

Long-Term Clinical Outcomes of Osteochondritis Dissecans Lesions of the Capitellum Treated with Arthroscopy

Marcus A. Rothermich, MD

Eric A. Mussell, MS

Michael K. Ryan, MD

Glenn S. Fleisig, PhD

Sean E. Sitton, MD

Benton A. Emblom, MD

Jeffrey R. Dugas, MD

James R. Andrews, MD

E. Lyle Cain, Jr., MD



Background

- There are numerous studies in the literature describing **short-term** clinical outcomes following elbow arthroscopy to treat OCD of the capitellum.
- These studies demonstrated acceptable short-term subjective outcomes and a high return to play rate.

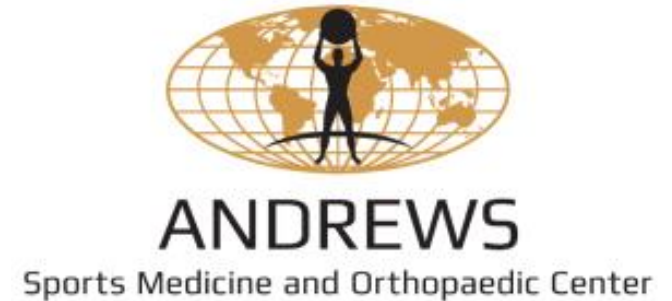
Background

- However, **long-term** functional outcomes with return to play and reoperation data from a single institution is lacking in the literature.



Purpose/Hypothesis

- We performed a retrospective outcome analysis from a prospectively collected surgical database on all patients treated with elbow arthroscopy for OCD of the capitellum at Andrews Sports Medicine & Orthopaedic Center in Birmingham, Alabama from 2001-2018.



Purpose/Hypothesis

- Our hypothesis was that clinical outcomes for these patients would be favorable, with improved subjective pain scores and acceptable return to play for these patients.

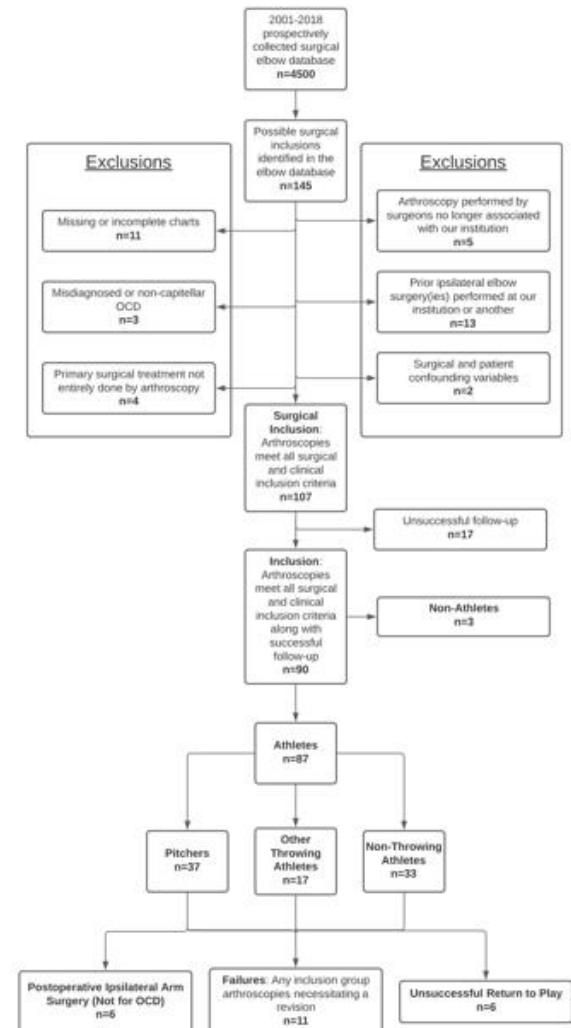


Methods

- Inclusion criteria included all patients who had undergone elbow arthroscopy at our institution for a primary diagnosis of OCD of the capitellum during the study period with a minimum **2-year** follow-up.
- Exclusion criteria included prior surgery of the ipsilateral elbow, incomplete or missing medical records, and any concomitant open procedures performed at the time of the arthroscopy.

