Outcomes 2-Years after Hip Microfracture Augmented with Allograft Cartilage and Autologous Platelet Rich Plasma

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INTRODUCTION: Articular cartilage injuries and early osteoarthritis of the hip joint, often as a result of femoroacetabular impingement (FAI), propose a unique challenge to surgeons. Due to its avascularity, articular cartilage exhibits a limited ability to regenerate itself. Acute damage or repeated insult of the cartilage may lead to progressive osteoarthritis (OA) of the hip joint, pain, and loss of function. For patients with these injuries, cartilage salvaging procedures and correction of bony morphology may provide a less invasive alterative to total hip arthroplasty (THA). In this study we examine the outcomes of acetabular microfracture augmented with allograft cartilage and autologous platelet rich plasma (PRP).

METHODS: Data from a prospective series of consecutive patients with Outerbridge grade IV chondromalacia of the acetabulum or femoral head who underwent acetabular microfracture augmented with allograft cartilage and autologous PRP from 2016 to 2019 was analyzed. Modified Harris Hip Score (mHHS), Hip Outcome Score- Activities of Daily Living (HOS-ADL), HOS Sport-Subscale (HOS-Sport), Non-Arthritic Hip Score (NHS), visual analog scale (VAS) pain, VAS satisfaction, and patient acceptable symptomatic state (PASS) served as outcome measures for this study.

RESULTS: Eighty-four hips were included in the final study. Six hips (7%) underwent conversion to total hip arthroscopy and 1 hip (1%) underwent revision surgery, and subsequently were excluded from further analysis. Of the remaining 77 hips (72 patients) average age at surgery was 34.8 ± 10.3 years old, average BMI was 26.8 ± 4.8, and final follow-up time was 35.4 months (range 24-54 months). Sixty-five (84%) had preoperative scores available and 48 (62%) had minimum 2 year postoperative sores available. Student's t-tests demonstrated significant increases in HOS-ADL (62.9 ± 18 to 85.4 ± 15.3), HOS-Sport (42.8 ± 21.4 to 70.3 ± 23.8), mHHS (62.0 ± 16.0 to 84.2 ± 18.8), and NHS(61.2 ± 16.1 ± 3.6 to 82.1 ± 17.5); $p<0.001$ for all scores. Average VAS pain (2.4 ± 2.4) and VAS Satisfaction (8.3 ± 2.4) at two year follow up were also recorded.

DISCUSSION AND CONCLUSION: Microfracture augmented with allograft cartilage and autologous PRP can be used to successfully treat focal cartilage injuries of the hip. This novel procedure has demonstrated significant clinical improvement for patients at a minimum of two years following surgery. We believe this procedure is appropriate for patients suffering from early onset arthritis with focal injuries of the femoral or acetabular cartilage.