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Sports Related Injury Mode and Intra Articular Pathology in Recurrent Anterior Glenohumeral Instability in 702 Athletes

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Summary:
Bony Bankart lesion and capsular tear were significantly increased in collision and combative sports players.

Abstract:
Introduction:
Traumatic anterior glenohumeral instability is commonly seen in young active patients. Participants in collision, contact and overhead sports are considered to be at risk of traumatic shoulder instability. The purpose of this study was to assess the characteristics of sports related pathology in patients with recurrent anterior glenohumeral instability.

Methods:
We reviewed 947 consecutive patients who underwent arthroscopic stabilization between 2004 and 2010. Patients who had multidirectional instability, posterior Bankart lesion and history of prior surgery were excluded. Therefore, 702 patients with traumatic anterior glenohumeral instability were included in this study. 542 males and 163 females with an average age of 25.4 years old at the time of surgery were divided into six groups by their sports activities including 92 collision (rugby, American football), 111 contact (soccer, basketball, lacrosse, hockey), 105 combative (judo, etc.), 163 overhead (baseball, volleyball, tennis, badminton, softball, handball), 130 seasonal (snowboarding, skiing, surfing) and 101 non-sport group. Causes of the first time dislocation were reviewed by the patient's records. Intra-articular pathologies were investigated in each group. Incidence of bony Bankart lesion was assessed by the preoperative 3DCT in all patients. Incidence of capsular lesions was investigated by the arthroscopic findings. These data were compared with the value of non-sport patients. Chi-square for independence test and fisher's exact probability test were utilized for statistical analysis.

Results:
Most frequent causes of the first time dislocation were as follows: Tackling in collision sports, contact with other players in contact and combative sports. In overhead sports, it varied including head first sliding and diving catches in baseball, flying receive in volleyball and smashing and serving in racket sports. The significantly higher incidence of bony Bankart lesion was observed in collision sports (63% of rugby players, 80% of American football players), combative sports (53% of judo players, 57% of others) when compared to the non-sport group (35%) (fig1). Arthroscopic surgery revealed significantly higher incidence of the capsular tear in rugby players (25.4%), judo players (17.8%) and snow boarders (23%), when compared to non-sport patients (5.9%). HAGL lesions were

frequently observed in rugby players (4.5%) and snow boarders (5.4%), although no HAGL lesions were observed in the non-sport group.

Conclusions:
There were some characteristic injury patterns of the first time dislocation, which included tackling in collision sports and diving and hitting in overhead sports. Bony Bankart lesion was significantly increased in collision and combative sports players. Capsular lesions were frequently observed in rugby players, judo players and snow boarders. Understandings of injury patterns and intra-articular pathologies in each sport are important to prevent re-injury after surgery.