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Section: Case Study

Article Title: Atrophy and Depigmentation After Pretibial Corticosteroid Injection for Medial Tibial Stress Syndrome: Two Case Reports

Authors: Miette F. Loopik¹, Marinus Winters², Maarten H. Moen^{1,3}

Affiliations: ¹ St. Lucas Andreas hospital, The Sportsphysician Group, Baarn / Amsterdam, the Netherlands, ² Rudolf Magnus Brain Centre, University Medical Centre Utrecht, Rehabilitation, Nursing Science and Sports Department Utrecht, The Netherlands, ³ Bergman Clinics, Naarden, the Netherlands.

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Atrophy and depigmentation after pretibial corticosteroid injection for medial tibial stress syndrome: two case reports

M. F. Loopik^{1*}, M. Winters², M. H. Moen^{1,3}

Address: ¹ St. Lucas Andreas hospital, The Sportsphysician Group, Baarn / Amsterdam, the Netherlands, ² Rudolf Magnus Brain Centre, University Medical Centre Utrecht, Rehabilitation, Nursing Science and Sports Department Utrecht, The Netherlands, ³ Bergman Clinics, Naarden, the Netherlands

Email: ¹mietteloopik@desportartsengroep.nl

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Abstract

Introduction: No reports have been published on the results of corticosteroid injections for medial tibial stress syndrome (MTSS). **Case presentation:** We present two cases of women with MTSS who showed atrophy and depigmentation of the skin after pretibial corticosteroid injections. Case 1 is an 18-year-old woman presenting with pain in her lower leg for twelve months. No improvement was noticed after conservative treatment. Therefore she received local injections with corticosteroids. Five months later physical examination showed tissue atrophy and depigmentation around the injection sites. Case 2 is a 22-year-old woman, who presented with pain in both lower legs since for twenty-four months. Several conservative treatment options failed therefore she received local injections with corticosteroids. Physical examination revealed tissue atrophy and depigmentation around the injection sites. **Conclusion:** We found no positive effect of injections with corticosteroids in two cases of MTSS. Furthermore, considerable tissue atrophy and hypopigmentation of the skin was observed.

Keywords: medial tibial stress syndrome, corticosteroid injection, side effects

Introduction

Medial tibial stress syndrome (MTSS) is defined as “pain along the posteromedial border of the tibia that occurs during exercise, excluding pain from ischemic origin or signs of stress fractures” [1]. In the eighties the traction theory proposed that traction of the foot flexors and foot invertors caused periostitis [2]. More recent studies concluded that MTSS is most probably bone overload of the medial tibia [2], whereby inflammation of the periosteum could play a role [3,4]. Despite the low level of evidence the best treatment options seem to be; extracorporeal shockwave therapy, inlays and a graded exercise plan [5]. If complaints persists despite these options, sometimes corticosteroid injections are advised [2]. No studies have been published that investigated the effect of corticosteroid injections in the treatment of MTSS. However, a few anecdotal reports show that these injections are being used in clinical practice, especially when complaints are severe [2,6]. Complications after these corticosteroid injections for MTSS have never been described.

Case Reports

Case 1 is a 18-year-old Caucasian woman presenting with MTSS. Her medical history reported a well healed spiral fracture of the left tibia due to a trauma at the age of 12. One year ago, she noticed pain in her left lower leg during and after a working day as a waitress. Physical examination showed recognizable pain along the posteromedial border of the tibia, confirming the diagnosis [1,2]. A splint was constructed in the hospital visited prior to the visit to our clinic, with the aim to provide rest for the leg. In addition, previous treatments applied were a graded running program, focused shockwave therapy and a sports compression stocking. No improvement was noticed after any of these interventions. Then, she received three local injections near the periosteum with corticosteroids (in total 1ml Kenacort 40 mg/ml and 3ml Lidocaine 2%). Injection fluids were equally distributed over the three injection sites. Injections were performed on the three most painful sites along the posteromedial border of the tibia. The post-injection restriction was to avoid heavy loaded activities and the pas has to be less than 4 on the visual analog scale at or after activity. In the first two weeks some pain relief was noticed, but the complaints returned. Five months after injection the patient returned and the following conditions were noted; considerable atrophy of the fat tissue and depigmentation of the skin around the injection sites (figure 1), and palpation pain along the tibial border. The X-ray of her lower leg showed no abnormalities except for the consolidated tibial fracture.

