

# Pedrada syndrome and massive degeneration of the Achilles tendon: a case report

Alessandro Bartoli<sup>1,2</sup>, Federica Mastrodonato<sup>1,2</sup>, Vito Gargano<sup>3</sup>,  
Giuseppe Toro<sup>4</sup>, Luigi Morelli<sup>1,2</sup>, Giampiero Calabrò<sup>5</sup>

<sup>1</sup> Department of Musculoskeletal Disorders, Faculty of Medicine and Surgery, University of Salerno, Baronissi (SA), Italy; <sup>2</sup> Clinica Ortopedica, Ospedale San Giovanni di Dio e Ruggi d'Aragona, Salerno, Italy; <sup>3</sup> Department of Vascular surgery, Oliveto City Hospital, Salerno, Italy; <sup>4</sup> Department of Medical and Surgical Specialties and Dentistry, University of Campania "L. Vanvitelli", Naples, Italy; <sup>5</sup> Department of Orthopaedic, Trauma, and Reconstructive Surgery, ASL Salerno-Oliveto City Hospital, Salerno, Italy

## SUMMARY

This case report explores "Pedrada syndrome," a rare vascular condition characterized by spontaneous intramuscular venous hemorrhage of the calf, often mistaken for muscular injuries like tennis leg. The study presents the case of a 65-year-old male with comorbidities, including diabetic polyneuropathy, who developed a massive degeneration of the Achilles tendon (AT) due to complications from Pedrada syndrome. Following an initial unnoticed heel ulcer, the patient experienced sudden pain in the calf, misattributed to muscle strain. Persistent symptoms led to imaging studies revealing a 5 cm AT lesion and soft tissue infection. A two-stage surgical intervention was performed, including debridement and subsequent AT reconstruction with a cadaveric allograft. The patient achieved satisfactory functional recovery after six months. This report highlights the diagnostic challenges of Pedrada syndrome and emphasizes the need for a multidisciplinary approach, especially in patients with peripheral neuropathies, to prevent severe complications.

**Key words:** Pedrada syndrome, Achilles tendon degeneration, diabetic polyneuropathy, surgical reconstruction, multidisciplinary approach

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## Correspondence

Alessandro Bartoli  
E-mail: bartoli.ale93@gmail.com

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## Introduction

Pedrada syndrome or "coup de fouet" is an uncommon condition characterized by spontaneous intramuscular venous hemorrhage of the calf, sometimes accompanied by a deep thrombosis of the leg, as well as severe localized pain and swelling of the calf muscles and subcutaneous ecchymoses <sup>1</sup>. Pedrada or Pietrata syndrome, often confused with a tear of calf muscle, is caused by the sudden rupture of a subcapsular vein during physical exertion, including walking <sup>2</sup>. It is also known as tennis leg (TL), a musculotendon injury to the gastrocnemius. The term tennis leg was described by R.W. Powell in 1883 as lawn tennis leg <sup>3</sup>. Powell described a typical scenario of acute pain while in the midst of the eponymous game of sport <sup>4</sup>. Hood, in 1884, added to this etiology and stated it was a "name given to an accident which has long been known to surgeons" <sup>5</sup>. From 1883, for the next 8 years, tennis leg in medical literature was attributed to various sports-related causes, including, but not strictly limited to, tennis. By the 1960s, a tennis leg injury was sometimes referred to as "the old ladies carriage muscle" because it occurred in a woman who

was alighting a bus with only her toes on the step, resulting in excessive flexion of the foot <sup>6</sup>. The pain and symptomology related to this condition often took the injured person out of the implicated activity for a few days to weeks, but was typically followed by a return to previous activities with a complete recovery in 6 weeks <sup>7,8</sup>.

## Case report

We reported a case of a 65-year-old male (height, 1.65 m; weight, 80 kg), with a past medical history of diabetic polyneuropathy, and venous insufficiency. During daily activities, probably with tight shoes, the patient reported an ulcer on the heel which was overlooked both due to lack of sensitivity and superficial injury. In the next days, during recreational activity, he reported a feeling in his left calf as if someone had thrown a stone at him. After the initial painful sensation, he managed to continue his activity, thinking it was a muscle strain. After three weeks he presented to the hospital due to a skin ulcer at the distal insertion of achilles tendon (AT), which was examined by a vascular surgeon with ultrasonography, showing subcutaneous tissue thickening and no evidence of deep venous thrombosis, muscle injury, or hematoma.

