

## English Lectures 6 (L6-1)



### Screening and follow-up study for OCD

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Osteochondritis dissecans (OCD) of the capitellum is a leading cause of elbow disability in adolescent baseball players. Early-stage lesions respond better to nonoperative treatment than those in more advanced stages. Although early detection of capitellar OCD is desirable, it is difficult to detect early-stage capitellar OCD because most patients are asymptomatic or minimally symptomatic. However, screening for OCD using ultrasonography enables early detection and provides an opportunity for successful conservative treatment. In our study, the “almost perfect” interobserver agreement for detection of ultrasonographic irregularities was reassuring. However, OCD should be confirmed on additional radiographic examination including radiography, magnetic resonance image (MRI), and computed tomography (CT). We investigated the prevalence of capitellar OCD using ultrasonography. Of 1,040 baseball players aged 10–12 years, 2.1% of the players were found to have capitellar OCD and 90.9% of affected players had stage I lesions. We followed a group of preadolescent baseball players prospectively to identify the risk factors for capitellar OCD and found the 1-year cumulative incidence to be 1.8%. Players aged 10–11 years were at significantly higher risk of capitellar OCD than their counterparts aged 6–9 years; however, starting baseball at an earlier age, number of years played, training hours per week, player position, and history of elbow pain were not significantly associated with capitellar OCD. We followed the early stage lesions at least 3 years. In multivariate logistic regression analysis, discontinuation of heavy use of the elbow for at least 6 months was a significant predictor of successful healing, but chronological age, bony age, elbow pain, or radiographic stage were not significant predictors.

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#### 【Curriculum Vitae】

1993	Graduate School of Medicine, Tokushima University	2017–2022	Specially appointed Professor, Department of Orthopedics, Tokushima University
2003–2005	Research Fellow, Department of Orthopaedic Surgery, University of Pittsburgh	2022-	Professor, Department of Rehabilitation Medicine, Tokushima University Hospital
2008–2014	Assistant Professor, Department of Orthopedics, Tokushima University		
2014–2017	Associate Professor, Department of Orthopedics, Tokushima University		

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## English Lectures 6 (L6-2)



### OCD of the elbow; all you need to know!

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Osteochondritis dissecans (OCD) is a disorder of articular cartilage and subchondral bone. In the elbow, an OCD is localized most commonly at the humeral capitellum. Adolescents engaged in sports that involve repetitive stress on the elbow are at risk. A high index of suspicion is warranted to prevent delay in the diagnosis. Plain radiographs may disclose the lesion but computed tomography and magnetic resonance imaging are more accurate in the detection of OCD. To determine the best treatment option it is important to differentiate between stable and unstable OCD lesions. Stable lesions can be initially treated nonoperatively, with elbow rest or activity modification and physical therapy. Unstable lesions and stable lesions not responding to conservative therapy require a surgical approach. Arthroscopic debridement and microfracturing has become the standard initial procedure for treatment of capitellar OCD. Numerous other surgical options have been reported, including internal fixation of large fragments and osteochondral autograft transfer.

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#### 【Curriculum Vitae】

##### Current position

Head Department Orthopaedics & Sports medicine  
Erasmus Medical Centre

##### Education

1981-1987: senior high school Gymnasium β, degree 1987  
1987-1994: MD: Erasmus University Rotterdam, degree 1994  
1991: elective, Harvard Medical School, U.S.A. (Erasmus award)

1993: elective, Melbourne University and Istanbul university (MSD award)  
1998: elective residency upper extremity, University Hospital of Århus, Denmark  
1994-2000: orthopedic surgeon; University of Leiden, Leyenburg Hospital; degree 2000  
2000: PhD: 'Medial instability of the elbow joint'; University of Leiden; degree 2000  
2019: Principal Investigator (PI) University of Amsterdam; 2019

### English Papers 6 (L6-3)

## Quantitative and Qualitative Assessments of Radiographic Healing of Osteochondritis Dissecans of the Humeral Capitellum

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**Background:** Little is known about the optimal timing of early return to sports after which the osteochondritis dissecans (OCD) lesion can completely heal. The aims of this study were to investigate the clinical outcomes of nonoperative treatment and elucidate the relationship between the radiographic findings and the timing for the return to sports.

