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Case Reports and Series

Tibialis Posterior Tendon Dislocation: A Review and Suggested Classification

Andrew Strydom, MBBCh(Wits), FCOrth(SA), MMed(OrthoSurg) (Wits) [1,2],
Nikiforos Pandelis Saragas, MBBCh(Wits), FCS (SA) Ortho, MMed(OrthoSurg) (Wits) [3,4],
Makgabo Tladi, MBChB(Limpopo), FCOrth(SA) [1,5],
Paulo Norberto Farria Ferrao, MBChB(Pret), FCS (SA) Ortho [2,6]

[1] *Fellow, The Orthopaedic Foot and Ankle Unit, Netcare Linksfield Hospital, Johannesburg, South Africa*
[2] *Consultant Orthopaedic Surgeon, Department of Orthopaedic Surgery, University of the Witwatersrand, Johannesburg, South Africa*
[3] *Director, The Orthopaedic Foot and Ankle Unit, Netcare Linksfield Hospital, Johannesburg, South Africa*
[4] *Honorary Adjunct Professor, Department of Orthopaedic Surgery, University of the Witwatersrand, Johannesburg, South Africa*
[5] *Consultant Orthopaedic Surgeon, Dr George Mukhari Academic Hospital, Sefako Makgatho Health Science University, Ga-Rankuwa, South Africa*
[6] *Assistant Director, The Orthopaedic Foot and Ankle Unit, Netcare Linksfield Hospital, Johannesburg, South Africa*

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ABSTRACT

Tibialis posterior tendon dislocation is a rarely described entity that is easily missed, resulting in delayed diagnosis and treatment. A review of the English published data on the topic showed inconsistency in the reporting of injuries and surgical management techniques, leading us to describe a novel classification system to guide treatment and future reporting. We also describe a case of tibialis posterior tendon dislocation in a professional volleyball player and our surgical technique for correction, including retromalleolar groove deepening.

Tibialis posterior tendon dislocation (TPD) is a relatively rare entity, and the English published data on the topic is limited to case reports and small series (1–26). Since the first description of a traumatic case in 1968 (3), a small, but consistently growing, collection of cases, mostly with a traumatic etiology (1,2,4,7,11,15–18,20,24,26), has emerged. Unlike peroneal tendon injuries, for which the mechanism of injury, association with ankle injuries, diagnostic modalities, and management through surgical stabilization have been well described (27,28), the natural history and treatment guidelines of TPD are unclear. The present study reviewed the available English data, which informs the description of our case management for a professional volleyball player.

Systematic Review of the Published Data

A summary of the data published in English (including our case) are listed in Tables 1 and 2. A total of 38 cases have been reported from 1968 to 2016, including 20 males (53%) and 18 females (47%). Of the 38 cases, 27 (71%) occurred before the patient was 40 years old. For 8 cases (21%), the affected side was not reported, 16 cases (53%) were right-sided, and 14 were left-sided (37%).

The predominant mechanism of injury involved a foot fixed to the floor with a twisting injury, consisting of forced eversion and dorsiflexion in 28 cases (68%). For the remaining 10 cases, the cause of injury was a high-energy motor vehicle accident in 3, an unclear mechanism in 3, iatrogenic in 2, spontaneous recurrence in 1, and Chopart's joint dislocation in 1.

The prevailing symptom associated with TPD is medial ankle pain, which was present in 29 cases (76%). Persistent swelling was present in 17 cases (45%), and an associated sensation of instability/clicking/snapping was present in 17 cases (45%) and are other common symptoms. Medial ankle pain combined with persistent swelling and/or a sensation of instability/clicking/snapping occurred in 24 cases (63%). An inability to weight bear in 3 patients and locking in 1 patient were the only other described symptoms.

The posterior tibialis tendon (PTT) was dislocated or dislocatable on physical examination in 23 patients (60%). The interval from injury to surgery was reported for 37 patients (97%); the calculated mean interval to surgery was 17.3 weeks (range 0 to 96).

The most common retinacular pathologic feature noted at surgery was anterior avulsion of the flexor retinaculum off the medial

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Address correspondence to: Andrew Strydom, MBBCh(Wits), FCOrth(SA), MMed(OrthoSurg) (Wits), Orthopaedic Foot and Ankle Unit, Netcare Linksfield Hospital, 24 12th Avenue, Suite 303, Linskfield West, Johannesburg 2193, South Africa.
E-mail address: andrewstrydom1@gmail.com (A. Strydom).

