

REVIEW PAPER**Slavko Zdrale¹, Biljana Mrdja¹**¹Faculty of Physical Education and Sports, University of East Sarajevo.**UDK: 796:616.001****616.727.2****DOI: 10.7251/SIZ0217077S****SHOULDER JOINT INJURIES IN SPORTS WITH SPECIAL EMPHASIS ON HUMEROSCAPULAR LUXATION**

Summary

This paper attempts to address shoulder injuries in sports, with a special emphasis on the luxation of the humeroscapular joint. The most common sports with this type of injury are also listed. The anatomy of the joint is described, the pathoanatomical damage that occurs after injury, symptomatology, diagnosis and therapy through a conservative operative approach. It should be noted that the incomplete or unsatisfactory process leads to the return of the injury and thus to the prolongation of treatment and to longer absence from sports activities and in some cases causes the termination of the sporting career. It is therefore necessary to take a serious approach to the treatment of this injury and that only fully recovered athletes continue to engage in sports.

Key words: luxation, humeroscapular joint, injuries, pathoanatomical damage, symptomatology, diagnostics, treatment

INTRODUCTION

The shoulder joint is anatomically and functionally composed of two joints, scapula and humerus and acromion and clavicle. It is vulnerable to injury in almost all sports, especially in martial arts. Injuries can be caused by the action of a direct or indirect force, usually by falling on an arm or by a collision with an opponent. The injury is diagnosed by the position of the arm that is adducted and rotated in the field, and the injured person holds it with another hand. First aid is given on the spot if a physician or trainer is present, who can easily relocate the joint by a simple maneuver. If this fails, the patient is sent to a health facility where they can be treated in general anesthesia. After the relocation comes the period of immobilization and then the rehabilitation treatment and the introduction into the training process. Recurrence of such injuries is frequent, and if the physician fails to stabilize the condition, then surgery is necessary. After the surgery comes the rehabilitative treatment and finally assessment whether the injured party has fully recovered to be able to respond to the requirements of the sport.

DISCUSSION**The anatomy of the shoulder joint**

The shoulder joint is extremely maneuverable and allows the hand that free-floating in space. The glenoid cavity is very shallow and considerably smaller than the head of the humerus, so the bone congruence is considerably smaller. On the edge of the glenoid cavity is the glenoid labrum, a fixed and partially movable fibrous structure, wedge-shaped on the cross-section, stretching along the edge of the glenoid, increases the congruency of the joints of the body, allowing for a certain degree of mobility and amortizing impacts. Joint capsule is quite wide. The ligaments are thin but are enhanced by muscle tendons that penetrate into the cavity.

Muscles with tendons next to the capsule are: supraspinatus, infraspinatus, subscapularis and teres minor. They give the stability to the joint and are usually called rotary cuffs. Especially important is the supraspinatus muscle. The peripheral muscles around the shoulder joint, trapezius deltoideus, biceps and others give additional stability to the joint. Despite this, the shoulder joint is the most unstable of all joints. The reason for this is its high mobility. The shoulder joint is vulnerable to injury in almost all sports, especially martial arts, rugby, wrestling, skiing, boxing, athletics, games with balls, some gymnastic disciplines and others.

Humeroscapular joint luxation Pathoanatomical joint damage after injury, clinical picture, diagnosis and treatment Luxation is a complete loss of contact of the joints, and subluxation is a partial loss of contact. The luxation of this joint is the most common in the following sports: rugby, wrestling, skiing, football, gymnastics, etc. The mechanism of luxation occurs when the shoulder movements are stopped by an object, a teammate, etc, but the body continues to move. Great force puts pressure on the shoulder joint, the capsule breaks and the head drops out of the scapula. Sometimes raising a hand over the head (throwing) and sudden muscle twitching (throwing) can lead to luxation. Repetition of activities in these sports can lead to stretching of the capsule and ligaments. Luxation can also be created by indirect force, by falling on an arm, especially if rotation occurs at that moment. During luxation, the capsule and ligaments, especially the glenohumeral, are sprained, more often torn, especially at the first luxation. Often an avulsion arises from the clavicle of the glenoid cavity of the bone. Considering the character and poor vascularisation of the same, its recovery is very slow. This process will lead to the looseness of the joint capsule and tendons of the subscapularis, and thus to the damage of the rotary cuff. Bankart lesion is best diagnosed by ultrasonography and magnetic resonance.

