported encouraging early outcomes.[15] On the other hand, they also acknowledged that the contribution of concomitant interventions from FAI surgeries to the outcomes was a limitation of the study.[15] In addition, 3 other case series have reported satisfactory outcomes after pubic symphyseal curettage using open techniques with arthroscopic assistance.[7,11,26]

For osteitis pubis patients, the surgical procedure must provide sufficient debridement and resection of the pubic symphysis without disrupting the surrounding ligamentous structures. Ligamentous structures of the pubic symphysis are the superior, inferior, anterior, and posterior pubic ligaments.[2] The anterior pubic ligament was shown as the strongest one, followed by the inferior (arcuate) and then superior ligaments.[2]

Arthroscopic management offers various theoretical benefits, including minimal disruption of the affected area, improved visualization of the joint, and, most importantly, preservation of surrounding ligaments, which are critical in stabilization of the pubic symphysis.[10] Consequently, it is reasonable to anticipate a reduced risk of infection, shorter rehabilitation time, and a faster return to athletic activities when utilizing arthroscopic procedures.

The objective of this investigation was to assess the safety and efficiency of arthroscopic intervention for recalcitrant osteitis pubis in competitive soccer players. It was hypothesized that this treatment modality would yield clinical improvement in functional and patient satisfaction scores compared with preoperative values.

METHODS

Patients

The protocol for this study was approved by the local ethics committee, and all included patients provided written informed consent. From March 1, 2015, to April 30, 2018, 10 competitive amateur soccer players diagnosed as having recalcitrant osteitis pubis and treated with arthroscopic pubic symphysisectomy at a single center were included in this retrospective case series. We defined competitive soccer players as those who participated in at least 1 official league or tournament in the past year. Data were collected prospectively. The diagnosis of osteitis pubis was based on a detailed history and physical examination findings, including excessive pubic tenderness on palpation, hip internal rotation limitation, positive single adductor test, squeeze test, and bilateral adductor tests.[24] Confirmation was made by the standing anteroposterior (AP) pelvis radiographs and flamingo views (an AP view of the pelvis with the patient standing on 1 leg)[4] or magnetic resonance imaging (MRI) findings, including bone marrow edema (Figure 1), sclerosis, subchondral cysts (Figure 2), widening of the symphyseal cleft, and joint degeneration.[3]

Nonoperative treatment was initially started containing rest, rehabilitation, anti-inflammatory drugs, pubic corticosteroid injections, and activity modification. The indication for operation was the failure to relieve symptoms with a minimum of 12 months of nonoperative treatment. Pelvic operation history, associated FAI, associated core

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Ethical approval for this study was obtained from Yalova University (2023/42).

