Case Report

Repair of Isolated Dislocation of Posterior Tibial Tendon with Suture Anchors: A Case Report and Review of Literature

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Isolated Posterior Tibial Tendon (PTT) dislocation is a rare injury and it is commonly misdiagnosed and usually associated with trauma or sport injury. The conservative treatment for this condition is uniformly unsuccessful and patients requires surgery to restore function and eliminate symptoms. We introduced a case of isolated dislocation of the PTT with intact flexor retinaculum caused by playing soccer in a 32 years old male who had undergone medial malleolar groove deepening and flexor retinacular reconstruction with three bio-absorbable suture anchors. In addition, the comprehensive review of English literature was performed focusing on the treatment technique in the patients with isolated PTT dislocation between 1968 and 2016.

Keywords: *Tibialis Posterior Tendon Dislocation, Groove Deepening, Flexor Retinaculum Repair, Suture Anchors, Literature Review*

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The PTT is the most superficial structure on medial side of the ankle joint. It originates from posterior border of tibia and fibular and attaches to interosseous membrane and runs behind the medial malleolus. It is divided into main, recurrent, and plantar components distally and the main component inserts at the navicular bone, recurrent component inserts on sustentaculum tali, and recurrent component can inserts on other bones on the midfoot, except the talus. It is held within the retromalleolar groove by a strong fibro-osseous tunnel and flexor retinaculum originating from the tip of the medial malleolus and inserting into calcaneus.

The posterior tibial tendon is a rarely condition which usually associates with sport injury or traumatic event of the ankle joint[1,2]. This injury was originally described in Belgium literature by Martius in 1874[3] and it was subsequently published in English literature by Nava in 1968[4]. This injury can be presented as an isolated posterior tibial tendon (PTT) dislocation[2,5-11] or the PTT dislocation associated with other pathologies such as fracture or dislocation of the ankle, syndesmotic and subtalar joint[12-14]. Various causes have been described including ruptured or incompetent retinaculum from trauma[4,8,10,11,13,14], an iatrogenic injury to the flexor retinaculum from the previous surgery[15], hypoplastic or shallow sulcus[4,9,15-17], and a structural abnormality from a previous medial malleolar fracture, or any combination thereof. For an isolated PTT dislocation, this injury was initially reported by Mittal and Jain[18] and it has been reported 43 cases since 1986 with variety of etiologies[18-20]. The mechanism of isolated dislocation is a contracted PTT with abruptly forceful ankle into dorsiflexion and eversion position and other mechanism including forced dorsiflexion of ankle and tibia rotated internally[6,18].

This condition is difficult to establish a correct diagnosis in an acute setting when the soft tissue is significantly swelling and patients cannot well co-operate with physical examination. This can lead to a misdiagnosis and delay of treatment and the patients may end up with chronic instability with tendon tear or bony erosion. The diagnosis is based on history of trauma or sport injury and the physical examination reveals swelling and tenderness in the medial malleolar region. The PTT tendon may be palpable over medial malleolus if it is in dislocated position. In Chronic setting, the patients

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will be able to perform voluntary redislocation and reduction the PTT. The imaging including dynamic ultrasound[21] and MRI[8,22] can be helpful for the diagnosis. Once the diagnosis has been established, conservative treatment should be an initial treatment. However, the conservative treatment for PTT dislocation had never been reported to be a successful treatment in adult population [16, 23] but it was successful treatment in the pediatric population[24]. However, if persistent dislocation is present after complete conservative treatment or persistent PTT dislocation in chronic situation, these patients eventually require surgical treatment[2].

The purpose of the present study is to report a case of misdiagnosed isolated dislocation of the posterior tibial tendon with intact flexor retinaculum in a soccer player who underwent flexor retinaculum repair using three bio-absorbable suture anchors with deepening of the retromalleolar groove. In addition, we would like to present the comprehensive review of literature for treatment technique in the patients with isolated PTT dislocation.