The magnetic resonance imaging (MRI) showed subcutaneous edema and a decrease in the amount of subcutaneous fat tissue at the injection sites (figure 2). Due to cosmetic complaints, she was referred to a plastic surgeon for lipofilling which was performed with a good result according to the patient. Unfortunately, the complaints of pain had not been resolved and she was referred to an orthopedic surgeon to discuss surgical options for MTSS (fasciotomy and release of the tibialis posterior muscle. Several months after the surgery, she was not pain free during heavy activities, but activities in daily life could be performed without problems.

Case 2 is a 22-year-old Caucasian woman presenting with complaints of MTSS. Complaints developed two years ago and were now present especially during soccer playing and at night. Physical examination showed recognizable palpation pain along the posteromedial border of the tibia of both legs. The patient started with focused shockwave therapy of the tibia, a graded running program, shoe inserts with a raised medial arch to support pes planus and sports compression stockings, but no improvement occurred. The MRI showed normal bone, periosteum and musculature, which is a common finding in MTSS [2]. The patient then received two local injections near the periosteum with corticosteroids (in total 1ml Kenacort 40 mg/ml and 3ml Lidocaine 2%) on each lower leg along the portion of the tibia that was painful on palpation. During the first two weeks some pain relief was noticed, but then the patient complained of the reoccurrence of pain symptoms. Physical examination showed considerable atrophy of the fat tissue and depigmentation of the skin around the injection sites and pain with palpation along the tibial border. This patient was also referred to a plastic surgeon who advised lipofilling of the lesions. After several months the leg looked better according to the patient. Complaints of MTSS were still present, but were deemed less than before.

Discussion

MTSS is a common diagnosis in sports medicine [2]. When complaints persist after several conservative treatment options sometimes local injections with corticosteroids are provided [2]. The aim of these injections is a temporary improvement in pain and function and therefore the ability to train and to improve the load capacity. So far, no side effects of these injections in the MTSS population have been described. In the treatment of tendinopathy a low frequency of serious adverse events after corticosteroid injections have been reported, suggesting an acceptable risk according to

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a recent review in the Lancet [8]. However, complications such as post injection pain (8%), subcutaneous atrophy (9%) and skin depigmentation (<1%) are commonly reported [8].

This case report shows that no evidence for corticosteroid injections in the treatment of MTSS is available. In addition this report shows the possibility of considerable side effects of these injections; atrophy of the fat tissue and hypopigmentation of the skin.

Even when multiple conservative treatment options failed to relieve MTSS complaints, we still advise against treatment with corticosteroid injections. This is due to the lack of efficacy and the possible considerable side effects such as atrophy of the fat tissue and hypopigmentation of the skin.

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Figure 1: Atrophy and depigmentation around the injection sites five months after pretibial corticosteroid injection.

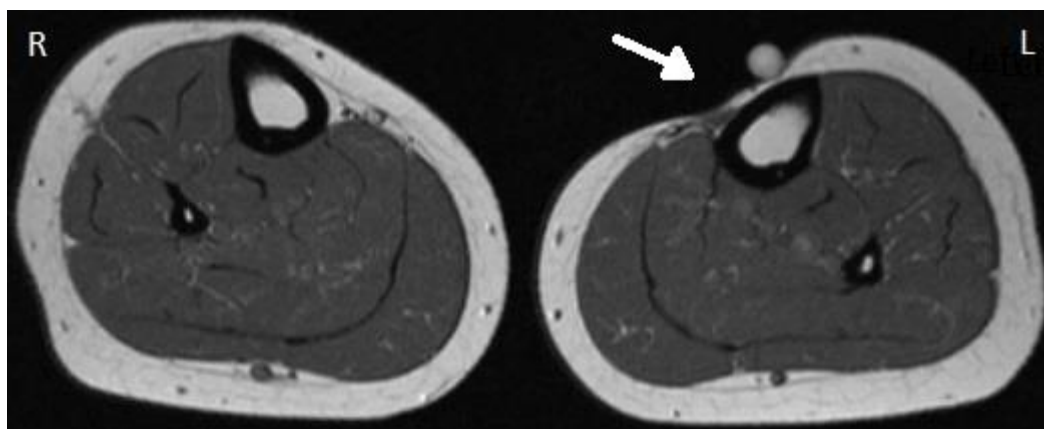


Figure 2: MRI of both mid shaft tibia shows on the left tibia subcutaneous edema with a decrease in the amount of subcutaneous fat tissue at the injection sites (arrow).