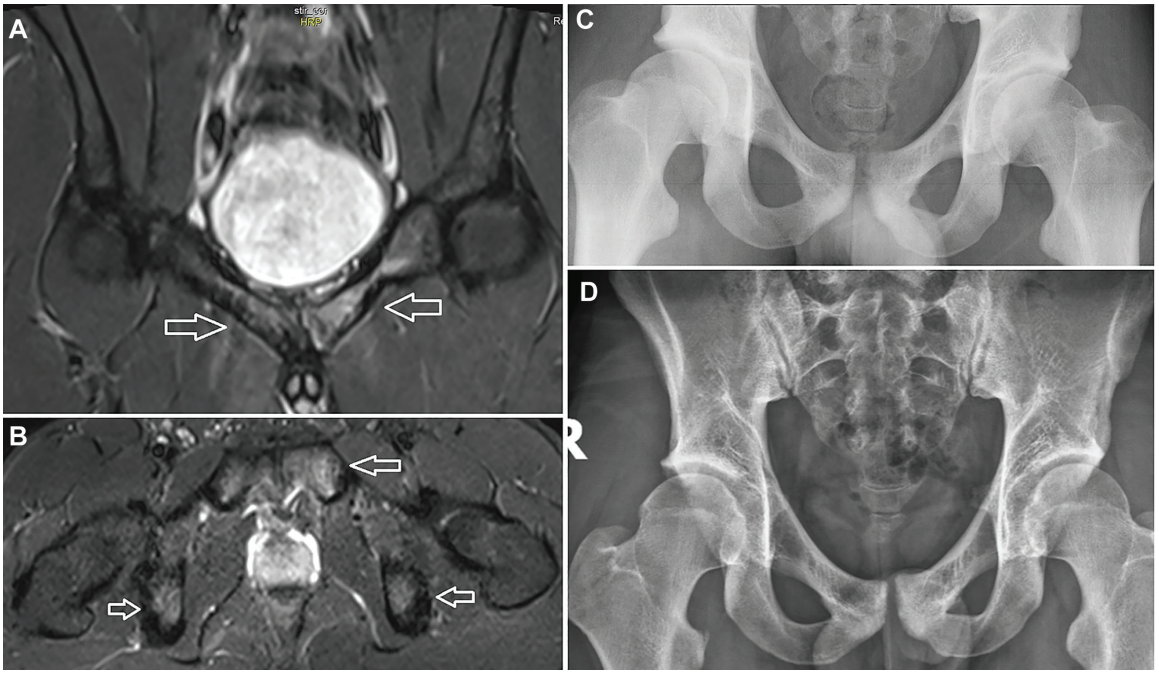

Figure 1. Images from a 19-year-old patient with osteitis pubis. (A,B) Preoperative MRI scan demonstrated diffuse bone marrow edema in pubic symphysis and surrounding pubic arms, combined with disruption of the pubic symphysis joint. (C) Postoperative first day radiograph of the patient. (D) Pelvis radiograph of the patient at 63 months postoperatively showed no significant degeneration or instability. MRI, magnetic resonance imaging.

muscle injury, and missing data were the exclusion criteria for this study. Thus, 1 patient was excluded as he had a previous operation history from the pelvic region at another center due to FAI. All remaining competitive soccer athletes were included, and no athletes were excluded from the study because of unavailable data.

Surgical Technique

All operations were carried out by the senior author. The operations were performed under hypotensive general anesthesia in the supine position. First, a urethral catheter was applied to decompress the bladder, thereby minimizing the risk of iatrogenic bladder injury. After the location of the pubic symphysis and the superior pubic ramus were determined under fluoroscopy, the portals were marked (Figure 3).

Sterile preparation and draping of the pubic region were performed. The assistant distracted the penis with his hand from superior to inferior direction, and standardized arthroscopy was started with installation of the suprapubic portal 2 cm superior to the palpable superior border of the pubic symphysis (Figure 4).

Care was taken to keep the incision as small as possible to maintain the pressure inside. After localization of the suprapubic point in the midline, a sharp trocar and subsequently a 3.5-mm 30° arthroscope were inserted by careful and slow twisting movements through the anterior pubic capsule. Thereafter, lavage of the joint with isotonic NaCl solution was performed with the y-pump pressure. Then, while the assistant was pushing the root of the penis in a caudal-posterior direction, as shown in Figure 4, the central anterior portal was incised at the anterior midlevel of the pubic symphysis. Throughout surgery, when surgical equipment came close to this region, the assistant alerted the surgeon to decrease the risk of penile complications. After performing the portals, debridement of the overlying bursal tissue was performed to increase the visual angle (Figure 5).

The anterior and superior aspects of the pubic symphysis were visualized with the arthroscope (Figure 6A). As the shaver causes excessive bleeding in this region and decreases the image quality, anterior debridement and discectomy were initiated with a radiofrequency probe (Figure 6B). Then, resection of the symphyseal fibrocartilaginous disc tissue (pubic symphysiectomy) was continued from anterior to posterior, and abrasion of the degenerated hyaline cartilage was performed until the subchondral bone was appeared (Figure 6C) and small cancellous bleedings were obtained with a 4.5-mm burr (see Supplemental Video for surgical technique).

Debridement of visible cysts was performed. We did not perform grafting for any of the cysts. Bone spurs were resected if present. Then, we switched the portals and completed the resection and abrasion. Superior pubic ligament and arcuate pubic ligament were preserved to maintain pelvic stability. A hemovac drain was applied. The urinary catheter was removed at the end of the operation.

