

Combined Osteochondral Allograft and Meniscal Allograft Transplantation – A Survivorship Analysis

Alan Getgood, MD, FRCS(Tr&Orth), DipSEM, CANADA

Jonathon Gelber, MD, USA

Simon Görtz, MD, USA

Alison Deyoung, MD, USA

William Bugbee, MD, USA

Scripps Clinic

La Jolla, California, USA

Summary:

Combined meniscus and fresh osteochondral allograft transplant has been shown to be an efficacious procedure in patients with complex knee pathology, who are not suitable for knee arthroplasty due to young age and high activity level. The mid term results are comparable to other series of MAT or OCA treated in isolation. Best results are seen in patients with less advanced unipolar disease.

Abstract:

INTRODUCTION

The efficacy of meniscal allograft transplantation (MAT) and osteochondral allografting (OCA) as individual treatment modalities for select applications is well established. However, few outcomes of concomitant MAT and OCA have been reported. This study is a retrospective review of patients that received simultaneous MAT and OCA at a single institution between 1983 and 2011.

MATERIALS & METHODS

48 (29 male: 19 female) patients with an average age of 35.2 (15 – 66) years received combined MAT and OCA procedures between 1983 and 2011. 43 patients had received previous surgery with a mean of 3.3 procedures (1 – 11) indicating the complex nature of the patient cohort. The underlying diagnosis was trauma (tibial plateau fracture) in 33% with osteoarthritis predominating at 54.2% of cases. 31 patients received a lateral meniscus, 16 received a medial meniscus, and one patient received bilateral MAT. The average number of OCAs was 1.8 per patient, with an average graft area of 16.3 cm². There were 21 unipolar, 24 bipolar, and 3 multifocal lesions. 36 MAT constituted a compound tibial plateau OCA with native meniscus attached. The mean clinical follow up was 6.8 years (1.7 – 17.1), with patients completing a modified D'Aubigne and Postel scale, Knee Society Function Score, subjective IKDC score and satisfaction, pain, and function questionnaires.

RESULTS

26 of 48 patients required reoperation but only 11 patients were noted to have failed (27.9%); 10 MAT and 11 OCA. The mean time to failure was 3.2 years (1.5 – 4.9 95% CI) and 2.7 years (1.2 – 4.1) for MAT and OCA respectively. The 5 year survivorship was 78% and 73% for MAT and OCA respectively and 69% and 68% at 10 years. Six of the failures were in the OA cases and one was an OCD lesion where bipolar grafts were utilized. The OCD case had a revision OCA and remains intact. The others were converted to knee arthroplasty. One case failed due to early deep infection. Of those with grafts still intact, statistically significant improvements in all outcome scores were noted between baseline and latest follow up. 90% of those responding would have the surgery again and 78% were either extremely satisfied or satisfied with the outcome.

CONCLUSION

The overall success rate of concomitant MAT and OCA was comparable with reported results for either procedure in isolation. Patients requiring combined MAT and OCA may be categorized in terms of their clinical presentation as

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either unipolar traumatic injury (treated mostly with enbloc meniscus and tibial plateau allograft) or salvage surgery secondary to OA (treated with MAT + unipolar or bipolar OCA). Firm conclusions regarding failure mechanism are difficult to determine due to the relatively small number of failures in this cohort of rare cases. However, a trend toward worsening outcome being associated with bipolar tibiofemoral grafts (7/11) in the setting of OA is observed. The comparatively better results in less advanced, unipolar disease could suggest that there is a chondroprotective benefit to early intervention that might merit a lower treatment threshold for combined MAT and OCA.