When luxation occurs, a large tuberculum is rarely rejected. It is often dislocated, but it can be relocated during the relocation. If after the relocation it remains five or more millimeters apart, or in rotation greater than 50 degrees, then surgical therapy is required. Anterior dislocations are more frequent, with the head in front of the glenoid below the coracoid. They are clinically recognized by the position of the arm, which is in abduction rotated in the field and the patient supports it with the other hand. Locally there is a gap at the point of the joint, and in front of the shoulder is the head of the humerus. There may be a dislocation of the head below the glenoid in armpit. It usually occurs with a fall on an outstretched arm. The arm remains raised upward so this injury is called luxatio erecta.

The diagnosis of anterior and erectile luxation is easy. In cases where this is possible, the injury should be verified by a two-way x-ray scan. It will then be easy to see the possible fracture of the large tuberculum. Prior to each intervention, attention should be paid to the possible presence of a neurological lesion. The first aid is to place the patient on a flat surface and to monitor the movements of the arm. It is performed with an arm strap under 90 degrees in relation to the longitudinal axis of the body. The traction is performed gradually, with a soft massage of the arm to relax the muscles. The successful relocation is easily felt by the repositioning phenomenon, and the arm returns to its physiological position. The pain quickly disappears. In muscular athletes this maneuver often fails. Then it is necessary to refer to an institution where there is a possibility of general anesthesia with relaxation. Then the relocation is very easy and relatively successful. The rough techniques called Kocher's Method and Hippocratic Method are no longer recommended.

After relocation and radiological verification of the quality of the position, it is necessary, especially for repeated luxations, to carefully analyze the head of the humerus, or its convexity. Sometimes there is an impression on the back of the calotte that facilitates future luxations. If this impression affects more than 1/5 of the head's convexity, an operative procedure is needed. This procedure requires a lot of experience. After the achieved

relocation, orthopedically or by a surgical procedure, the arm is immobilized for three to six weeks. The neurological damage must be examined again.

Posterior luxation of the shoulder joint

This luxation is quite rare. It occurs by sliding the humerus head behind the glenoid, usually when the arm is held back, and the body falls forward. Diagnosis is easily overlooked. The arm is abducted inside, and the hand is facing backwards. Diagnosis is best confirmed by radiography. The relocation should be performed in general anesthesia and immobilized in an induced position in the outer rotation of the arm. More frequent radiological control is necessary because recurring luxations are frequent. In case of unstable relocation, there is a surgical stabilization of luxation, closure of the capsule and sewing of torn ligaments.

Recurrent luxation of the shoulder joints.

It is a dislocation that occurs if the previous one hasn't healed properly. The mechanism of emergence is the same, but less force is required. Diagnosis is set in the same way, the relocation is easier, sometimes so easy that the patients themselves can do it with the other hand. Risk factors are: insufficient or rather insufficiently long immobilized first luxation, torn of ligaments and capsule, separation of labrum from the glenoid.

A separate labrum prevents the healing of the articular capsule, rarely coalesces to the bone, so that the capsule attached to it remains looser. If sports activities continue, the loosening of the entire joint will occur, a precondition for the weakness of the rotary cuff. These injuries are most common in young people, especially women who train contact sports. Constant injuries can lead to the loss of capacity for a greater number of sports.

Preventive measures

In order to ensure the stability of the shoulder joint and to minimize injury, it is necessary to strengthen the shoulder musculature and especially the m subscapularis, supra et infraspinatus and teres minor, which is partially or wholly inserted into the joint capsule.

After an injury to the shoulder, regardless of whether it is luxation or subluxation, the treatment must be fully implemented: diagnostic, relocation, immobilization and physical treatment. The timing of the return to sports activities is determined by full restoration of muscular strength and painless movement in the shoulder.

CONCLUSION

Shoulder joint injuries, most commonly luxation of the humeroscapular joint, is a common occurrence in certain sports. Primarily in martial arts, gymnastics, athletics, throwing disciplines, the ball game where the hand is in the foreground, by a direct or indirect force which leads to a complete loss of contact of the articulate bodies.

The treatment of the injury must be complete and after that it is decided whether the person can return to the sports activities. Any injuries that are not fully remedied will lead to repetition of the same, prolonging the absence from sports activities. Recurring injuries tend to weaken the entire shoulder belt and in some situations the consequences are so pronounced that the injured person is not able to continue with the sport. Therefore, it is necessary to properly strengthen the musculature of shoulders, and to work on the improvement of technique in sports where hands are in the foreground. Any injury to the shoulder joint and humeroscapular joint must therefore be fully remedied in order to continue to engage in sports and to avoid new injuries.

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