On the first postoperative day, the patients were mobilized with full weightbearing and the aid of 2 crutches.

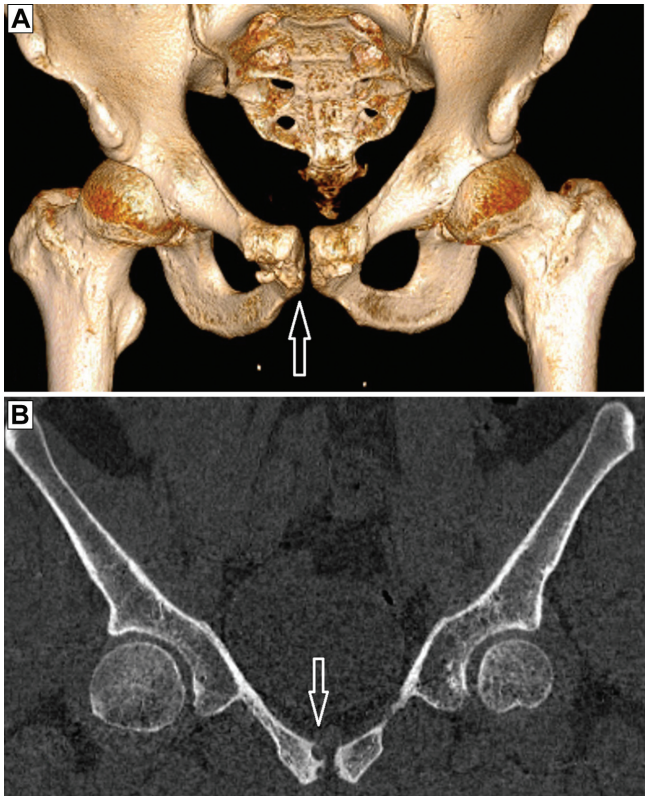

Figure 2. Preoperative (A) 3-dimensional and (B) coronal computed tomography images of a 30-year-old male patient with osteitis pubis. Arrows indicate significant degeneration of the pubic symphysis, subchondral cyst formation, and subchondral sclerosis.

Superficial massage exercises around the pubic area were started in the postoperative 1 week to relieve edema. Stretching and muscle strengthening exercises were started in the third week. Weightbearing was advanced as tolerated. Straight running and training were allowed in the sixth week. Return to sports was allowed 3 months after surgery.

Outcome Measures

Follow-up examinations were carried out at the second week, first month, third month, and first year. After 1 year, patients were encouraged to appear for annual follow-up. All patients were called to the clinic for a final evaluation.

The patients were evaluated on the basis of demographic features, duration of preoperative symptoms, return to sports, satisfaction with surgery on a 10-point scale, preoperative and postoperative visual analog scale (VAS) score (range, 0-10), Nirschl Phase Rating Scale (NPRS) (0-7), Nonarthritic Hip Score (NAHS), and modified Harris Hip Score (mHHS). Preoperative and postoperative AP and flamingo pelvis radiographs were taken for patients to rule out pubic vertical instability (Figure 7). A

Figure 3. Placement of central-anterior (*a*) and suprapubic (*b*) portals.