Case Report

A 32 years olds male presented with isolated right ankle pain after injury during soccer game 2 months ago. He stated that he recalled the mechanism of injury as his foot was in dorsiflexion and eversion after he got hit by another player on his right ankle and fell down on the ground. After the injury, he was unable to perform weight bearing and his ankle was significantly swollen on the medial side with ecchymosis. He went to see emergency doctor and treated as the ankle sprain and his initial radiograph was normal. The conservative treatment consisted of rest, ice, a short period of immobilization with posterior splint, and non-weight bearing with crutches. At 6 weeks after the injury, the patient was allowed to do daily activities and work; however, he had persistent pain and swelling with snapping sensation and palpable tendon dislocated anterior to the medial malleolus. The MRI obtained 2 months after the initial injury demonstrated a thickening of the posterior tibialis tendon with abnormal peritendinous fluid and dislocation of the tendon from the retromalleolar groove. The diagnosis of PTT dislocation had been established and the operative treatment included posterior tibialis tendon exploration relocation, the periosteum and flexor retinaculum repair to the medial malleolus, and a groove deepening.

Operative Technique

After spinal block, the patient was placed in a supine position and the right leg was prepped and draped with a thigh tourniquet on the right side. A 6-cm curvilinear incision was made on the retromalleolar region and deepened through the subcutaneous tissue. Soft tissue was carefully dissected avoided injury to the small branches of the cutaneous nerve. An intact flexor retinaculum was identified and it was connected to the periosteum of the medial malleolus; however, both periosteum and flexor retinaculum were detached from the medial malleolus. The flexor retinaculum was incised over the posterior border of the medial malleolus and the PTT was mild fraying but it was no tear. The retromalleolar groove was checked and it was shallow after the PTT was manually dislocated to the front of the medial malleolus. Then a 3-mm groove deepening was performed using a high-speed burr and it was checked to be adequate space for the PTT. The PTT was thereafter relocated to the groove and the flexor retinaculum was repaired to medical malleolar ridge using three of 3.0-mm bio-absorbable suture anchors. The suture was passed through both sides of flexor retinaculum and tied it down to the medial malleolus. At that point, the ankle was manipulated through the full range of motion, and the posterior tibialis tendon was freely mobile and stable in retromalleolar groove. Skin and soft tissue was copiously irrigated and the skin was closed with No.3 non-absorbable suture. Soft dressing was applied and u-shape splint plus posterior splint were applied in neutral position.

Post-Operative Rehabilitation

The patient was instructed to be non-weight bearing in below knee posterior splint for 2 weeks. At 2-4 weeks, the patient was placed into a CAM boot with non-weight bearing for 2 weeks. At 4-6 weeks, the patient was allowed to perform partial weight bearing in the CAM walking boot and continue range of motion exercise of the ankle joint. After 6 weeks, the patient was allowed to progress to full weight bearing and wean-off the CAM walking boot. He could perform daily activities and returned to work at 7 weeks, and return to sport at 6 months with pain free and no re-dislocation. At 12 months, the patient was able to return to his previous level of sport activities with no recurrent symptom. There was no complications from the intra-operative or post-operative period.

Functional Outcome Measurement

The patient self-reporting questionnaires including general health measure [Short Form-36 (SF-36) ; Physical component subscale (PCS) and Mental component subscale (MCS)], region-specific outcomes measure (Foot and Ankle Ability Measure (FAAM); activities of daily living subscale and sports subscale), and pain score measure (Visual Analogue Scale (VAS)] were recorded at pre-operative and final post-operative visit. The final post-operative visit was 12 months after the surgery and the SF-36 was 42.4 and 48.8 and 55.9 and 65.7 for PCS and MAS at pre-operative and final post-operative visit, respectively. The pre-operative FAAM was 60 and 17 and 80 and 30 for activities of daily living and sports at pre-operative and final post-operative visit, respectively. The VAS score was 4 and 0 at pre-operative and final post-operative visit, respectively.

