

English Lectures & Papers 1 "OCD 1" and "Baseball elbow"

Feb. 3rd (Fri) 8:20~9:20

Room 1 (Yamagin Kenmin Hall 2F Main Hall)

English Lectures 1 (L1-1)



Osteochondritis dissecans of the elbow

Masatoshi Takahara

Center for Hand, Elbow, Sports Medicine, Izumi Orthopaedic Hospital, Japan

Osteochondritis dissecans (OCD) of the elbow is a localized disorder of the articular cartilage and subchondral bone that commonly arises in adolescent throwing athletes. To assess the OCD lesions of the capitellum, anteroposterior radiography of the elbow at 45 degrees of flexion is crucial because it can increase the diagnostic accuracy. Radiography, ultrasound, and magnetic resonance imaging have revealed that OCD shows natural progression through several stages: I, localized subchondral bone flattening of the epiphysis before growth plate closure; IIA, delayed ossification over the flattened bone; and IIB, fragmentation and displacement of the fragment. OCD lesions are histologically divided into 3 layers: 1) articular fragment composed of cartilage with or without the subchondral bone, 2) intermediate layer (gap) including various degrees of separation and fibrocartilage, and 3) the underlying proximal epiphyseal bone. The articular fragments are divided into 4 pathological stages: IA, nearly normal-cartilaginous; IB, deteriorated-cartilaginous; IIA, cartilage-ossifying; and IIB, cartilage-osteonecrotic. Radiographic OCD stage I and stage II correspond to pathologic OCD stage I (cartilaginous) and stage II (osteochondral), respectively. OCD begins with separation beneath the immature epiphyseal cartilage (IA), followed by delayed ossification (IIA) or ossification arrest (IB), and osteonecrosis (IIB) being a late event. The viability of the proximal epiphyseal bone is normal. Articular fragments become unstable with fracture or fissure of the articular cartilage and intermediate layer. Cast immobilization facilitate the formation of a firm fibrocartilaginous connection, support ossification, and enable both an early return to sports and complete healing. Arthroscopic fragment removal provides almost excellent outcome for small unstable lesions less than 12 mm. For large unstable lesions, it is better to reconstruct the articular surface of the central aspect in the capitellum and to preserve the lesion of the lateral aspect, including the lateral wall and articular surface, with or without bone peg fixation.

【Curriculum Vitae】

1983-1993 Dept of Orthopaedic Surgery, Hokkaido Univ,
Resident, Fellow, Assistant Professor
1993-1997 Dept of Orthopaedic Surgery, Date Red-cross Hospital,
Director
1997-2003 Dept of Orthopaedic Surgery, Yamagata Univ,
PhD and Assistant Professor
2003-2009 Dept of Orthopaedic Surgery, Yamagata Univ,
Associate Professor

2009- Center for Hand, Elbow, Sports Medicine, Izumi
Orthopaedic Hospital, Director
2023 The 35th Japan Elbow Society, President

English Lectures & Papers 1 "OCD 1" and "Baseball elbow"

Feb. 3rd (Fri) 8:20~9:20
Room 1 (Yamagin Kenmin Hall 2F Main Hall)

English Lectures 1 (L1-2)



OCD of the elbow

Donald S. Bae

Harvard Medical School, USA

Osteochondritis dissecans (OCD) of the capitellum remains a vexing clinical problem, given our incomplete understanding of etiology, variations in clinical presentation and classification, and spectrum of surgical treatment options. Given these challenges, the Research in Osteochondritis of the Knee, Elbow, and Talus (ROCKET) Group was created as a multicenter longitudinal cohort study to determine the rates of healing and return to sports participation following both nonoperative and surgical care. Currently, there are 8 U.S. centers participating in ROCKET with over 200 patients enrolled. The purpose of this presentation will be provide an update on ROCKET and share recent insights into clinical presentation, radiographic evaluation, and early results of treatment. Specific attention will be given to pre- and post-operative elbow motion and comparative results of osteochondral grafting versus micro fracture and/or internal fixation of unstable OCD lesions.

【Curriculum Vitae】

Dr. Bae is Professor of Orthopaedic Surgery at Harvard Medical School and Director of the Hand & Upper Extremity Program at Boston Children's Hospital. After fellowship training in both pediatric orthopaedics and hand surgery, he cares for congenital, traumatic, neuromuscular, and sports-related conditions of the hand and upper limb at Boston Children's Hospital. Dr. Bae serves as co-program director of the Harvard Hand and Upper Extremity Fellowship and Associate Clinical Director of the Simulation Program.