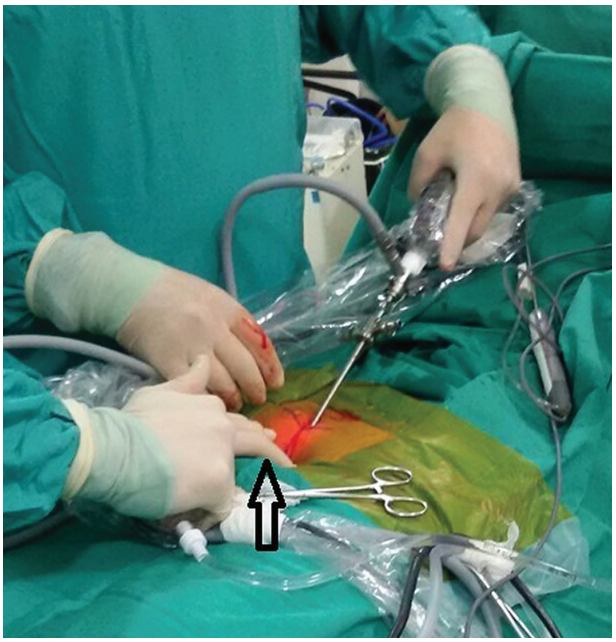

Figure 4. Surgical setup. The patient is in the supine position. The surgeon's hands are alongside instead of the back-to-back grip position of the camera and equipment, which provides a more comfortable position for the surgeon. Assistant distracting the penis with his hand (black arrow) from superior to inferior direction before performing the central-anterior portal to mitigate risks associated with neurovascular structures (dorsal veins, dorsal arteries, and dorsal nerves of the penis that are very close to the inferior pubic ligament and pubic symphysis) and the root of the penis.

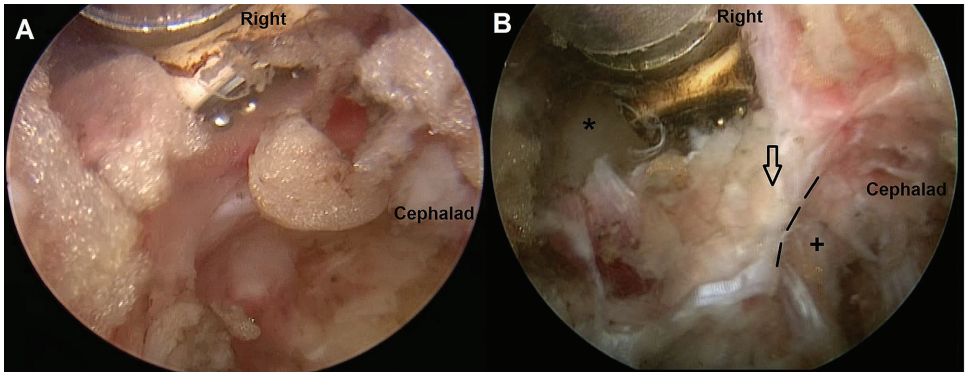

Figure 5. (A,B) Removal of bursal tissues overlying pubic symphysis (asterisk) with a radiofrequency probe. Note the superior pubic ligament (black arrow) being retained. The anterosuperior border (dashed lines) of the superior pubic ramus (plus sign) was emphasized.

