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CASE REPORT

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Beware with the clinical diagnosis of pes anserine tendinitis in recreational runners: it may be a stress fracture in the medial tibial plateau. Report of two cases

Cuidado com o diagnóstico clínico de tendinite da pata de ganso em corredores recreacionais: pode ser fratura por estresse no planalto tibial medial. Relato de dois casos

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Abstract

***Introduction**: Diagnosis of stress fracture in the medial tibial plateau can be confused with other different diagnoses, precisely because the site of pain and tenderness is very similar to meniscal injuries and pes anserine tendinitis, which are common injuries in runner patients. **Objective**: Report two cases that were initially interpreted as pes anserine tendinitis in the initial evaluation, and later were diagnosed as bilateral stress fracture in the medial tibial plateau. **Case Report**: Two female patients, 31 and 32 years old respectively, started the practice of street running, without supervision, and six and eight weeks after the beginning of the practice, they evolved with knee pain, bilaterally, on the medial face. In the initial evaluation, the condition was interpreted as pes anserine tendonitis. As they had no improvement, they sought new medical care, in which the diagnosis of a stress fracture in the medial tibial plateau was suspected, and bilateral magnetic resonance examinations were requested, which confirmed the diagnosis. Both patients were treated conservatively, with restriction to impact activities for 6 weeks, load according to pain, simple analgesia with dipyrone, ice, and sodium ibandronate for 2 months. The patients returned after 6 weeks with clinical improvement. After physiotherapy sessions, they were successfully released for impact activities. **Conclusion**: These cases emphasize the importance of the suspicion of stress fracture in the medial tibial plateau in recreational runners with pain in the medial side of the knee, especially if there has been a change in their pattern or intensity of running.*

***Keywords**: Knee, Stress fracture, Tibial fracture*

Resumo

***Introdução**: O diagnóstico de fratura por estresse no planalto tibial medial pode ser confundida com outros diagnósticos diferencias, justamente porque o local de dor e sensibilidade a palpação é muito semelhante a lesões meniscais e tendinite da pata de ganso, que são lesões comuns em pacientes corredores. **Objetivo**: Relatar dois casos que foram interpretados inicialmente como tendinite na pata de ganso na avaliação inicial, e após reavaliação ambulatorial, foi realizado diagnóstico de fratura por estresse bilateral no planalto tibial medial. **Relato dos Casos**: Duas pacientes do sexo feminino, 31 e 32 anos respectivamente, começaram a prática de corrida de rua, sem supervisão, e seis e oito semanas após o início da prática, evoluíram com dor nos joelhos, bilateralmente, na face medial. Na avaliação inicial o quadro foi interpretado como tendinite da pata de ganso. Como não tiveram melhora, procuraram novo atendimento médico, em que foi feito suspeita diagnóstica de fratura por estresse no planalto tibial medial, e foram solicitados exames de ressonância magnética bilateral, que confirmaram o diagnóstico. Ambas as pacientes foram tratadas de forma conservadora, com restrição para atividades de impacto por 6 semanas, carga conforme dor, analgesia simples com dipirona, gelo, e ibandronato sódico por 2 meses. As pacientes retornaram após 6 semanas com melhora clínica. Após sessões de fisioterapia foram liberadas para atividades de impacto com sucesso. **Conclusão**: Esses casos enfatizam a importância da suspeita diagnóstica de fratura por estresse no planalto tibial medial em pacientes corredores recreacionais com quadro de dor na região medial do joelho, principalmente se houve uma mudança no seu padrão ou intensidade de corrida.*

***Palavras chave**: Joelho, Fratura por estresse, Fraturas da tíbia*

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***Conflict of Interest:** None*

Introduction

Stress fractures in runners are not uncommon, and are often associated with changes in running pattern.[1].

