RETROGRADE DRILLING FOR OSTEOCHONDritis DISSECANS OF THE TALUS IN A PEDIATRIC POPULATION: A RETROSPECTIVE STUDY

Xue Wei Tan¹, Marie-Lyne Nault, MD²
¹CHU Sainte-Justine, USA, ²CHU Sainte-Justine, Montreal, QC, Canada

Background
There is little information in the literature about the outcomes of retrograde drilling for osteochondritis dissecans of the talus in a pediatric population. The purposes of this study were therefore to investigate the efficiency of retrograde drilling among a young population and to identify factors that are predictive for failure of the treatment.

The primary objective was to retrospectively evaluate clinical outcomes of pediatric patients with OCD of the talus who have undergone retrograde drilling. The criteria for failure of treatment was the necessity for subsequent surgeries.

The secondary objective was to identify factors predictive of a failure of retrograde drilling. Therefore, we tried to establish correlations between clinical outcomes and a range of factors such as demographic factors (age, sex, BMI, etc.) or clinical characteristics (lesion size, lesion stability, etc.).

Methods
A retrospective study was done. The data used for this study came from the medical records of pediatric patients (? 18 years old at time of treatment) who were treated by the principal investigator at the CHU Sainte-Justine. All patients were treated between September 2013 and December 2017. The selected patient files were obtained either through Chartmaxx software or by physically consulting charts at the medical archives of the hospital.

The inclusion criteria for patients were: (1) an osteochondritis dissecans of the talus (2) no other lower limb injuries (3) retrograde drilling of the OCD (4) available pre- and post-operative imaging (5) at least one postop follow up visit.

The information collected from each patient were the following: date of birth, age at surgery, sex, height, weight, BMI, affected ankle, location of OCD on talar dome, duration of symptoms, dimensions of lesion, history of ankle injuries, stability, status of tibial physis, date of surgery, details of surgery, follow-up duration, number of follow-up appointments, patient status at the last follow-up appointment, post-operative complications, necessity of subsequent surgeries, time interval between additional treatments and retrograde drilling.

Clinical outcomes for each patient, determined at the last follow-up, were classified according to the Berndt and Harty treatment result grading.

Regarding the secondary objectives, Pearson’s correlations were performed between the different patient variables and the necessity for another surgery and as well between the former and the clinical result Berndt and Harty score measured at the last follow-up appointment.

Results
Twenty-one patients were initially identified for this study and their medical records were reviewed. Of these original patients, 4 were left out because they had undergone microfracture procedure. In our revised population of 17 patients, there were 16 girls and 1 boy and the average age at the time of the procedure was of 14.8 (±2.12) years old. The mean follow-up period for this group was of 9.82 (±9.84) months. In terms of the osteochondral lesion, 1 patient presented with an OCD on the lateral part of the dome of the talus while 16 patients had theirs medially. Table 1 illustrates more in depth the characteristics of the group.
Among the patients studied, 4/17 (24%) required a secondary surgery after retrograde drilling signifying that they had a failure of the initial treatment. Moreover, based on the Berndt and Harty treatment result grading measured at the last follow-up appointment, 8/17 (47%) had good results, 4/17 (24%) had fair results and 5/17 (29%) had poor results.

The initial Pearson’s correlations do not indicate any links between the various patient variables and the necessity for a subsequent surgery or between patient variables and the clinical result scores. However, there is a correlation between the clinical results scores and the necessity for another treatment thus illustrating the reliability of the Berndt and Harty treatment result grading.

Conclusion
Despite being in a pediatric population, it seems that the clinical outcome of retrograde drilling has a limited success rate with only 47% of patients from this study having good results at the last follow-up appointment. Those results emphasize the importance of more studies in order to understand what factors are predictive of a bad and good outcome.

Table 1: Characteristics of studied population

| Characteristic                      | Value                          |
|------------------------------------|--------------------------------|
| Mean age at time of treatment (years) | 14.8 (±2.12)                  |
| Sex                                | Male: 1  Female: 16            |
| Mean height (cm)                   | 163.85 (±7.35) *out of 11 available heights |
| Mean weight (kg)                   | 66 (±14.26) *out of 16 available weights |
| OCD on talar dome                  | medial: 16  lateral: 1         |
| Affected ankle                     | left: 6  Right: 11             |
| Stability of lesion                | Stable: 12  Unstable: 5        |
| Mean lesion area (mm²)             | 130 (±55.16) *out of 16 available lesion areas |
| Mean follow-up period (months)     | 9.82 (±9.84)                  |

The Orthopaedic Journal of Sports Medicine, 7(3)(suppl 1)  
DOI: 10.1177/2325967119S00034  
©The Author(s) 2019