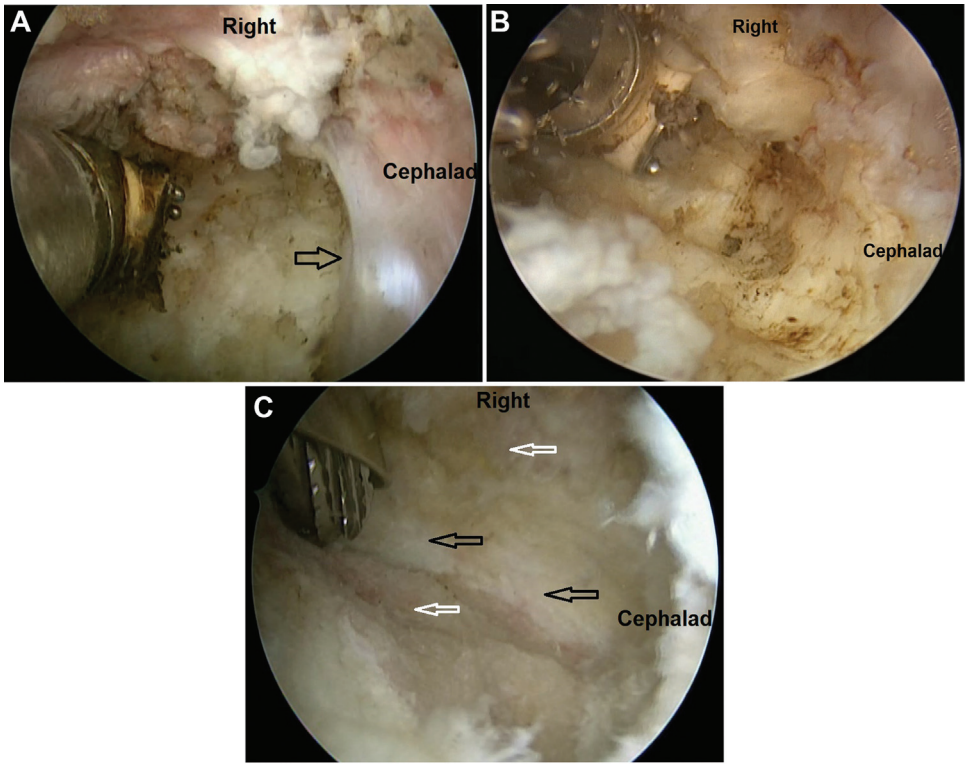

Figure 6. (A) Arthroscopic view of the pubic symphysis from the suprapubic portal, after removal of overlying bursal tissues using the central-anterior portal with retention of superior pubic ligament (black arrow). (B) Removal of the fibrocartilagenous tissue (pubic symphysiectomy) with a radiofrequency probe. (C) Final appearance after pubic symphysiectomy and abrasion of the degenerated hyalin cartilage overlying pubic bones (white arrows) with a 4.5-mm burr while not violating the posterior capsule (black arrows).

vertical translation on any of the flamingo views or standing AP pelvis radiographs exceeding 2 mm was defined as radiographic instability as described previously.[15] MRI was carried out to diagnose and rule out other hip pathologies. Complications were recorded if present.

Statistical Analysis

Data were included in a database created by = Excel 2007 (Microsoft). Statistical analysis was performed using PASW Statistics for Windows (Version 18). The Wilcoxon

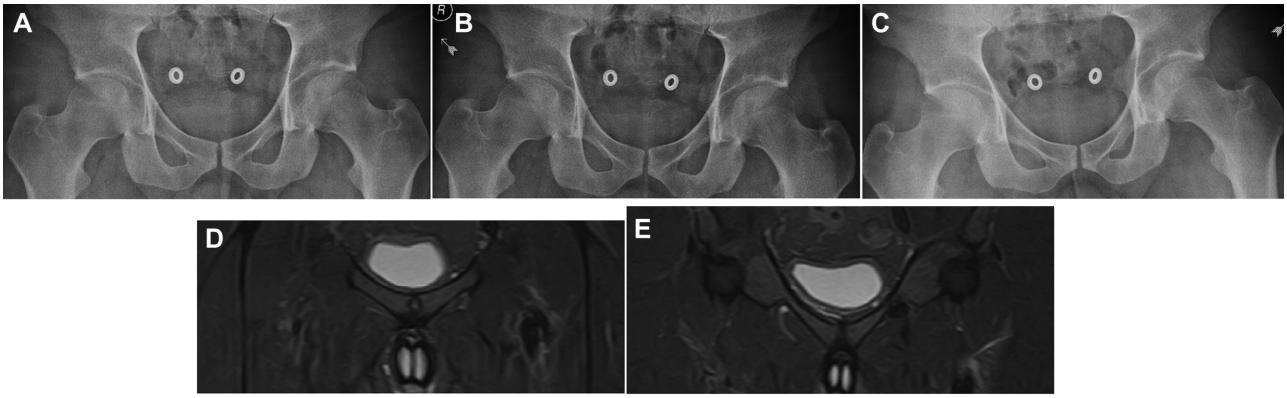

Figure 7. Postoperative 96-month follow-up images of a 23-year-old male patient with osteitis pubis. (A) Standing AP and (B,C) flamingo radiographs demonstrate no pubic instability. (D,E) Coronal and axial MRI scans demonstrate no evident degeneration of the pubic symphysis. AP, anteroposterior; MRI, magnetic resonance imaging.

signed-rank test was used to evaluate differences between mean preoperative and final follow-up values. P values $<.05$ were considered statistically significant.