Dr. Bae's clinical research focuses on the pediatric upper limb, including elbow disorders. He has authored many peer-reviewed publications and co-authored the textbook, Pediatric Hand and Upper Limb Surgery: A Practical Guide. Dr. Bae serves as co-PI of a multicenter prospective registry of congenital hand differences, leads a multicenter national registry of pediatric distal radius fractures, and co-founded a multicenter U.S. registry of osteochondritis dissecans of the elbow.

English Papers 1 "OCD 1" and "Baseball elbow"

Feb. 3rd (Fri) 9:20~9:35

Room 1 (Yamagin Kenmin Hall 2F Main Hall)

English Papers 1 (L1-3)

High-definition magnetic resonance images on medial elbow injuries in preadolescent Little Leaguers

Takeshi Ogawa¹, Naotaka Mamizuka²

¹Department of Orthopedic Surgery, National Hospital Organization Mito Medical Center, Japan,

²Baseball & Sports Clinic, Japan

Background: The incidence of throwing-related elbow injuries is still rising. The study aimed to enhance the pathology of acute medial elbow injuries among young Little Leaguers by examining the medial elbows of symptomatic 9e10 years old Little Leaguers using High-Definition Magnetic Resonance Images (HDMRI), which uses a small-diameter surface coil on the target area, leading to greater image resolution.

Method: We identified Little Leaguers aged 9e10 years old. To minimize the detection of the chronic adaptative changes, players who experienced the medial elbow pain previously and whose HDMRI had not been taken within 4 weeks from the onset of medial elbow pain were excluded. This study considered 21 players, and the mean age was 9.4 ± 0.5 years.

Result: The fragmentation of the medial epicondyle apophysis via HDMRI was found in 15 elbows (71.4%), while the avulsion was seen in three cases. The signal hyperintensity at the medial epicondyle apophysis was observed in 2 cases. Our data showed abnormal changes to the medial epicondyle apophysis and surrounding structures, such as the ulnar collateral ligament (UCL), flexor-pronator ten- dons or the coronoid process of the ulna. We detected 11 abnormalities on X-ray imaging, while 20 subjects showed some abnormal findings via HDMRI.

Discussion: The current study showed that initial medial elbow injury in Little Leaguers without a history of previous elbow injury could be attributed to multi-structure injury. Over 90% of subjects were injured in the perichondrium, while 71.4% demonstrated a fragmentation of the secondary ossification center, and 14.3% experienced an avulsion of the medial epicondyle apophysis. Because the injuries were not limited to bony structures, HDMRI may be beneficial for the appropriate evaluation of medial elbow pain. The pathology of initial medial elbow injuries in young baseball players may be due to acute trauma instead of repetitive microtrauma.

English Papers 1 "OCD 1" and "Baseball elbow"

Feb. 3rd (Fri) 9:20~9:35

Room 1 (Yamagin Kenmin Hall 2F Main Hall)

English Papers 1 (L1-4)

Validation study of novel grading system for ulnar collateral ligament injury of the elbow with high-resolution magnetic resonance imaging

Shota Hoshika¹, Keisuke Matsuki¹, Norimasa Takahashi¹, Hiroyuki Sugaya²

¹Funabashi Orthopaedic Sports Medicine & Joint Center, Japan,

²Tokyo Sports & Orthopaedic Clinic, Japan

Background: Recently, magnetic resonance imaging (MRI) classification of medial ulnar collateral ligament (UCL) tears has been introduced, but little is known about the relationship between MRI grading and medial joint laxity. It has been reported that microscopy coils could make it possible to achieve high-resolution images of upper extremities with a superior diagnostic ability to conventional MRI. However, there is no report that has compared the diagnostic reliability between microscopic and conventional MRI. The purpose of this study was to assess the relationship between MRI findings and medial joint laxity evaluated with stress ultrasound (US). Secondary objective was to compare the reliabilities of UCL evaluation between microscopic and conventional MRI.

Methods: One-hundred thirty baseball players who underwent MRI of the elbow for the diagnosis of UCL injury using both conventional and microscopy MRI were included in this study. They also underwent stress US for assessment of medial joint laxity against valgus stress. Our MRI grading system for UCL injuries was compared to medial joint laxity evaluated with stress US. The intrarater and interrater reliabilities of our grading system were assessed with both microscopic and conventional MRI.

Results: Our grading system was related to valgus stability, especially with microscopic MRI. The reliabilities were fair when combined with microscopic MRI, which exhibited better intrarater and interrater reliabilities than conventional MRI.

Conclusion: High-resolution microscopic MRI may contribute to the accurate diagnosis of UCL injuries.