Literature Review

Methods

In systematic review, authors searched PUBMED from1968 to 2016 the "posterior tibial tendon'' AND "dislocation'', "tibialis posterior tendon'' AND "dislocation'', and "tibialis posterior tendon'' AND "subluxation'' were used in the title searching. There were 31 articles (43 cases) with full manuscripts in English language available to be analyzed in this study. Non-English articles including 2 German and 2 French were excluded from the analysis. Emphasis was placed on mechanism of injury, timing for diagnosis, operative treatment, and outcomes including complications.

Results

There were 43 patients (26 male and 17 female) and an average age at the time of surgery was 31.6±13.2 years (range 12 to 56 years) who had been diagnosis with isolated PTT dislocation and underwent surgical correction for this condition. The cause of PTT dislocation associated with sports (20 patients), trauma (19 patients), and other causes (2 patients; one case was complication following cortisone injection and the other was the complication after tarsal tunnel release), and no mention of the causes in the manuscript (2 patients). An average time to be diagnosed was 4.2±6.0 months (range, 0 to 24 months) and average time of follow-up 19.9±23.2 months (range, 2.5-144 months). From the literature reviews, there was no recurrent symptom at final post-operative visit after surgical correction. The details of the literature review were listed on Table 1.

Discussion

The isolated posterior tibial tendon dislocation is a rare condition and only forty-three cases had been previously reported in the English literatures since 1968. Sports injury (47%) is the most common causes of PTT dislocation and this result is similar to Lohrer and Nauck who did literature review in 2010 and reported that 59 percent of the PTT dislocation were induced by sport injury[2]. The second most common cause were direct trauma (44%) and the common mechanism of injury was dorsiflexion and eversion of the ankle; however, most of the patients could not recall the mechanism of injury.

The PTT dislocation is usually misdiagnoses in acute setting and only 20 percent of these patients (9 of 44 patients) can be diagnosed in the first visit and only 34 percent of these patients (15 of 44 patients) were diagnosed within 2 weeks after the initial injury. The previous literature also reported that the misdiagnosis in the initial injury was 54 percent[2]. A voluntary dislocation of the PTT tendon or palpable PTT tendon lied in the front of medial malleolus can promptly diagnosed; however, in the acute situation, to obtain a correct diagnosis is challenging due to significant pain and swelling, the test for dislocate the PTT cannot be performed. Imaging study can provide valuable information in acute setting, previous study reported that the specificity of imaging to diagnosis PTT dislocation were 14.7 percent from plain radiography, 66.7 percent from dynamic ultrasound, and 75 percent from MRI[22]. In addition, dynamic ultrasound and MRI can be demonstrated the intact flexor retinaculum, tear of the PTT, hypoplastic of the sulcus, or other structural abnormalities.

Once the diagnosis had been established, most of the patients received conservative treatment with casting, unfortunately most of the patients failed after the period of immobilization, except only one case, a 12 year old boy who was fully recovery with no symptom after the conservative treatment[24]. When the conservative treatment failed, surgical treatment is indicated but there were varieties of operative procedure to repair or reconstruct the PTT dislocation based on the intraoperative finding. The operative procedures described in the previous literatures were repair or reconstruction of the flexor retinaculum, groove deepening, and posterior translate of the medial malleolus osteotomy[2,9-11,15,16,21,24-26]. A direct repair

Table 1. The literature review of the isolated posterior tibial tendon dislocation