RESULTS

One patient was excluded as he had a previous operation in the pelvic region; thus, 10 patients were included in the final analysis. All patients were male. The mean age of the patients at the time of the operation was 23.6 ± 4.4 years (range, 19-32 years). The mean body mass index (BMI) was 23.7 ± 2.3 kg/m^2 (range, 20.9-27.03 kg/m^2). No patient had symptomatic FAI or articular hip pain, and none of the patients had radiological FAI features on imaging. The mean follow-up period of the patients was 72.2 ± 13.4 months (range, 60-97 months). The duration of preoperative symptoms was 20.5 ± 16.5 months (range, 12-48 months). All patients returned to play postoperatively after a mean of 4.6 ± 1.7 months (range, 3-8 months). Mean satisfaction with the surgery was 9.7 ± 0.7 (range, 8-10). The VAS score of the patients significantly decreased from 9.3 ± 0.8 (range, 8-10) preoperatively to 0.2 ± 0.4 (range, 0-1) at the last follow-up (P = .005). The NPRS decreased significantly from 6.6 ± 0.5 (range, 6-7) preoperatively to 0.3 ± 0.5 (range, 0-1) at the last follow-up (P = .004). The NAHS significantly increased from 35.8 ± 16.7 (range, 14-72) preoperatively to 98.2 ± 2.7 (range, 93-100) at the last follow-up (P = .005). The mHHS significantly increased from 47.4 ± 10.6 (range, 27-60) preoperatively to 98.2 ± 4.5 (range, 86-100) at the last follow-up (P = .005). Table 1 demonstrates the patient outcomes.

No postoperative complications were observed regarding penile functions. Testicular swelling was seen in 4 patients, which resolved with elevation in 24 to 36 hours. No pelvic instability was observed in pre- or postoperative radiographs. None of the patients had recurrence of symptoms requiring additional treatment. At the final follow-up, 8 athletes were still playing soccer on competitive teams. The remaining 2 patients left the teams and changed their professions due to socioeconomic reasons but continued to play sports and soccer in their social lives.

DISCUSSION

Arthroscopic treatment of recalcitrant osteitis pubis provided excellent midterm functional and pain scores without compromising safety in competitive soccer players.

Before arthroscopic treatment was introduced by Matsuda et al,[14] curettage was the least invasive surgical method. Radic et al[19] reported the largest series regarding open curettage involving 23 athletes; 39% of the patients did not return to their previous activity level or were still experiencing pain.[19] In addition, with longer follow-up, less satisfied results were reported, and 1 patient in the study required late surgical fusion of the pubis symphysis.[19] The authors reported a mean postoperative VAS score of 2.8 at the end of a mean follow-up period of 24.3 months.[19] In our study, the mean VAS score was 0.2 at the end of the 72.2-month follow-up period.

A certain amount of mobility is required physiologically for walking and particularly for high-demand sporting activities. Therefore, to maintain joint biomechanics in these patients, ankylosis or destabilization is unacceptable. Some authors have been able to apply wedge resection and arthrodesis by extending the same treatment and approach applied in curettage. Williams et al[25] treated 7 rugby players with osteitis pubis and vertical instability. They performed arthrodesis of the pubic symphysis by bone grafting supplemented by a compression plate and reported 1 postoperative hemospermia for 6 weeks and 1 recurrent intermittent scrotal swelling during exercise for 6 months.[25] Mehin et al[18] performed wedge resection (in 5 patients) or arthrodesis (in 5 patients) in 10 osteitis pubis patients. The authors reported persistent discomfort and pain in 4 patients (1 patient in the resection group,

TABLE 1
Outcomes and Complications for Each Study Patient (N = 10)[a]

			VAS Pain		NPRS		NAHS		mHHS		
Patient	Age, y	RTS, mo	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Complications
1	25	6	9	0	6	0	46	100	55	100	None
2	23	5	10	0	7	0	30	95	51	100	None
3	20	3	9	1	6	1	37	95	52	96	Scrotal swelling
4	30	3	10	0	7	0	14	100	27	100	None
5	32	8	8	0	6	0	32	100	34	100	None
6	21	5	9	0	6	1	72	93	60	86	Scrotal swelling
7	20	4	10	0	7	0	19	100	39	100	None
8	24	3	10	0	7	0	42	100	54	100	Scrotal swelling
9	19	3	10	1	7	1	22	99	55	100	Scrotal swelling
10	22	6	8	0	7	0	44	100	47	100	None

[a]mHHS, modified Harris Hip Score; NAHS, nonarthritic hip score; NPRS, Nirschl Phase Rating Scale; Pre, preoperative; Post, postoperative; RTS, return to sport; VAS, visual analog scale.