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Table 1
Summary of patient characteristics from a systematic review of data published in English

Investigator	Patients (n)	Gender	Age (yr)	Side	Injury Mechanism	Symptoms/Findings					Interval to Surgery (wk)
						Medial Ankle Pain	Swelling	Subluxing Sensation, Snapping, Clicking	Other	PTT Subluxed or Dislocatable at Examination	
Nava et al (3), 1968	1	Male	16	Left	MVA	Yes	NR	Yes	NR	Yes	NR
Sharon et al (23), 1978	1	Male	37	Right	MVA	Yes	NR	Yes	NR	Yes	28
Langan et al (10), 1980	1	Female	16	NR	Iatrogenic, tarsal tunnel release	Yes	NR	Yes	NR	No	8
Larsen et al (11), 1984	2	Male	18	Left	Twist, running	Yes	NR	NR	NR	Yes	2
Recurrent case		Female	36	Left	Spontaneous recurrence of previously surgically treated dislocation	Yes	NR	NR	Locking	No	5
Stanish et al (25), 1984	1	Female	16	Right	Spontaneous, unclear mechanism	Yes	NR	Yes	NR	Yes	96
Soler et al (24), 1986	1	Male	39	Right	Twist, walking	Yes	NR	Yes	NR	Yes	0
Mittal et al (16), 1988	1	Male	40	Left	Twist, low energy	Yes	NR	Yes	NR	Yes	0
Perlman et al (20), 1990	2	Male	36	Right	Twist	Yes	Yes	NR	NR	Yes	9
		Male	27	Left	Twist	Yes	NR	NR	NR	No	1
Biedert (5), 1992	1	Male	18	Right	Twist, gymnastics	Yes	Yes	NR	NR	Yes	0
Ouzounian et al (19), 1992	7	Female	44	NR	Twist	Yes	NR	NR	NR	No	72
		Female	17	NR	Twist	Yes	Yes	Yes	NR	No	4
		Male	24	NR	Twist	Yes	Yes	Yes	NR	Yes	16
		Female	55	NR	Cortisone injections	Yes	Yes	NR	NR	No	96
		Male	42	NR	Twist	Yes	NR	NR	NR	Yes	2
		Male	38	NR	PER	NR	NR	Yes	NR	Yes	12
		Female	26	NR	Dislocation of Chopart's joint	Yes	NR	Yes	NR	No	48
Healy et al (9), 1995	1	Male	14	Right	Twist, low energy	Yes	NR	NR	Unable to bear weight	Yes	20
Hatori et al (8), 1997	1	Female	48	Right	Twist, low-energy squat	Yes	NR	NR	Unable to bear weight	Yes	0
Rolf et al (21), 1997	2	Male	37	Left	Twist, ice skating	Yes	NR	NR	NR	No	2
		Female	53	Right	Twist	Yes	Yes	Yes	NR	No	0
Gambhir et al (6), 1998	1	Male	37	Right	Twist, cricket (bowling)	Yes	Yes	NR	NR	No	32
Loncarich et al (13), 1998	1	Male	37	Left	Twist, rock climbing	Yes	Yes	NR	NR	No	24
Miki et al (14), 1998	2	Female	41	Right	Twist, low energy, rising from seated	Yes	NR	Yes	NR	Yes	20
		Female	41	Right	Twist, low-energy squat	NR	NR	Yes	NR	Yes	4
Nuccion et al (17), 2001	1	Male	31	Left	Unclear, sprinting, soccer	Yes	Yes	NR	NR	No	1
Wong (26), 2004	1	Male	24	Left	Playing basketball	NR	NR	Yes	NR	Yes	4
Goucher et al (7), 2006	2	Female	27	Left	Twist, running (treated with cortisone injection)	Yes	NR	NR	NR	Yes	28
		Male	37	NR	Twist, water-skiing	Yes	NR	NR	NR	Yes	1
Sharma et al (22), 2006	1	Female	14	Left	Twist, running	Yes	Yes	Yes	NR	Yes	32
Olive Vilas et al (18), 2009	1	Female	17	Right	Twist, Tae-kwon-do	Yes	Yes	Yes	NR	Yes	8
Lohrer et al (12), 2010	1	Male	57	Right	Twist, rock climbing	Yes	Yes	NR	NR	No	28
Mitchell et al (15), 2011	1	Female	56	Right	Twist, low-energy squat	Yes	Yes	NR	Unable to bear weight	Yes	3
Al Khudairy et al (4), 2013	1	Female	17	Left	MVA	Yes	Yes	NR	NR	No	0
Gambardella et al (1), 2014	1	Male	19	Left	Unclear, snow boarding	Yes	Yes	NR	NR	Yes	28
Mullens et al (2), 2015	1	Female	19	Right	Twist, gymnastics	Yes	Yes	NR	NR	No	1
Present case, 2016	1	Female	41	Right	Twist, volleyball	Yes	Yes	Yes	NR	Yes	4

Abbreviations: MVA, motor vehicle accident; NR, not reported.