Methods

- From a total of 4500 patients in our prospectively collected surgical elbow database between January 2001 and August 2018, **145** patients met the preliminary inclusion criteria. Of the 145, 38 were excluded, leaving **107** for analysis.



Methods

- Medical records were reviewed to confirm the diagnosis of OCD of the capitellum and to verify surgical procedure.
- Clinical follow-up was reviewed in the medical records, and patient-reported outcomes (PROs) were obtained by telephone or email using the OBERD web-based platform.
- Three PRO questionnaires were used: **American Shoulder and Elbow Surgeons – Elbow (ASES-e)**, **Andrews/Carson**, and the **ASMI return-to-play questionnaire**.
- In addition, the **KJOC questionnaire** was completed by the throwing athletes (baseball players, softball players, and football quarterbacks).

Methods

- Of the 107 patients, 90 were contacted for a follow-up of 84%.
- Demographic, surgical, and outcome data were compared in all types of athletes (baseball pitchers, other throwers, and non-throwers).



Results

- The average age at surgery for the 107 patients in the study was **15.2** ± 3.9 years (range: 11.4 – 43.1 years).
- Of these 107 patients, 80 (**75%**) were male and 27 (**25%**) were female.

Sports/Activity	
Unknown	1 (1%)
Non-Athlete	3 (3%)
Athlete	103 (96%)
Baseball	66 (64%)
Basketball	5 (5%)
Football	4 (4%)
Golf	2 (2%)
Tumbling	22 (21%)
Softball	2 (2%)
Volleyball	1 (1%)
Hockey	1 (1%)

Results

- All surgeries (100%) included **debridement** and most surgeries (92%) also included **abrasion chondroplasty**.

Procedure ³	
Debridement	107 (100%)
Abrasion Chondroplasty*	98 (92%)
Microfracture*	38 (36%)
Stem Cell (iliac crest mesenchyme)*	6 (6%) 2 (2%)
Subchondral Drilling	27 (25%)
Other arthroscopic procedures ⁴	

Results

- The mean time to follow-up was 8.3 ± 3.8 years after surgery.
- The mean ASES-e pain score was 4.0 ± 7.9 out of 100, ASES-e function score was 34.5 ± 3.3 out of 36, ASES-e satisfaction score was 9.1 ± 1.8 out of 10.
- The Andrews/Carson score was 87.1 ± 18.2 , where 0 indicated the most severe limitations with daily living and 100 indicated no limitations with daily living.

Results

- Of the 90 patients with follow-up, **11 (12%)** went on to have revision surgery, including **8** revision procedures for arthroscopic loose body removal.
- 87 of the 90 patients were athletes, and of these 87 patients **81 (93%)** returned to pre-operative level of play.
- Average return to play time included **7.7 months** for pitchers, **7.0 months** for other throwing athletes, and **5.4 months** for non-throwing athletes.

Limitations

- Recall bias is the most significant limitation, as many of these patients underwent elbow arthroscopy many years ago, limiting their ability to recall events such as timing and quality/quantity of return to sport.
- Also, there is the possibility for selection bias as patients with poor outcomes may be less likely to complete our questionnaires during the attempted clinical follow-up.
- Finally, the limited size of the cohort and subgroups makes the statistical analysis under-powered.
- These limitations were unavoidable due to the long-term follow-up and the relatively small number of patients who undergo elbow arthroscopy for capitellar OCD, but they could impact the accuracy of our findings.

Conclusions

- In conclusion, this study demonstrated a **93%** return-to-play rate and excellent subjective long-term patient-reported outcome scores with a **12%** reoperation rate following arthroscopy for OCD of the capitellum.
- Further statistical analysis is needed for return-to-play rates between **different sports**, outcome comparisons between **different surgical techniques** performed during the arthroscopies, and to what degree the **size of the lesion**, the **number of loose bodies** removed, or other associated comorbidities can influence long-term clinical outcomes.
- The knowledge of these long-term outcomes can be beneficial to young athletes and their families in the education of this diagnosis, as well as to medical providers who work to both prevent these injuries in young patients as well as to optimize surgical outcomes in the future.

Thank You



VICTORY
— OVER —
INJURY

Hosted by
DR. MICHAEL K. RYAN



ANDREWS
Sports Medicine