TABLE 2
Comparison of the Current Study with the Literature on Arthroscopic Treatment of Osteitis Pubis[a]

	Study Patients	Diagnosis	Treatment	RTS	Follow-up	Results	Complications
Zimmerer et al (2022)[26]	10 athletic patients	FAI + OP	AAOC + FAI treatment	NR	5.1 y	Mean satisfaction, 9.8 (range, 9-10); significantly improved NAHS	None reported
Matsuda et al (2015)[15]	7 athletic patients	FAI + OP	Arthroscopic FAI treatment + PS	NR	2.9 y	Mean satisfaction, 8.3 (range, 3-10); significantly improved NAHS and VAS	1 arthrodesis requiring persistent pain, 2 transient scrotal swelling
Hopp et al (2013)[11]	5 soccer players	AT + OP	Arthroscopic assisted open adductor reattachment	14.4 weeks	18.2 mo	High satisfaction; significantly improved VAS and NPRS	1 vascular injury in the corona mortis requiring ligation
Hechtman et al (2010)[7]	4 football players	Isolated OP	AAOC	3 mo	50 mo	All satisfied and asymptomatic	None reported
Matsuda et al (2010)[14]	1 athletic patient	FAI + OP	Arthroscopic FAI treatment + PS	NR	12 mo	High satisfaction	None reported
Current study (2023)	10 soccer players	Isolated OP	Isolated arthroscopic PS	4.6 mo	72.2 mo	Mean satisfaction, 9.7 (range, 8-10); significantly improved NAHS, VAS, NPRS and mHHS	4 transient scrotal swelling

[a]AAOC, arthroscopically assisted open currettage; Arth, arthroscopically; AT, adductor tendinopathy; FAI, femoroacetabular impingement syndrome; mHHS, modified Harris Hip score; NAHS, nonarthritic hip score; NPRS, Nirschl Phase Rating Scale; NR, not reported; OP, osteitis pubis; PS, pubic symphysiectomy; RTS, return to sport; VAS, visual analog scale.

and 3 patients in the arthrodesis group). In addition, 1 patient in the resection group experienced posterior pelvic pain and a sensation of instability 10 months after resection of the pubic symphysis, although the pain improved in the early period.[18] It is reasonable to think that it would be more appropriate to perform arthroscopic treatment, which is relatively minimally invasive thanks to the development of surgical equipment. The advantages of the arthroscopic technique include preservation of pubic ligamentous and capsular structures, which may decrease the risk of pubic instability, reduce postoperative pain, and help early postoperative recovery.[6]

Table 2 demonstrates the comparison of our study with the literature regarding arthroscopic treatment of osteitis pubis. This literature consisted of small case series. Arthroscopically assisted open procedures have yielded high satisfaction rates.[7,11,26] These procedures were arthroscopically assisted open currettage,[7] arthroscopically assisted open adductor reattachment,[11] and arthroscopically assisted open currettage combined with

arthroscopic FAI treatment.[26] Nevertheless, 1 of these studies reported vascular injury requiring ligation in the corona mortis.[11] Matsuda et al[14,15] proposed the full arthroscopic technique (pubic symphysiectomy combined with arthoscopic FAI treatment), and reported similar high satisfaction rates without taking the risks of open approaches. To our knowledge, our study is the first to solely perform arthroscopic pubic symphysiectomy (Table 2).

Instead of the lithotomy position used in previous studies,[11,14,15] we operated with patients in the supine position, which orthopaedic surgeons are more familiar with and which is used in the arthroscopic procedures performed most frequently such as knee arthroscopy. In studies where the lithotomy position was used,[11,14,15] the surgeon was positioned between the legs of the patient; 1 hand of the surgeon was superior and the other inferior to the pubic symphysis during the operation. In contrast, in our technique, the hands were placed left and right (side by side), as shown in Figure 4. Thus, the technique was facilitated as the hands of the surgeon are alongside instead of in a back to back grip position relative to the camera and equipment, which provides a more comfortable position for the surgeon.

