



Case Report

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Surgical Treatment for a Relapsing Malleolar Bursitis in a Professional Figure Skating: Case Report

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Abstract

The increase of popularity in sports as Roller Skating, Figure Skating and Ice Hockey has simultaneously increased the number of skating-related injuries. Lesions of chronic dermatological nature and muscle and tendon lesions have high number of case reports. Ankle and foot are peculiarly involved and this condition suggests the correlation with the use of the skating boot, which with its high-cut and hard-fit changes the joint biomechanics and function and, as a result, the intergumentary system is continuously damaged by the compression and rubbing on the foot. The frequent onset of non-septic chronic relapsing bursitis at the level of the malleolar region is common in all sports requiring the use of skating boots. The conservative treatment is usually compromised by the repetition of the traumatic event due to the use of the skating boot. The case report of a 19 year old professional figure skater affected by non-septic relapsing malleolar bursitis at the level of the malleolar region is presented.

Keywords: Roller skating; Malleolar bursit; Dermatological lesions

Introduction

Sports as Roller Skating, Figure Skating and Ice Hockey are becoming more and more popular year after year both in United States and Europe. The Italian Federation of Hockey and Figure Skating (Federazione Italiana Hockey e Pattinaggio, F.I.H.P) has always been one of the Federations counting the highest number of members also part of the Italian National Olympic Committee (Comitato Olimpico Nazionale Italiano, CONI). More than 50,000 members in about 1,000 associate sport organizations. As a result, even the number of injuries related to these sports is basically increasing. Unfortunately, the literature does not provide many scientific case reports concerning this topic and the case reports of figure skaters injuries are very rare.

However, due to the type of sport, the recurrence of the athletic feats, the use of rigid and thigh skating boots and the variety of the technical elements such as jumps, twisting motions and changes in direction, the most common injuries occurring in figure skaters are chronic dermatological lesions followed by orthopedic injuries like sprains and fractures [1]. The reports of malleolar bursitis in professional and amateur athletes suggest a common risk factor for figure skaters. In this specific sports activity the continuous use of the skating boots and, therefore, the constant effect of the traumatic triggering factor often leads to a relapsing pathology difficult to treat.

Case Presentation

We report the case of a 19 years old female professional figure skater, member of the Italian National Team, which was admitted to our ward due to onset of relapsing medial malleolar bursitis of the right ankle (Figure 1). The patient refers the onset of pain and swelling at the right medial malleolus region about two years before secondary to increased training schedule that after the failure of the conservative treatment (rest and physical therapy) was surgically treated (removal of medial malleolar cyst of unknown origin).

**Figure 1:** Clinical Presentation.

Following to her gradual functional recovery, the patient started practicing sport and after a few weeks, she experienced once again onset of swelling at the level of the same region associated to pain upon palpation. As a result, patient was evaluated by one of our Orthopedic Specialists and the diagnosis of a relapsing non-septic medial malleolar bursitis of right ankle was placed. Initially the Patient was treated conservatively with drainage of synovial intrabursal fluid and 3 cycles

of intrabursal steroid injections but after short period of symptoms improvement the patient was unable to return to skating [2]. After the failure of the conservative treatment a new MRI of the right ankle was performed that showed the presence of evidence of a significant medial malleolar bursitis (Figure 2) and a revision surgery was scheduled.



Figure 2: MRI findings of Malleolar Bursitis.

Patient was placed in supine position and a pneumatic tourniquet was positioned at the level of right leg.

A surgical incision was performed over the previous incision at the level of the medial malleolar region. A distended and hypertrophic malleolar bursa was found subcutaneously and a complete bursa excision was performed. Samples of bursal tissue and synovial fluid were collected and the histological examination confirmed the presence of hypertrophic synovial material and non-septic synovial fluid. The related tendons and ligaments showed no evidence of lesion. The patient did not present any complications and she was discharged the same day of the surgical procedure. A thermo conformable splint was applied for 14 days in order to immobilize the ankle joint. The post surgical recommendation was a complete non-weight bearing on the operated limb period of 14 days.

The surgical wound completely healed in two weeks without any complications (Figure 3). Two weeks after the surgery, patient started physical therapy program for joint mobilization with gradual sustained movement. Patient progressively returned to her training schedule after 45 days and reached full recovery after about 70 days. After 4 months from the surgery patient won the figure skating World Championship.

Discussion

Ankle bone pain or malleolar bursitis over the inside and outside of the ankle can result from pressure from the skater's boots.

The high incidence of ankle lesions reveals a correlation with the use high-cut and hard-fit skating boots that force the foot and the ankle to perform a partial plantar flexion movement changing the joint biomechanics and function [3-9].



Figure 3: Clinic at day 2 and day 15.

The repeated friction and the continuous compression of the foot and ankle represent the main traumatic injuries that can damage the skin and the soft tissues. The intergumentary system and the tendon-muscle system are, therefore, mainly exposed to lesions related to the use of the skating boot [10]. The main chronic diseases related to figure skating include: perimalleolar bursitis, callosity and hyperkeratosis, nodules, ganglion cysts, lacerations, Hanglund's deformity and dermatological infectious diseases. The bursa is a closed sac made of synovial membrane and containing synovial fluid. It is usually located between the bone and the tendons, between the bone and the skin and between the ligaments and the tendons so that it reduces the shear forces caused by the movements. The perimalleolar bursa is located between the lateral and medial malleolus bone surface and the subcutaneous tissue. The bursa is usually not palpable it becomes painful when a bursitis occur [11,12]. There are two types of inflammation of the bursa (bursitis): the non-septic bursitis, mainly due to traumatic injuries, and the infected bursitis. The infected bursa is caused by an indirect infection (endogen) or direct infection secondary to external pathogens exposure. There is an increased incidence in the onset of perimalleolar bursitis for skating sports, and it is usually non-septic. The prolonged use of the skating boots is the primary responsible factor. A septic bursitis can be a consequence of a cutaneous lesion and therefore a direct infection of the bursa or a supra-infection of a non-septic bursitis, which, if a perimalleolar bursitis occurs, can be due to a cutaneous ulceration after continuous rubbing between the skating boot and the skin. In this case the responsible pathogen is mainly the *Staphylococcus Aureus* [2]. Perimalleolar bursitis in professional athletes can be worse and relapsing due to the ongoing repetition of the motion mechanism and to the short non activity period of that usually high level athletes have. This condition is characterized by an intermittent sub-cutaneous pain at the level of the ankle bony prominence that compromises the athlete performance. Non surgical treatment (aspiration of synovial fluid and corticosteroid injection) represents the first therapeutic approach and often it is enough to solve this condition and to allow to return to the sport activity [2]. Surgical treatment is indicated in presence of a relapsing bursitis or a septic bursitis.

Conclusion

The high number of case reports of relapsing bursitis in figure skaters suggest the importance of prevention and follow-up on especially in high level athletes. The type of skating boots material, the study of the stability and the fit of the skating boots in relation to the individual's anatomy have a fundamental in injury prevention.

Although surgical procedure of bursectomy should be the last therapeutic option in high level athletes it allows to obtain a stable results and a faster return to the sport activity with a low complications rate.

Conflict of Interest

All authors declare that they have no conflict of interest.

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