International Journal of Advanced Research in Orthopaedics

Chembio Publishers
Right Choice for Researchers

Case Report *Volume 1; Issue 1*

The Symptoms of Tendinopathy Knee Caps (Infrapatelic Tendinopathy)

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Received Date: May 10, 2018; **Published Date:** May 26, 2018

Abstract

Symptom "Infrapatellar tendinopathy" is a very delicate problem which should be solved as soon as first symptoms appear. It is necessary to keep correct anamnesis of the problem, to determine the diagnose and treatment method, as well as implement controlled exercises which can contribute to a faster recovery, so a sportsman can make their body fit and continue with training and competitions. The causes of Infrapatellartendinopathy and pathological changes are similar to causes of Achilles tendon injury. Long jumpers, racers on medium and long tracks mostly suffer from tendinopathy of patella. The most common causes are compression of the patella, instability of the patella, biomechanical problems and muscle misbalance, direct trauma, soft tissue injury, overstrain syndrome.

Keywords: Intertrochanteric fracture; Unstable; Intramedullary fixation

Introduction

Athletics is a branch of sport (the queen of sports) which encompasses elementary (phylogenetic) forms of movement (walking, running,jumps and throws) which are conducted in sequences of more or less complex types (disciplines) and which, through evolution,reached today's level of perfection. Each discipline, group of disciplines has its own characteristics and certain habits and values can be obtained by practicing them, in the form of mobility, psychophysical qualities and hygienic habits [1]. Athletics includes the biggest number of various disciplines of cyclic acyclic character which are manifested from moderate to maximum intensity (running, jumps, throws). Therefore, player injuries are very different and in some occasions they can be fatal and can permanently disable the player for further training and continuing their career. In some athletic disciplines, injury risk is especially worrying (racers from 60-400m, long jumpers, high jumpers, triple jumpers, long-distance runners), they need significant help of medical staff.

Injuries of lower caudal extremities occur often even in throwing disciplines (shot put, discus throw, javelin throw, hammer throw) in which, by logic, hands are more subjective to injuries. Having that in mind, sports doctors very often have a chance to see a wide spectre of athletes' problems, and most often those are bone breakage caused by elbow in throwing in shot put, javelin throw, Achilles tendon injury during running, low start, take-off, etc. Injuries and diseases represent big problem for athletes (at least the successful ones), since their personal income depends on their health status and results. It is natural that every athlete has a dream of winning gold medal on Olympic Games and reaching World record and therefore, they often push themselves to the limits in a physical and psychological sense [1,2]. Exactly because of their great motivation and desire for success, athletes are prone to

Citation: Ratko Pavlovic, et al. The Symptoms of Tendinopathy Knee Caps (Infrapatelic Tendinopathy). Int J Adv Res Ortho 2018, 1(1): 180001.

neglect signs of over-training and so called insignificant injuries which demand serious intervention of a coach or medical staff [3]. Tendinopathy Knee Caps (InfrapatelicTendinopathy) is going to be examined here, which is considered to be one of most often injuries in athletics.

Description

Very often in athletes during jumping disciplines a pain occurs in the front part of the knee, which is a very unpleasant feeling and disables their complete engagement. It is often called patellofemoral painful syndrome or syndrome of pressure in inner or outer part of patella. Also, this occurrence is present in long-distance runners. The pain in the back part of the patella is followed by knee weakness. Symptoms get worse during the downhill carrying of the load. Sportsmen often mention so called cinema symptom, or pain whose name came from long sitting with bent knees. Tight small outer ligaments which are located opposite weak inner structures cause dysfunction in patellofemoral joint. Low flexibility in certain muscle groups contributes to the overall picture of the state, especially of the back part of the lower leg, m. gastrocnemius and m. soleus [4].

Problems with ligaments of the knee patella are often associated with jumping movements, therefore they are often prominent in athletics, basketball, less often in football and ice hickey. Mostly long-jumpers suffer from tendinopathy of knee patella. That phenomenon is called jumper's knee, and it can often lead to misconception, since based on the intensity of the pain, sportsman has a feeling that soon they will recover and continue with training (which can be done, but the question that arises is to what extent it is possible) (Figure 1).

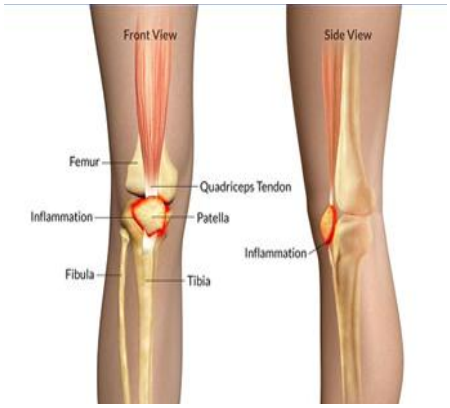

Figure 1: Infrapatelic Tendinopathy.