**Methods:** We performed a retrospective review of 32 patients who presented with stable OCD of the capitellum and were treated nonoperatively for a minimum of 3 months. The mean follow-up period was 22.1 months. OCD lesions were assessed qualitatively and quantitatively on anteroposterior radiographs of the elbow at 45° of flexion every 3 months. The width of the OCD lesion (OCDw) and lateral width of the normal capitellum were measured and were associated with return to sports activities.

**Results:** In 21 patients (66%), the progression of ossification was seen at a mean period of 4.1 months. Eighteen (56%) had partial union at a mean period of 4.3 months. Twenty-nine cases (91%) returned to sports activities after a mean of 4.6 months. Nine cases (28%) achieved complete union after a mean period of 15.0 months. Fifteen (47%) required surgery after a mean period of 11.8 months. The mean OCDw (mm) was  $10.2 \pm 3.9$  mm (56%) at the initial presentation and  $8.0 \pm 6.0$  mm (41%) at the final follow-up examination, and the decrease in OCDw was  $2.2 \pm 3.1$  mm (15%). The mean decrease in OCDw in patients with progression of ossification during the first 3 months was significantly larger than in patients without progression of ossification ( $4.9 \pm 4.7$  mm and  $-0.7 \pm 4.5$  mm, respectively;  $P = .002$ ). In patients who had both an OCDw value of  $<8.0$  mm and a lateral width value of  $>2.0$  mm at the time of the return to sports, the rate of successful nonoperative treatment (86%) and complete union (71%) was significantly higher in comparison with other patients ( $P = .03$  and  $P = .02$ ).

**Conclusions:** OCD lesions showed difficult healing in the middle one-third of the capitellum. The progression of ossification during the first 3 months was a significant predictor of successful nonoperative treatment and complete union. Surgery should be considered for lesions without the progression of ossification during the first 3 months. We propose both an OCD lesion width of  $<8.0$  mm and a lateral normal width of  $>2.0$  mm as radiographic landmarks of the timing of the return to sports.

### English Papers 6 (L6-4)

## Lateral wall fixation with bone pegs for advanced osteochondritis dissecans of the humeral capitellum

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*Background and hypothesis:* It is generally considered that fragment fixation with bone pegs (FFBP) for osteochondritis dissecans (OCD) of the humeral capitellum can be indicated for stages I and II according to the International Cartilage Repair Society (ICRS) classification of OCD and it is difficult to obtain complete bone union for advanced lesions. However, the clinical and radiologic results of FFBP with cancellous bone graft for ICRS-OCD stage III with lateral wall involvement have not been described in detail. Good bone union can be achieved with the lateral wall fragment of the capitellum by FFBP in combination with refreshing the sclerotic surface at the base of the lesion and cancellous bone grafting even in ICRS-OCD stage III lesions.

*Methods:* In total, 10 adolescent baseball players with a diagnosis of OCD, a median age of 13.5 years at the time of surgery, and 26.7 months of postoperative follow-up were included. Preoperative imaging showed that all patients had lesions in the late detached stage and of the lateral-widespread type based on the site of the focal lesion. The intraoperative ICRS-OCD classification was stage III. We aimed to preserve and fix the lateral wall fragment with cancellous bone grafting if the condition of the articular cartilage was good and the size and thickness of the segment could withstand fixation.

*Results:* Bone union of the lateral wall fragment was achieved in all cases. The Timmerman and Andrews score significantly improved from  $165.5 \pm 10.9$  points before surgery to  $197.0 \pm 6.3$  points after surgery, demonstrating excellent results in all patients.

*Conclusion:* The radiographic and clinical outcomes of FFBP for lateral wall fragments with cancellous bone graft were satisfactory, showing that the indications for this procedure could be extended to ICRS-OCD stage III.