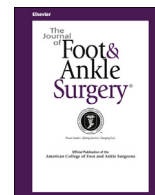




Contents lists available at ScienceDirect

The Journal of Foot & Ankle Surgery

journal homepage: www.jfas.org



Case Reports and Series

Concomitant Contracture of the Knee and Ankle Joint After Gastrocnemius Muscle Rupture: A Case Report

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ARTICLE INFO

Level of Clinical Evidence: 4

Keywords:

contracture
gastrocnemius
pes equinus
Silfverskiold test
tennis leg

ABSTRACT

Injury of the medial head of the gastrocnemius, also called “tennis leg,” is known to heal uneventfully in most cases with compression and immobilization therapy. Failure to heal or long-term complications, including ongoing pain and pes equinus, have been documented in only a limited number of case reports. To the best of our knowledge, a severe concomitant contracture of the knee and ankle joint as a consequence of a maltreated gastrocnemius muscle rupture has not been previously reported in English-language reports. The purpose of the present study was to report a serious complication of neglected tennis leg with a review of the published data.

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Injury of the medial head of the gastrocnemius, also called “tennis leg,” is known to heal uneventfully in most cases with compression and immobilization therapy. Failure to heal or long-term complications, including ongoing pain and pes equinus, have been documented in only a limited number of case reports. To the best of our knowledge, severe concomitant contracture of the knee and the ankle joint as a consequence of a maltreated gastrocnemius muscle rupture has not been previously reported in English-language studies. The purpose of the present study was to report a serious complication of neglected tennis leg with a review of the published data.

Case Report

A 27-year-old male police officer presented with a limping gait and complaining of right knee flexion and ankle plantar flexion deformities (Fig. 1). The patient had a history of trauma. He had experienced a painful “pop” while playing baseball 5 months before visiting our hospital. Immediately after the injury, a partial rupture of the gastrocnemius muscle had been diagnosed and a long leg splint applied at the police hospital. Because of the persistent pain, the injured leg was kept in the long leg splint for 4 weeks without any

physical therapy or intermittent range of motion exercises. When the splint was removed, the patient became aware of the flexion deformities in his knee and ankle, which kept his heel off the ground. After 4 months of aggressive stretching and rehabilitation exercises were not effective, the patient was referred to our hospital.

When asked to stand straight, the patient could only stand on his tiptoes with his right knee bent (Fig. 1). The ankle was in equinus and the hindfoot in slight varus. When asked to touch the ground with the heel, the patient had to bend his knee almost 90° (Fig. 2).

On physical examination, 30° of flexion contracture were present in the right knee joint with 0° of extension lag and –15° of ankle equinus. The Silfverskiold test result was positive, suggesting gastrocnemius tightness. On palpation, a long, thick, band-like tender mass was present on the medial aspect of the right calf muscle, extending proximally to the popliteal fossa.

Plain radiographs showed no abnormalities. Because of the impression of gastrocnemius muscle scarring, magnetic resonance imaging scans of the right lower leg were obtained. On the magnetic resonance imaging scans, a 19-cm-long, fusiform, well-margined lesion with low signal intensity on both T₁- and T₂-weighted images was observed within the medial head of the gastrocnemius muscle. On sagittal views, the mass extended proximally to the tendinous portion of the medial gastrocnemius and distally to the musculotendinous junction (Fig. 3).

Gastrocnemius contracture due to extensive fibrosis was diagnosed. Considering the disease chronicity and the severity of the dysfunction, operative treatment was inevitable. A longitudinal skin incision was made in the posteromedial aspect of the lower leg in line with the palpable mass. The mass was composed of white, dense scar tissue embedded superficially in the medial gastrocnemius muscle

Financial Disclosure: This study was supported by 2015 Inha university research grant (52725-01).

Conflict of Interest: None reported.

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Fig. 1. (A) Gross appearance of a 27-year-old male patient trying to stand straight. Because of concomitant flexion contracture of the right knee and ankle joint, the patient could only walk on tip toes with the knee bent. (B) View showing pes equinus accompanied by hindfoot varus.

belly (Fig. 4A). Its proximal end was continuous with the tendinous insertion of the medial gastrocnemius muscle, and the distal end was continuous with the Achilles tendon. En bloc excision was performed (Fig. 4B). After complete excision of the fibrotic band, full knee

extension and a neutral ankle position were achieved intra-operatively. The pathologic findings showed malaligned collagen fibers with increased cellularity consisting of fibroblasts and fibrocytes, compatible with fibrous scar tissue (Fig. 5).



Fig. 2. (A) Medial view of the patient's right leg showing 30° of flexion contracture in the knee joint and –15° of pes equinus. With the knee in maximum extension, the heel was 3 cm off the ground. (B) With the knee bent, neutral ankle dorsiflexion was achieved, and the heel touched the ground. This finding implies gastrocnemius contracture.

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