Year, Authors	No.	Age	Sex	Cause	Mechanism of injury	Retinaculum	Time to diagnosis	Operation	F/U (mos)	Outcomes
1. 1968, Nava et al[4]	1	16	M	T: Motorcycle accident	N/A	Ruptured	0 day	Directly sutured reticulum	N/A	Excellent
2. 1978, Sharon et a l[16]	2	37	M	T: Automobile	N/A	N/A	9 months	Medial malleolar osteotomy with posterior shift	21	Pain free
3. 1980, Langan et al[15]	3	16	F	O: Surgery; Tarsal tunnel release	Iatrogenic injury from tarsal tunnel surgery	Ruptured	2 months	Groove deepening, Sutured retinaculum to periosteum flap	36	No symptom
4. 1984, Larsen et al[20]	4	18	M	S: Running	N/A	Ruptured	10 days	Sutured retinaculum to periosteum flap	12	Pain free, return to running
	5	36	F	S: Running	N/A	Ruptured	5 weeks	Sutured retinaculum to periosteum	36	No complaints, normal movement
5. 1984, Stanish et al[35]	6	16	F	N/A	N/A	Intact, redundant	24 months	Groove deepening, direct repair the retinaculum flap	48	Pain free, return to figure skating
6. 1986, Soler et al[17]	7	39	M	T: Fall	Foot in varus	Ruptured	0 day	Groove deepening, Sutured retinaculum to periosteum flap	24	Normal foot mobility
7. 1988, Mittal et al[18]	8	40	M	T: Twist the ankle	Forced dorsiflexed and tibia internally rotated	Intact but strip from periosteum	0 day	Periosteum stitches to the medial malleolus	6	Excellent
8. 1990, Perlman et al[9]	9	36	M	T: Twisted ankle	N/A	N/A	9 weeks	Medial malleolar osteotomy with posterior shift, Groove deepening, Sutured retinaculum to periosteum flap	11	No symptom
	10	27	M	T: Twisted foot	N/A	N/A	1 week	Medial malleolar osteotomy with posterior shift, Groove deepening, Sutured retinaculum to periosteum flap	18	No symptom
9. 1992, Ouzounian et al[8]	11	44	F	T: Twisted ankle	N/A	Intact, redundant	18 months	Repaired retinaculum	38	Improved
	12	17	F	T: Twisted ankle	N/A	Ruptured	1 month	Groove deepening, retinaculum reconstruction using deltoid and FDL sheath	44	Asymptomatic
	13	24	M	T: Twisted ankle	N/A	Ruptured	4 months	Groove deepening, retinaculum reconstruction using deltoid and FDL sheath	38	Asymptomatic
	14	55	F	O: Cortisone injection	N/A	Ruptured	24 months	Groove deepening, Retinaculum reconstruction using periosteum and FDL sheath	32	Moderate to prolonged
	15	42	M	T: Twisted ankle	N/A	Ruptured, avulsed	2 weeks	Retinaculum repaired	14	Asymptomatic
	16	38	M	T: Twisted ankle	Pronation and external rotation of ankle	Ruptured, avulsed	3 months	Retinaculum repaired	14	Asymptomatic
	17	26	F	T: Chopart's joint dislocation	N/A	Intact, redundant	12 months	Groove deepening, Retinaculum repaired	16	Asymptomatic
10. 1992, Biedert et al[28]	18	18	F	S: Gymnastic	Eversion, pronation, dorsiflexion	Ruptured	0 day	Reattachment retinaculum to the tibia using drill holes	2.5	Return to sport
11. 1995, Van Wellen et al[24]	19	12	M	N/A	N/A	N/A	0 day	No surgery, Conservative treatment	12	Return to sport
12. 1995, Ballesteros et al[27]	20	28	M	T: Direct trauma from bullfighter	Dorsiflexion and Inversion of the foot.	Ruptured	0 day	Retinaculum repair using medial gastrocnemius flap	12	Asymptomatic
13. 1995, Healy et al[23]	21	14	M	T: Automobile	N/A	Ruptured	5 months	Groove deepening, Retinaculum repaired	2	Full recovery
14. 1997, Rolf et al[25]	22	37	M	S: Skating	N/A	N/A	2 weeks	Retinaculum repair using medial gastrocnemius flap	12	Asymptomatic
	23	53	F	T: Slipped on the ground	N/A	N/A	0 day	Retinaculum repaired	12	Asymptomatic
15. 1998, Loncarich et al[6]	25	37	M	T: Twisted ankle	N/A	Ruptured	1 months	Retinaculum repair to periosteum	8	Asymptomatic
