Long-Term Outcomes of Osteochondral Autologous Transplantation Surgery in Adolescent Athletes with Capitellar Osteochondritis Dissecans

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INTRODUCTION:
Traditional surgeries for unstable osteochondritis dissecans (OCD) lesions often fail to restore cartilage or subchondral bone. Osteochondral autograft transfers (OATS) have emerged as a promising alternative to restore osteochondral structure and improve sports-related outcomes. This study examines the long-term impact of OATS on capitellar OCD lesions, hypothesizing that it can prevent long-term elbow disability and facilitate a return to athletic activities.

METHODS: A retrospective review of patients who underwent OATS between 2009 and 2023 was performed. Demographic data, preoperative clinical information, radiographic assessments, intraoperative findings, and postoperative outcomes were collected.

RESULTS: 17 patients (15 males, 2 females) met inclusion criteria, with a mean follow-up duration of 62 months (range 12-170). Mean age at surgery was 14 years (range 11-19). All patients were athletes. Four patients had prior surgical treatments at outside institutions. All lesions exhibited delamination and instability. Intraoperatively, loose bodies were observed in 4 patients, and histopathological analysis showed papillary hypertrophy in 53% and mucoid/myxomatous degeneration in 59%. A uniform approach using a single osteochondral plug was used. Mean extension-flexion arc of motion increased from 127°(range 80-150) preoperatively to 137°(range 115-150) postoperatively. One patient required a contracture release at 11 months due to stiffness. Postoperative MRIs confirmed incorporation of the graft and restoration of joint congruity in all patients. All athletes successfully resumed their sports activities at an average of 6 months (range 3-12). No sign or evidence of decline in function was observed throughout the follow-up period.

DISCUSSION AND CONCLUSION: This study found OATS to be an effective treatment for capitellar OCD in adolescent overhead athletes. It provides short-term and long-term elbow pain relief and restoration of high-level function. These findings emphasize the procedure's effectiveness and can inform preoperative counseling. Additional research is advised to optimize patient care and functional recovery.

Intraoperative pathology. Osteochondral fragment (A) and papillary hypertrophy (B)