Clinically, the diagnosis of stress fracture in the medial tibial plateau can be challenging. This lesion can be easily confused with other differential diagnoses, precisely because the site of pain and tenderness to palpation is very similar to meniscal lesions and pes anserine tendinitis, which are common lesions in runners. Clinical suspicion is essential for correct diagnosis [1-3].

We are going to report two cases that were initially interpreted as pes anserine tendinitis in the initial evaluation in an orthopedic emergency room. And, after outpatient re-evaluation and clinical suspicion of stress fracture, a magnetic resonance examination was requested, which confirmed the diagnosis of bilateral stress fracture in the medial tibial plateau.

Cases Report

The report was duly submitted to the Ethics Committee with approval - CAAE: 45318321.3.0000.5479 – número de aprovação 4.691.767 – Holy House of Mercy of São Paulo.

We report the case of two female patients who attended the Orthopedics Emergency Room with pain in the medial aspect of the knees associated with the practice of recreational running. Both were diagnosed in the emergency room as pes anserine tendinitis, and a bilateral medial tibial plateau stress fracture was subsequently diagnosed in outpatient consultations.

AIPP, 32 years, woman, she was admitted to the Orthopedics Emergency Room with a history of bilateral pain in the medial aspect of the knees. Previously was a sedentary patient, and about 6 weeks before the initial assessment, she started the practice of street running, without medical supervision or professional guidance, and without performing muscle strengthening along with running. The running intensity was progressively increased, until she started to have pain in the knees, bilaterally, on the medial face, about two days before the appointment. The pain worsened with the attempt to practice running, and improved with rest. In this evaluation, after plain radiographs did not demonstrate acute osteoarticular alterations, the condition was interpreted as pes anserine tendinitis. Non-steroidal anti-inflammatory drugs were prescribed for 7 days, ice and rest were recommended during the period. The patient had no improvement with the proposed treatment, and was unable to return to running even after rest and medication. She then sought outpatient care for reassessment. During the consultation, it was observed that she had pain on palpation of the medial tibial plateau region, close to the joint interline, without changes in the anatomical axis of the lower limbs, or hyperpronation during gait. A diagnostic suspicion of stress fracture in the medial tibial plateau was made, and bilateral magnetic resonance imaging was requested, which showed bilateral stress fracture in the posteromedial region of the tibial plateau (Figure 1).

CFLR, 31 years, woman, was admitted to the Orthopedics Emergency Room with a history very similar to the previous patient. She had also started the practice of running without supervision about 8 weeks before, and then she started to present pain, with the same characteristics as the previous patient. She was interpreted in the emergency room as pes anserine tendinitis, and as she did not improve and was unable to resume running, she then went to an outpatient consultation where she was reassessed. She presented pain on palpation of the medial tibial plateau region, close to the joint interline, without changes in the anatomical axis of the lower limbs, or hyperpronation during gait. A diagnostic suspicion of stress fracture was made, and bilateral magnetic resonance imaging

Figure 1 - Coronal and sagittal-weighted magnetic resonance imaging in T2, right and left knee, showing a stress fracture with area of reactive bone edema in the posteromedial region of the tibial plateau bilaterally.

Figure 2 - Coronal and sagittal-weighted magnetic resonance imaging in T2, right and left knee, showing a stress fracture with area of reactive bone edema in the posteromedial region of the tibial plateau bilaterally.

was requested, which confirmed a diagnosis of bilateral stress fracture in the posteromedial region of the tibial plateau (Figure 2).

Both patients were treated conservatively, with restriction to impact activities for 6 weeks, and load according to pain. Simple analgesia was prescribed with dipyrone, ice, and sodium ibandronate 150mg 1 tablet per month on fasting for 2 months. Patients returned after 6 weeks with clinical improvement. On examination, they had no pain on palpation on the medial surface of the knees, and were referred to physical therapy with the aim of rebalancing muscle for a gradual return to running activities. After the physiotherapy sessions, they returned well, without complaints, and were released for successful impact activities.

