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The Surgical Treatment of Peroneal Tendinopathy (Excluding Subluxations): A Series of 17 Patients

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ABSTRACT

Peroneal tendon pathology is rare, but is probably underestimated because it is frequently undiagnosed. It should always be in the differential diagnosis of lateral ankle pain. Surgical treatment of peroneal tendinopathy is indicated after failure of conservative measures. The aim of this retrospective study is to evaluate the medium-term clinical results of 17 patients operated for peroneal tendinopathy without tendon subluxation. A series of 17 patients composed of 7 women and 10 men with a mean age of 53.6 ± 4.6 (range 45 to 60) years were reviewed. The mean preoperative Kitaoka score was 46.7 ± 17.1 (range 25 to 69) points. All patients had radiological evaluation, which demonstrated hindfoot varus in 6 of the 17. Surgical interventions comprised synovectomy, debridement, suture-tubularization, fibrous resection, or tenodesis depending on the preoperative findings and also a valgus osteotomy (Dwyer) in 6 cases and ankle ligament reconstruction (modified Blanchet) in 1 case. All patients were reviewed clinically with a mean follow-up of 4.3 ± 3.8 years (range 16 months to 14 years). Average time to return to sport was 8.5 ± 10.4 months (range 3 months to 3 years). The mean time to return to work was 2.5 ± 1.9 (range 0 to 6) months. The mean postoperative Kitaoka score was 90.1 ± 11 (range 64 to 100) points with a statistically significant improvement to the preoperative score ($p < .0001$). Sixteen patients were satisfied or very satisfied with their treatment (94.1%). Surgical treatment of peroneal tendinopathy after failed conservative treatment leads to significantly improved function. It is a simple treatment to undertake, which gives a good outcome for both the patient and surgeon.

Originally described by Monteggia (1813), Meyers (1924), Jones (1932) (1), Hackenbroch (1927), and Burman (1953) (2,3), the pathology of the peroneal tendons is a relatively uncommon disease but is probably underestimated because it is frequently undiagnosed. It should be considered in the assessment of all patients presenting with lateral ankle pain, especially if there is a history of sprains, or symptoms of instability without objective clinical or radiological evidence of laxity.

The peroneal muscles are the main evertors of the foot and have a major role in the lateral stability of the ankle.

Several authors such as Krause and Brodsky (4), Redfern and Myerson (5), Saxena and Cassidy (6), and Wapner et al (7) have reported classification systems or treatment algorithms.

We wanted to evaluate the clinical benefits of surgical treatment of peroneal tendon disorders for patients who had already received conservative treatment that had failed (persistence of disabling pain, patient demand).

We identified 17 patients with peroneal tendinopathy who underwent surgical treatment. The aim of this study was to retrospectively evaluate the medium-term clinical outcomes of this surgery. Patients with tendon subluxation or ankle instability as a primary diagnosis were excluded from this study.

Patients and Methods

Patients who underwent surgical treatment for peroneal tendinopathy, from January 1997 to December 2009, were identified in the authors' practices, using procedure and diagnosis code numbers. Onset of symptoms, represented by moderate or severe pain (16 cases) and/or instability (15 cases) was at least 3 months. All patients had received medical treatment that had failed. Conservative treatment in all cases consisted of medication (painkillers and nonsteroidal anti-inflammatory drugs) along with physiotherapy. Reduction of recreational activities and cessation of sports for at least 3 months were undertaken. Many patients had already seen their general medical practitioner, who had often misdiagnosed their symptoms as an ankle sprain; and so 5 had been immobilized in a plaster for 1 month, which had not improved the symptoms. None had a history of traumatic fracture and 1 patient had a history of residual sprain with objective laxity (instability with objective laxity associated with a painful retromalleolar component).

All cases had radiological imaging preoperatively. There were 2 ultrasound examinations, 15 magnetic resonance imaging (MRI) scans, and 2 computed tomography (CT)

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Fig. 1. Meary radiograph showing hindfoot varus.

scans. Six patients (35%) had clinical and radiological (Meary radiograph, Fig. 1) hindfoot varus averaging 4.6° ± 1.5° (range 3° to 7°). One patient had a lateral ankle laxity associated with tendinopathy, demonstrated by stress views.

Intraoperatively, we found 14 tendons with fissuring of peroneus brevis alone, 2 with fissuring of peroneus brevis and longus together and 1 rupture of both tendons.

Data such as age, sex, side of injury, diagnosis and treatment, postoperative complications, time to return to sports, and time off work were collated (Table 1).

