

## **PROGRESSION TO SURGERY IN ADOLESCENT OSTEOCHONDRITIS DISSECANS OF THE ELBOW**

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**Background:** Osteochondritis dissecans (OCD) is a disorder characterized by the separation of subchondral bone and articular cartilage from underlying bone due to lack of blood supply. Effective treatment and knowing whether a patient will need to have surgery is still debated.

**Purpose:** The purpose of this study is to compare the characteristics and clinical outcomes of adolescent patients with OCD of the elbow whose treatment either progressed to surgery or did not.

**Methods:** We performed a retrospective chart review of patients 7-17 years of age who were diagnosed with OCD of the elbow at a regional children's hospital sports medicine surgery practice. Demographic and radiographic variables such as age, sex, skeletal maturity, range of motion, and lesion size were obtained. Clinical outcomes collected included time to return to sport and need for second surgery.

**Results:** We identified 41 patients to meet inclusion criteria; 34 progressed to surgery and 7 did not. Of the 34 that eventually required surgery, 11 (32%) initially presented with stable lesions. There were no significant differences between groups regarding sex, age, skeletal maturity, or insurance type (Table 1). Loss of range of motion in the elbow was seen in 79% of patients who progressed to surgery and in 29% of those who did not (Table 1). Patients who progressed to surgery had significantly greater average lesion sizes on x-ray than those who did not (Table 2). Those who progressed to surgery also had significantly higher grade lesions on MRI compared to those who did not (Table 2). After adjusting for the independent effect of loss of range of motion, each increase in MRI lesion grade resulted in a 4.8X greater odds of eventually progressing to surgery (adjusted odds ratio=4.8, 95% CI=1.21, 19.17, p=0.026). We did not observe any significant differences between groups in time to return to sport.

**Conclusions:** Overall, we observed that patients who progressed to surgery had initially worse OCD lesion grades compared to those who did not. This may be clinically useful when considering initial conservative treatment versus surgical intervention in these patients. Long

term outcomes, including need for second surgery and return of symptoms, should be further investigated.

**Tables/Figures:**

**Table 1.** Patient characteristic comparisons between those who progressed to surgery, and those who did not.

<b>Variable</b>	<b>Progressed to Surgery (n = 34)</b>	<b>Did not progress to surgery (n = 7)</b>	<b>P value</b>
<b>Stable lesion?</b>	11 (32%)	7 (100%)	0.001*
<b>Sex (female)</b>	18 (53%)	4 (57%)	0.84
<b>Age (years)</b>	13.5 (1.9)	12.4 (2.5)	0.22
<b>Skeletally mature</b>	7 (21%)	0 (0%)	0.31
<b>Private insurance</b>	25 (34%)	6 (86%)	0.66
<b>Loss of range of motion</b>	27 (79%)	2 (29%)	0.02*
<b>Time from initial visit to diagnosis</b>	5.2 (8.7)	2.1 (3.3)	0.38

\*p < 0.05.

**Table 2.** OCD characteristic comparisons between groups. Data are presented as mean (standard deviation or 95% confidence interval) or the number included within group (corresponding percentage).

<b>Variable</b>	<b>Progressed to Surgery</b>	<b>Did not progress to surgery</b>	<b>P value</b>	<b>Mean difference (95% CI)</b>
<b>Need for second surgery on same arm for OCD?</b>	3 (9%)	0 (0%)	> 0.99	-
<b>Returned to sport?</b>	32 (94%)	7 (100%)	> 0.99	-
<b>OCD lesion surface area: x-ray</b>	108.0 mm (47.8)	73.6 mm (22.2)	0.07	34.3 (-3.4, 72.1)
<b>Normalized OCD lesion surface area: x-ray</b>	0.063 mm (0.027)	0.055 mm (0.019)	0.42	0.009 (-0.013, 0.030)
<b>OCD lesion size: MRI</b>	135.5 (61.9)	119.0 (67.4)	0.53	16.5 (-36.8, 69.9)
<b>Lesion Grade: MRI</b>	Grade 1: 2 (6%) Grade 2: 8 (26%) Grade 3: 3 (10%) Grade 4: 18 (58%)	Grade 1: 5 (71%) Grade 2: 1 (14%) Grade 3: 1 (14%) Grade 4: 0 (0%)	< 0.001	-