Discussion

Stress fractures were first described in Prussian soldiers in 1855[4]. They are injuries caused by recurrent microtraumas, which with the increase in frequency or intensity of impact activities, culminate in fracture[5].

After six to eight weeks of a sudden and non-gradual increase in the intensity of the athlete's or new practitioner's physical activity, this overload can lead to the appearance of microfractures. When bone tissue does not have enough time to undergo remodeling and adapt to the new condition, it evolves to complete fracture of the affected bone. The individuals most at risk of suffering a stress fracture are runners, soldiers and dancers[4]. Our patients were sedentary, and started the practice of recreational running, and just after six and eight weeks, respectively, from the beginning of the practice, they started to present symptoms.

Every bone in the human body is subject to stress fracture. The most affected bones are the tibia, metatarsals and fibula. The predominance of stress fractures in the lower limbs over the upper limbs reflects the cyclical overloads that bones are subjected to in impact activities, such as running[4-5].

The tibia is the bone most affected by stress fractures, especially in long-distance runners. The tibial shaft is the most common site, while lesions in the proximal tibial metaphysis are rare [1-3]. Studies describe a high incidence of bilaterality in stress fractures of the proximal tibia[6-7]. Similar to what is reported in the literature, our cases had bilateral involvement.

The most common site of a stress fracture on the tibial plateau is in the posteromedial region, precisely because it is the site of greatest stress caused by the load of body weight on the tibia. However, in some cases, the fracture can occur in the anteromedial region[3]. Our cases were in the posteromedial region of the tibial plateau, the most common location. Some studies show that the greater the posterior tibial sagittal slope ("tibial slope"), more posterior is the stress fracture on the plateau[8]. However, the relation between contact dynamics, posterior tibial slope, and tibial stress pattern during gait and running is still being studied[8].

Stress fractures in runners are multifactorial. They may be associated with hormonal, nutritional, biomechanical and anatomical changes, such as poor alignment of the lower limb and foot abnormalities, such as hyperpronation during gait, factors not observed in our patients. A change in running pattern is one of the extrinsic factors most associated with the risk of developing a stress fracture[1,2,4,9-10]. Our patients were sedentary and started running without supervision or proper muscle strengthening. This change caused an abrupt increase in load, resulting in fatigue and failure of the cancellous bone of the proximal tibia. Clinically, the diagnosis of this type of fracture is difficult. The presence of pain in the medial region of the knee, close to the joint interline, makes a differential diagnosis with meniscal injuries

and pes anserine tendinitis[1-3]. Our cases were initially interpreted as pes anserine tendonitis in the initial evaluation in an orthopedic emergency room. After reassessment and clinical suspicion, a diagnosis of stress fracture was made.

Clinical suspicion is essential for diagnosis. Pain that develops after an increase in the intensity of impact activities, worsens with the performance of activities and improves with rest would be the typical clinical presentation of a stress fracture. On physical examination, the main finding is pain located at the fracture site[5].

In most cases of knee pain, the radiographic examination is the first examination to be obtained. In cases of stress fracture, plain radiographs are usually normal. Bone scintigraphy, computed tomography and magnetic resonance imaging can be used for diagnosis. Magnetic resonance imaging is the most sensitive and specific imaging test for diagnosing stress fractures[2-4]. MRI is more sensitive than tomography, and more specific than scintigraphy. T2 resonance images help to identify the presence of bone edema, which usually follows the fracture line in the tibial plateau[2-3]. In our patients, plain radiographs were normal, and the diagnosis of stress fracture was confirmed by magnetic resonance imaging.