In addition, our surgical assistant performed penile distraction and positioned the penis inferiorly to decrease the risk of damage to the penile surrounding structures during arthroscopic inferior portal opening and throughout the operation. In addition, if the surgical equipment comes close to the penis, this can be felt by the assistant's hand; the surgeon can thus be warned, which may increase safety. A cadaveric study demonstrated the close anatomic relationship between the central anterior portal and neurovascular branches under the arc of the arcuate pubic ligament at the root of the penis.[10] The root of the penis and its neurovascular supply are on the median sagittal line and very close to the central anterior portal as previously described.[10] Furthermore, this cadaveric study showed and emphasized that a K-wire localized in the anterior inferior portal may directly penetrate the root of the penis.[10] Performing the central anterior portal sufficiently inferiorly is barely possible without the aforementioned penile distraction maneuver, particularly in the litotomy position, and placement of the portal too close causes the scope and surgical equipment to conflict throughout the operation. To our knowledge, penile manipulation has not been described previously and is very important in minimizing the risk of penile complications.

Since patients who sustain refractory osteitis pubis are generally athletes, these patients need to return to sport in the early period of recovery. The recovery period of the patient may be prolonged after procedures such as arthrodesis and grafting. In a previous case series that consisted of 7 rugby players treated with arthrodesis, return to professional sports was reported after 6.6 months.[25] The procedure should also be minimally invasive to decrease the time to return to sports, which is very important especially for professional athletes. In our study, the mean time to return to sports was 4.6 months (range, 3-8 months), which is similar to the studies regarding arthroscopic treatment of osteitis pubis.[7,11]

One of the primary goals of osteitis pubis surgery is to maintain stability of the pubic symphysis. When anterior instability occurs in the pelvis, in the long-term, posterior instability and degeneration of the posterior pelvis may develop, which is unacceptable, particularly in young and athletic patients. Surgeries such as wedge or total resection or wide open surgeries may result in iatrogenic anterior instability.[5] The inferior (arcuate) pubic ligament and superior pubic ligament are important structures for stability of the pubic symphysis. We protected these structures throughout the procedure. Preserving the posterior capsule is also crucial to decrease the risk of bladder injury as previously reported.[16] We reported no postoperative pubic instability either clinically or radiologically. Furthermore, our patients returned to sports early and exhibited excellent midterm outcomes, which indicates good pubic stability. Our satisfactory results were also evident in the most recent follow-up examinations.

Various patient-reported outcome measures (PROMs) have been used to evaluate osteitis pubis treatment in previous studies, including VAS,[11,15] NPRS,[11] and NAHS.[15,26] The mHHS has also been used to evaluate the functional status of patients with osteitis pubis and symphysis pubis abnormalities.[13,21] We used these 4 outcome measurements to evaluate the pain and functional status of the patients.

Limitations

The first limitation of this study was the lack of a comparison group. Therefore, we compared our outcomes with previously published studies. The second limitation was the small sample size. The third limitation was that only 10 patients were analyzed, and the patients exhibited excellent scores. Therefore, there may be a possible response bias in the current study. Finally, the PROMs used in the present study are not specific to osteitis pubis and were chosen according to previous studies. However, according to the current literature, there is no validated and standardized PROM for osteitis pubis. Despite these limitations, we performed isolated osteitis pubis arthroscopy and included isolated cases of osteitis pubis, so our results may better reflect the results of this arthroscopic procedure in patients with osteitis pubis. We should also emphasize that some of the recent literature shows an association between FAI and osteitis pubis,[13,21] and, therefore, the presence of FAI should be investigated in osteitis pubis cases and treated if present.

CONCLUSION

Arthroscopic treatment of osteitis pubis provided high satisfaction rates and excellent functional scores and may be an option for recalcitrant cases when nonoperative treatment fails. However, further studies are needed to determine whether this technique and the outcomes of this study can be reproduced.

A Video Supplement for this article is available at https://journals.sagepub.com/doi/full/10.1177/23259671231203677#supplementary-materials

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