16. 1998, Miki et al[33]	26	41	F	T: Minor trauma	Stood up sitting on the floor with knees fully flexed and ankles fully plantarflexed	Intact, redundant	2 months	Medial malleolar osteotomy with posterior shift, Groove deepening, Sutured retinaculum to periosteum flap	144	Pain on the screw fixation of osteotomy.
	27	41	F	T: Slipped on the ground	Abducted and externally rotated ankle	Intact but strip from periosteum	0 day	Medial malleolar osteotomy with posterior shift, Groove deepening, Sutured retinaculum to periosteum flap	24	Pain free
17. 1998, Gambhir et al[30]	28	37	M	S: Cricket	Landing on the heel with ankle twisted in equinovarus	Ruptured	8 months	N/A	N/A	Minimal discomfort
18. 2000, Nuccion et al[7]	29	31	M	S: Soccer	N/A	Intact, redundant	10 days	Retinaculum repaired with 2 suture anchors	5	Pain free
19. 2004, Wong et al[26]	30	21	M	S: Basketball	N/A	Intact but periosteum was stripped from medial malleolus	8 months	Periosteum repaired to the tibia using 2 anchor sutures	11	Asymptomatic
20. 2004, Prato et a l[21]	31	21	M	S: Soccer	Dorsiflexion and inversion	Intact but strip from periosteum	0 day	Retinaculum repaired to the tibia using 2 anchor sutures	12	Asymptomatic but has spur at 4 yrs.
21. 2006, Goucher et al[5]	32	28	F	S: Running	N/A	Ruptured	6 months	Groove deepening, Retinaculum repaired	13	Asymptomatic and return to triathlons
	33	37	M	S: Ski	N/A	Ruptured	1 week	Groove deepening, Retinaculum repaired	6	Pain free and return to ski
22. 2006, Sharma et al[1]	34	14	F	S: Running	Eversion of ankle	Ruptured, avulsed	8 months	Retinaculum repaired to the tibia using anchor sutures	12	Pain free
23. 2008, Boss et al[29]	35	56	M	S: Fall during sailing	N/A	Intact, Achilles tendon ruptures	2 weeks	Retinaculum and periosteum repaired to the medial malleolus using 2 anchor sutures	4	Asymptomatic
24. 2009, Olivé Vilás et al[19]	36	17	F	S: Tae-Kwon-Do	Forced foot dorsiflexion and eversion	Intact but detached from periosteum	2 months	Retinaculum repair to the bone using drill hole with suture	3	Return to sports
25. 2010, Lohrer et al[2]	37	57	M	T: Fall from height	N/A	Ruptured	6 months	Repair retinaculum to the medial malleolus	12	Pain due to intraarticular OCD lesion
26. 2010, Lee et al[32])	38	24	M	S: Soccer	Plantar flexion and eversion	Intact but detached from tibia with periosteum	8 months	Iliac crest autograft bone block, Groove deepening, Repair retinaculum to the medial malleolus	24	Asymptomatic
27. 2011, Mitchell et al[34]	39	56	F	T: Twisted ankle	Squatting and shift body forward	Intact but detached from tibia with periosteum	3 weeks	Retinaculum repaired	18	Asymptomatic
28. 2014, Gambardella et al[10]	40	19	M	S: Snowboard	N/A	Intact, redundant	7 months	Groove deepening, Repair retinaculum and periosteum repair to the medial malleolus using drill holes	12	Asymptomatic, return to snowboard
29. 2015, Jeong et al[11]	41	52	F	T: Automobile	N/A	Intact but detached from tibia with periosteum	6 weeks	Posteromedial periosteum flap and retinaculum repair using 2 suture anchor	25	Pain free
30. 2015, Godino et al[31]	42	28	M	S: Jogging	Twisted ankle	Intact with avulsion fragment	4 months	Retinaculum repair with 2 anchors and augmentation with absorbable suture	3	Pain free
31. 2016, Mullens et al[36]	43	22	F	S: Gymnastic	Twisted ankle	Ruptured	10 days	Retinaculum repair with buttress plate	12	Pain free, return to sport
32. 2016, Rungprai et al	44	32	M	S: Soccer	Twisted ankle	Intact, redundant	2 months	Retinaculum repair with 3 anchors	12	Pain free, return to soccer