The question of possible existence of genetic predisposition for the development of this pathological occurrence has no answer. Yet, the improvement of degenerative changes, recorded in sportsmen from the age of 17 or 18 points to a possibility that InfrapatellarTendinopathy can be defined as a degenerative process [5,6].

Diagnosis

Diagnosis of the jumper's knee in most number of patients is acquired only based on thorough anamnesis and careful clinical examination. During the conversation it is advisable to find out all details about the number and intensity of trainings and competitions, as well as eventual amplification of that intensity, and about the surface or the change of the surface on which the training or a competition is conducted. During clinical examination the patient lies on their back with their legs extended, and the doctor pushes their patella towards their foot by pushing the base of the patella using the thumb of one hand and that raises the tip of the patella and enables its detailed palpation with the thumb from the other hand. It is important to emphasize that the pressure to the tip leads to the occurrence of strong pain and that the patient in that moment usually confirms that the pain is the same pain which they feel during sports activity, and that the pain is so strong that the patient sometimes "jumps" from the bed in the moment of applying of pressure on the tip. So called "Basset's sign" is of the greatest help for determining the diagnosis of jumper's knee [7].

Namely, the patient feels the pain during the palpation of the point of the patella when the leg is extended, and after the leg is folded in a position in which the knee is positioned in a 90° angle, then the pain is significantly

lessened, or, in fact, in most cases there is no pain at all. The pain on the tip of the patella can be caused also by doing a squat on a slanted platform, which additionally increases the possibility that the occurrence is the case of jumper's knee. Naturally, during clinical examination the doctor should carefully examine other structures of the knee joint and use other clinical tests during that, in order to check stability of the knee and possibly discover some new damages to the knee, namely injuries of the meniscus and/or cartilage in the first place. Level of swelling and sensitivity in lower part of the patella from the inner part is discovered during the examination. The pain occurs due to contractions of the quadriceps femoris or eccentric load. Ultrasound and magnetic resonance imaging clearly show that the cause of that state is pathologically modified segment of the tendon tissue. That pathological phenomenon is manifested by increasing of the matrix in the tendon tissue, followed by decreasing of the collagen content [6,8].

Pain in the area of patella and thighs during climbing and going down the stairs occurs as the most common symptom of patella femoral syndrome; as well as pain during long sitting with legs bent in knees; during the squat and kneeling the pain gets worse; the patients often mention that the feel as if their knee is about to "pop out" or they feel the decline of the knee. The causes of patella tendinitis and pathological changes are similar to causes of Achilles tendon injury. What is mentioned most often is compression of the patella, instability of the patella, biomechanical problems and muscle misbalance, direct trauma, soft tissue injury, overstraining occurs as a consequence of excessive compression between patella and lower leg bone. The compression is mostly occurring: Laterally, from the outside side of the leg, when the pressure from the side part occurs due to tightening of the muscles on the side part of the leg. In this situation it is necessary to relax muscles on the side part of the leg by massaging, foam roller or stretching and to strengthen medial (inner) head of the quadriceps. For instance, during the conducting of the squat (if it is chronic compression of the patella) you should use unstable surface and push a small ball during the performance. If you want to amplify the load, add weighs or something similar [9,10].

Instability of the patella occurs in patients with shallow joint surface of the thigh and they have predisposition of overly instable patella. Patella will come out too laterally (towards outside) during the examination. These kinds of states can cause the rapture of the medial ligament and pain on the medial (inner) side. It is possible that subluxations (dislocation of the joints from their positions) occur often. The greatest strain occurs during squat (30°). Usually exercises for static stability are recommended for these kinds of states.

Treatment

Various different ways of treatment of the jumper's knee are applied now-a-days, out of which the methods of non-surgery treatment are more and more popular. Eccentric exercises are one of the most used methods of non-operational treatments of jumper's knee, and they are based on light performing of muscle contractions, during which, in comparison to concentric exercises, muscle fibers are lengthened, and not shortened. The main aim of eccentric exercises is to resist to straining and retention of the movement control. In comparison to concentric exercises during which starting point and vertex of the muscle are getting closer, in eccentric exercises during the contraction lengthening of the muscles happens, i.e. starting point and vertex are getting moving away from each other. It is important to point out that during the performance of the eccentric exercises the movement always has to be very slow, with pain sometimes, and that the load is increased by adding weight [7]. Rehabilitation should encompass the program of eccentric exercises which is done by using slanted surface. Biomechanical estimation of the movements and analysis of the posture contribute to the overall picture of the state [9,10].

Conclusion

The "Infrapatelic Tendinopathy" symptom is a very delicate problem which needs to be solved as soon as the first symptoms appear. It is necessary to conduct a correct anamnesis of the problem, to determine the diagnosis and method of treatment, as well as the introduction of controlled exercises that can contribute to a faster recovery so that the athletes can bring their body to its form and continue training and competition. It is also necessary to use pharmacological agents for the purpose of faster and efficient treatment.

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