The surgical technique used was similar to that of Krause and Brodsky (4) (Figs. 2 through 7). The patient is placed to expose the posterior-lateral ankle with a tourniquet around the thigh. A curved incision is made, from 5 cm proximal to the tip of the lateral malleolus and down about 2 cm distal, allowing possible distal extension if a Dwyer's osteotomy is to be performed. The sural nerve is identified and preserved. The retinaculum is incised 5 mm posterior to the fibula. The tendons are examined, including their deep surface.

If the muscle belly of peroneus brevis descends very distally or if there is a peroneus quartus, these muscle bellies are excised. Debridement is done by performing a peritendinous synovectomy. Simple tendinopathy is treated by excision or resection of the fibrosis. A fissure is treated either by suture-tubularization or by tenodesis. The retinaculum is then repaired to prevent secondary dislocation stitching with a monofilament absorbable suture to prevent adhesions. After skin closure, the ankle is immobilized with a cast for 15 days non–weight-bearing, then weight-bearing for 4 weeks before removing the cast and starting rehabilitation aimed at recovering range of movement and proprioceptive rehabilitation.

The surgery undertaken was as follows: 17 synovectomies, 11 isolated peroneus brevis sutures, 2 sutures of both peroneus longus and brevis, 3 tenodesis of brevis to longus, and a Bosworth-type reverse plasty of the brevis around both peroneal tendons. In 1 case, a frondiform ligament reconstruction (9) was undertaken, and in 6 cases, a Dwyer-type osteotomy (10) in association with the peroneal tendon surgery through the same incision was undertaken, which was extended distally and secured with a 2-hole 1/3 tubular plate that did not irritate the patient.

Table 1
Patient data

Patient	Age	Sex	Side	Diagnosis	Intervention	Review	Return to Sports	Return to Work	Kitaoka	Satisfaction
1	45	F	L	Fissure PB	Synovectomy Suture PB	16 mo	No sports	3 mo	79	Very satisfied
2	54	F	L	Fissure PB	Synovectomy Suture PB	17 mo	No sports	3 mo	100	Very satisfied
3	53	M	R	Fissure PB	Synovectomy Suture PB	18 mo	No sports	5 mo	71	Satisfied
4	56	M	L	Fissure PB	Synovectomy Suture PB	18 mo	No sports	No stop	100	Very satisfied
5	59	F	R	Fissure PB	Synovectomy Suture PB	18 mo	No sports	3 mo	95	Very satisfied
6	50	M	L	Fissure PB Varus	Synovectomy Suture PB Dwyer	2 y	4 mo, hiking	Unable because of comorbidity	90	Very satisfied
7	60	F	R	Fissure PB Varus	Synovectomy Suture PB Dwyer	2 y	No sports	Retired	85	Very satisfied
8	59	F	R	Fissure PB Lateral instability	Synovectomy Suture PB Blanchet modification	2 y	8 mo, ski	Retired	88	Very satisfied
9	59	M	R	Fissure PB	Synovectomy Tenodesis PB	2 y	No sports	Unable because of comorbidity	90	Satisfied
10	54	F	R	Fissure PB Varus	Synovectomy Tenodesis PB Dwyer	3.5 y	6 mo, ski	Retired	98	Very satisfied
11	53	M	R	Fibrosis PB Varus	Synovectomy Suture PB Dwyer	4 y	6 mo, ski	2 mo	100	Very satisfied
12	48	M	R	Prerupture PB	Synovectomy Tenodesis PB	5 y	3 y, ski	Change of job	64	Not satisfied
13	49	M	L	Fissure PB and PL Varus	Synovectomy Suture PB PL Dwyer	5.5 y	5 mo, cycling	2 mo	100	Very satisfied
14	48	M	R	Fissure PB and PL Varus	Synovectomy Suture PB PL Dwyer	7 y	6 mo, hiking	6 mo	60	Satisfied
15	59	F	L	Fissure PB	Synovectomy Suture PB	10 y	No sports	1 mo	94	Very satisfied
16	52	M	L	Fissure PB	Synovectomy Suture PB	10 y	3 mo, hiking	2 mo	100	Very satisfied
17	53	M	R	Rupture PB and PL	Synovectomy Turn-back PB	14 y	3 mo, cycling	No stop	98	Very satisfied

Abbreviations: PB, peroneus brevis; PL, peroneus longus; Turn-back PB, reverse proximal PB around peroneal distal tendon (a Bosworth-type reverse plasty).