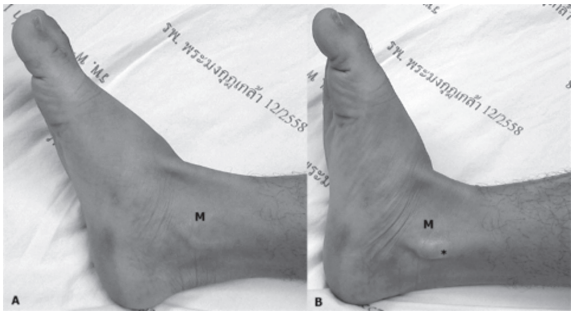

Fig. 1 The dislocated posterior tibial tendon (*) is demonstrated on the Fig. 1B and the relocation of the posterior tibial tendon is demonstrated on the Fig. 1A, (M = Medial malleolus).

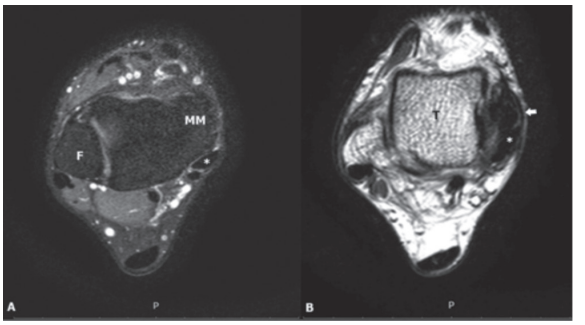

Fig. 2 The axial T2-weighted MR image demonstrates subluxated posterior tibial tendon (Fig. 2A, *) with peritendinous fluid and the axial T1-weighted MR image demonstrated intact flexor retinaculum (F2, white arrow) and posterior tibial tendon (2B, *) (MM = Medial malleolus, F = Fibula, T = Talus).

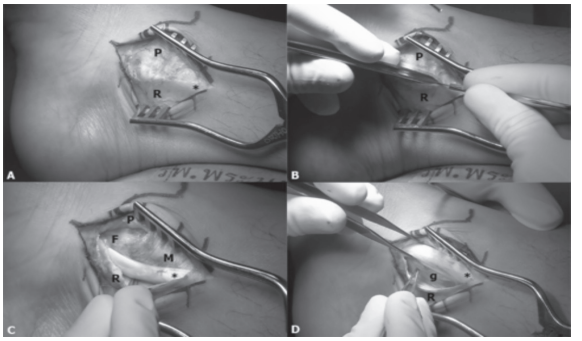

Fig. 3 A 6-mm curvilinear incision is made on the posterior border of the medial malleolus and the posterior tibial tendon (*) is seen underneath the intact flexor retinaculum (3A, R). The flexor retinaculum (R) is open longitudinally (3B) and periosteum (P) is detached from the medial malleolus (M) resulted in false pouch (3C, F) for the posterior tibial tendon is demonstrated (3C, *). The shallow of retromalleolar groove is illustrated (3D, g).