The treatment is reducing the load on the affected site, medications to control pain and physical therapy rehabilitation[4]. Patients are instructed to restrict impact activities for a period of four to six weeks, and maintain weight bearing as tolerated. Analgesics are used for pain relief. Anti-inflammatory drugs, if used, should be prescribed with caution and for a short period. There is controversy in the literature as to whether these medications can cause a negative interference in the bone healing process[11-13]. For the maintenance of flexibility, strength and cardiovascular physical conditioning, during the rest period, the patient must engage in a physiotherapy and controlled exercise program. Immobilizations are rarely used for the treatment of stress fractures due to their deleterious effects on muscles, tendons, ligaments and joints[4]. In our patients, we used ibandronate as an adjuvant therapy in the treatment of fractures. Bisphosphonates suppress bone resorption and inactivate osteoclasts through their binding to calcium phosphate crystals. There are citations in the literature about the use of these medications in the treatment of stress fractures, however, their use is not yet scientifically supported[14-15].

Our cases emphasize the importance of the diagnostic suspicion of stress fracture in the medial tibial plateau in runner patients with pain in the medial region of the knee, especially if there has been a change in their running pattern or intensity. Magnetic resonance imaging should always be ordered when there is clinical suspicion for diagnostic elucidation, and the clinical diagnosis of pes anserine tendonitis should not be relied upon in this situation.

References

1. Vossinakis IC, Tasker TP. Stress fracture of the medial tibial condyle. Knee. 2000;7(3):187-90.
2. Sambataro S, Gonzaga CM. A non-traumatic stress fracture of the tibial plateau. PM R. 2009; 1(7):691-3.
3. Yukata K, Yamanaka I, Ueda Y, Nakai S, Ogasa H, Oishi Y, Hamawaki J. Medial tibial plateau morphology and stress fracture location: A magnetic resonance imaging study. World J Orthop. 2017; 8(6):484-90.
4. Astur DC, Zanatta F, Arliani GG, Moraes ER, Pochini AC, Ejnisman B. Stress fractures: definition, diagnosis and treatment. Rev Bras Ortop. 2015;51(1):3-10.
5. Kurklu M, Ozboluk S, Kilic E, Tatar O, Ozkan H, Basbozkurt M. Stress fracture of bilateral tibial metaphysis due to ceremonial march training: a case report. Cases J. 2010;3:3.
6. Engber WD. Stress fractures of the medial tibial plateau. J Bone Joint Surg Am 1977; 59(6):767-9.
7. Niva M, Kiuru M, Haataja R, Pihlajamaki H. Bone stress injuries causing exercise-induced knee pain. Am J Sports Med. 2006; 34(1):78-83.
8. Giffin JR, Vogrin TM, Zantop T, Woo SL, Harner CD. Effects of increasing tibial slope on the biomechanics of the knee. Am J Sports Med. 2004; 32(4):376-82.
9. Manco LG, Scheneider R, Pavlov H. Insufficiency fractures of the tibial plateau. Am Roent Ray Soc. 1983; 140(6):1211-5.
10. Luria S, Liebergall M, Elishoov O, Kandel L, Mattan Y. Osteoporotic tibial plateau fractures: An underestimated cause of knee pain in the elderly. Am J Orthop (Belle Mead NJ). 2005; 34(4):186-8.
11. Carmont RC, Mei-Dan O, Bennell LK. Stress fracture management: current classification and new healing modalities. Oper Tech Sports Med. 2009; 17(2):81–9.
12. Mehallo CJ, Drezner JA, Bytomski JR. Practical management: Non steroidal anti-inflammatory drug (NSAID) use in athletic injuries. Clin J Sport Med. 2006; 16(2):170–4.
13. Wheeler P, Batt ME. Do non-steroidal anti-inflammatory drugs adversely affect stress fracture healing? A short review. Br J Sports Med. 2005; 39(2):65–9.
14. Shima Y, Engebretsen L, Iwasa J, Kitaoka K, Tomita K. Use of bisphosphonates for the treatment of stress fractures in athletes. Knee Surg Sports Traumatol Arthrosc. 2009; 17(5):542–50.
15. Ekenman I. Do not use bisphosphonates without scientific evidence, neither in the treatment nor prophylactic, in the treatment of stress fractures. Knee Surg Sports Traumatol Arthrosc. 2009; 17(5):433–4.

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