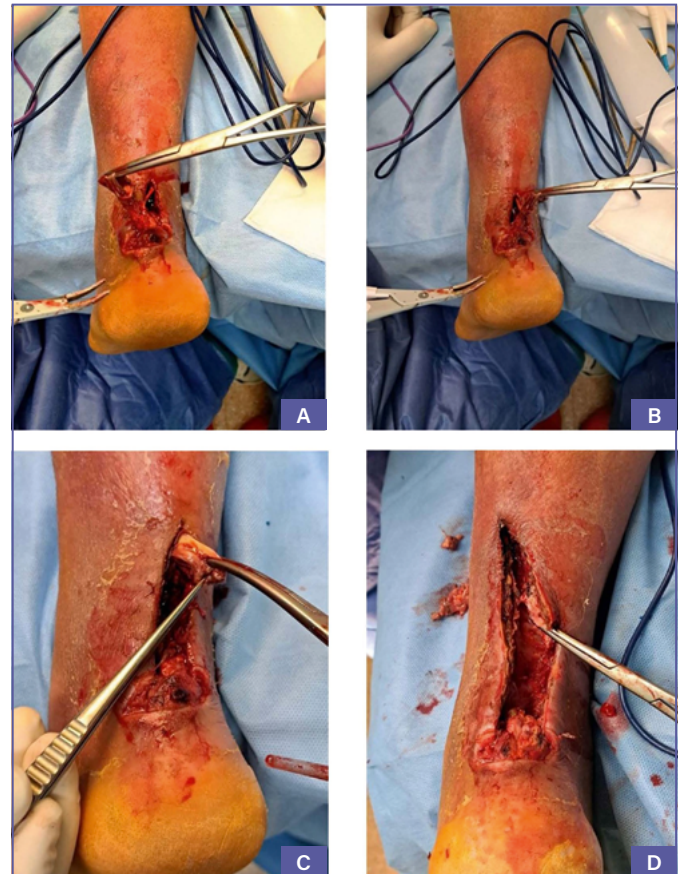
During the following weeks, he developed an inability to walk on his left lower leg, and he went to the hospital again, where he was examined by an orthopedic surgeon who diagnosed a lesion of the AT. He underwent MRI, which highlighted a massive lesion of the tendon, with a gap of approximately 5 cm, and was indicated for surgery. Laboratory tests demonstrate an ongoing infection with an erythrocyte sedimentation rate (ESR) of 32 and C-reactive protein (PCR) of 13. Considering the superficial and deep tissue damage, a two-stage operation was decided.

First operation: With the patient in prone position, a tourniquet at proximal part of calf and sterile surgery field was positioned. A cutaneous incision along the ulcer in correspondence of third posterior distal calf was made. Accurate dissection of superficial soft tissue, being careful of nerves and vessels. A massive degeneration of the AT was found, with substantial soft tissue involvement, and accurate debridement with necrotic tissue excision was made (Fig. 1).

Second operation: After three weeks from the first surgery, inflammatory indices were in normal range, and no infectious signs were visible. An AT allograft from cadaver was made due to comorbidity of patient to stamp out the gap with a double Chracow suture. Synthetic skin was used to cover ulcer skin (Figs. 2-3).

## Discussion

Pedrada syndrome is a rare vascular disease, described for the first time in 1883 <sup>1,2,4</sup> and characterized by a spontaneous intramuscular venous hemorrhage of the calf, with clinical



**Figure 1. A-B) Superficial and deep infection showing necrotic tissue; C) After accurate debridement, the proximal tendon stump was found; D) 5 cm gap by proximal and distal insertion of the AT.**

symptoms such as localized pain and swelling of subcutaneous tissues. The diagnosis is very difficult due to the fact that, in general, it is an unrecognized syndrome that usually passes quickly without leaving any sequelae.

In our case, the patient suffered from uncompensated insulin-dependent diabetes, and the polyneuropathy aggravated a situation that could have gone unnoticed. The injury due to Pedrada syndrome resulted in a compromise of the adjacent tissues, leading to the formation of a large cutaneous and subcutaneous lesion which, without adequate treatment, led to massive degeneration of the Achilles tendon.

One of the questions that arises is whether the tendon injury was a consequence of Pedrada syndrome or if there was simultaneous rupture of the Achilles tendon and thrombosis of a deep vein of the leg. Retracing the patient's clinical history and the possibility of walking without problems before arriving at our observation made us lean towards a degenerative lesion of the AT. Once the patient came to our observation, a dual challenge awaited us: repairing a massive degeneration of both the AT and the subcutaneous and cutaneous tissues of the posterior



**Figure 2). A) AT allograft from cadaver; B) AT implanted with no visible gap; C) Synthetic skin to cover the wound; D) 3 months after surgery.**

third of the leg.

Achilles tendon: a degenerative lesion with a gap of approximately 5 cm. According to Kuwada's classification, a tendon graft was essential for this type of gap<sup>9</sup>. EBM reports the use of the autologous semitendinosus as the best graft<sup>10</sup>. In our specific case, the autologous harvest would have exposed us to a greater risk of wound dehiscence from the donor site and for this reason we opted for a cadaveric Achilles tendon graft. As mentioned above, the results at 6 months are satisfactory with a tendon that both in clinical tests and on ultrasound appears to be intact. The skin and soft tissues show no signs of infection, and the patient has returned to his normal life without deficits and the results are satisfying.

## Conclusions

Little is known about Pedrada syndrome since it often goes unnoticed, and in the literature there is little information about it. It is difficult to recognize a similar pathological picture in



**Figure 3. Six months after surgery.**

a timely manner. A multidisciplinary approach with vascular surgeons and orthopedic surgeons is useful. It is important to not underestimate patients presenting with peripheral polyneuropathy who may overlook wounds which, although small, can constitute a major subsequent problem. We are satisfied with the healing of the skin lesion and the result of reconstruction of the AT in this patient with good functional recovery.

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## Conflict of interest statement

The authors declare no conflict of interest.

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## Author contributions

AB, FM: writing – original draft, writing – review & editing, study selection, data collection and extraction, risk of study bias assessment; VG: writing – original draft, study selection,



data collection; GT writing – original draft, writing – review & editing; LM writing – original draft, writing – review & editing; GC: writing – original draft, writing – review & editing, final approval. All authors: final approval.

### *Ethical consideration*

This study was approved by the Institutional Ethics Committee (ASL SALERNO, P.O. Oliveto Citra). The research was conducted ethically, with all study procedures being performed in accordance with the requirements of the World Medical Association's Declaration of Helsinki. Written informed consent was obtained from each participant/patient for study participation and data publication.

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