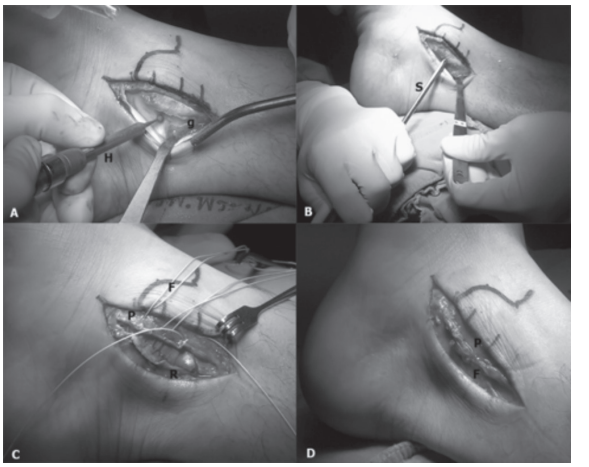

Fig. 4 The retromalleolar groove deepening (4A, g) is performed using high speed burr (4A, H). The 3.0mm bio-absorbable suture anchor (4B, S) with loaded non-absorbable suture (4C, F) is inserted on the posteromedial ridge of the medial malleolus and then the retinaculum (4C and 4D, R) and periosteum (4C and 4D, P) is repaired back to the medial malleolus using pant-over-vest technique (4C, 4D).

Fig. 5 The posterior tibial tendon is reduced into the retromalleolar groove after flexor retinaculum repaired and groove deepening and Fig. 5A and 5B demonstrate that there is no redislocation of the PTT tendon throughout the fully range of motion of the ankle joint (5A and 5B).

of the flexor retinaculum to periosteum using an absorbable suture or repair the flexor retinaculum to bone using multiple drill holes or suture anchors can be performed when quality of the tissue and length of the flexor retinaculum are adequate (Table 1). On the other hand, if the tissue was not suitable for repair, reconstruction of the flexor retinaculum can be performed using flexor digitorum tendon sheath/deltoid or medial gastrocnemius flap[8,25,27]. In addition, some patients presented with shallow of a retromalleolar groove, the groove deepening is indicated. However,

the depth of groove deepening should be between 2-4 mm according to the previous anatomic study which demonstrated that normal width of the medial sulcus is 6-15 mm and normal depth is 1.4-4 mm[10]. Moreover, some surgeon preferred to perform medial malleolar osteotomy and translate the medial malleolus posteriorly to prevent the PTT dislocation in patients who have hypoplastic sulcus[9,16]. The outcomes after the operative repair or reconstruction of the PTT dislocation were excellent and no complications reported in the previous literatures. Most of the patients reported pain free and they could return to previous level of activities and sports[1-12,14-35], (Table 1).

In this patient, author found the anteriorly subluxation of the PTT and shallow of the retromalleolar groove. An attenuated of flexor retinaculum was found but it was in a good quality with minimal fraying of the tendon without tear. The periosteum and flexor retinaculum were detached from the medial malleolus to form a pouch for the PTT tendon in front of the medial malleolus. A 3-mm of the retromalleolar groove was performed using high speed burr and the 3 of 3.0 mm suture anchors were used for flexor retinaculum repair. Postoperatively, the u-shape plus posterior splint was kept the foot immobilized for 2 weeks and then the patient was allowed to progressive weight-bearing within 6 weeks. The patient returned to daily activities and he was allowed to work at 7 weeks. He returned to sports at 4 months with minimal discomfort on the medial side of the ankle, but he had pain free and returned to the same level of sport (soccer) at 6 months post-operatively. At final post-operative visit (12 months), the patient had stable ankle and pain free and he could return to his previous level of sport activities with no recurrent symptom.

Conclusion

The PTT dislocation is a rare injury and this reviews of the English literature demonstrates total number of 44 cases from1968 to 2016. The PTT dislocation is commonly missed diagnosed and normal radiography cannot be excluded this condition. Dynamic ultrasonography and MRI can be helpful to establish the diagnosis. The conservative treatment is usually failed while the surgical treatment is become a standard treatment with promising outcomes and no complications. However, there are varieties of operative treatment including repair of the flexor retinaculum using direct repair or suture anchors, groove deepening, or posterior translation of the medial malleolar osteotomy depend on the intra-operative finding, such as a shallow of the retromalleolar groove, rupture of flexor retinaculum, detachment of the periosteum with redundant of the flexor retinaculum.

What is already known on this topic?

An isolated posterior tibial tendon dislocation (PTT) is very rare condition and it has been reported only 43 cased by 23 studies in the previous English literature since 1968. The majority of the patients was misdiagnosed in the first visit and conservative treatment is usually failed to improve this condition. For the operative treatment, most of the surgeons repaired the flexor retinaculum which is usually torn and deepening the retromalleolar groove when it was shallow. The outcomes after the surgery were reported to be good based on only pain free or asymptomatic after the surgery, while only one study reported the functional outcome. However, there is a lack of evidence using validated functional outcomes including recovery time (time to return to activity, works, and sports) after the PTT dislocation repair or reconstruction.

What this study adds?

Author presented validated functional outcomes including general health outcome measurements: (Short-form-36), pain score (visual analogue scale), and region-specific (Foot and Ankle Ability Measure (FAAM)), which are more reliable than patient reported pain free or asymptomatic. In addition, recovery time is important information to the patient and there was no study reported the complete recovery time including time to return to daily activities and time to allowed to work and sport. Moreover, there was no PTT dislocation report in Thailand, the present study will provide the information and remind the general physicians, emergency doctors, and orthopaedic doctors to consider this condition in the patients who have injury as describe in the study. Finally, the last case in literature review was performed in 2010, so author would like to present our operative technique which has been modified from the previous literatures due to technology advancement and the trend of operative technique in the past until present.

Potential conflicts of interest

None.

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การผ่าตัดซ่อมแซมภาวะเส้นเอ็น Posterior Tibial เคลื่อนหลุดอย่างเดียว ด้วยนอตแบบสลาย: รายงานผู้ป่วยและการทบทวนวรรณกรรม

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ภาวะเส้นเอ็น posterior tibial เคลื่อนหลุดอย่างเดียว โดยที่ไม่มีการบาดเจ็บกับอวัยวะอื่น ๆ เป็นภาวะที่พบได้น้อยมาก ส่วนมากจะมีสาเหตุจากอุบัติเหตุและการบาดเจ็บจากการกีฬา แพทย์ส่วนใหญ่มักจะไม่สามารถให้การวินิจฉัยที่ถูกต้องได้ในการตรวจครั้งแรก และการรักษาด้วยการไม่ผ่าตัดส่วนใหญ่จะไม่ประสบความสำเร็จ ผู้ป่วยภาวะนี้ มีความจำเป็นที่จะต้องได้รับการผ่าตัดรักษาเพื่อลดอาการปวดและให้สามารถกลับไปทำกิจกรรมต่าง ๆ ได้ ทางคณะผู้นิพนธ์ได้นำเสนอรายงานผู้ป่วยชาย อายุ 32 ปี ได้รับการบาดเจ็บจากการเล่นฟุตบอล ทำให้เส้นเอ็น posterior tibial เคลื่อนหลุด แต่ส่วน retinaculum ยังไม่ขาด ผู้ป่วยได้เข้ารับการรักษาโดยการผ่าตัดทำร่องให้เส้นเอ็น posterior tibial และทำการเย็บซ่อมแซม retinaculum โดยการใช้นอตแบบสลาย นอกเหนือจากนั้นทางคณะผู้นิพนธ์ได้ทำการทบทวนวรรณกรรมภาษาอังกฤษในอดีต ที่ได้มีการรายงานภาวะเส้นเอ็น posterior tibial เคลื่อนหลุดและได้ทำการรักษาด้วยวิธีการผ่าตัดรักษา ระหว่างปี พ.ศ. 2511 ถึงปี พ.ศ. 2559