ISAKOS 2015, Lyon
Fresh Osteochondral Allografts (OCA) in the Knee

Comparison of Primary Transplantation Versus Transplantation After Failure of Previous Subchondral Marrow Stimulation

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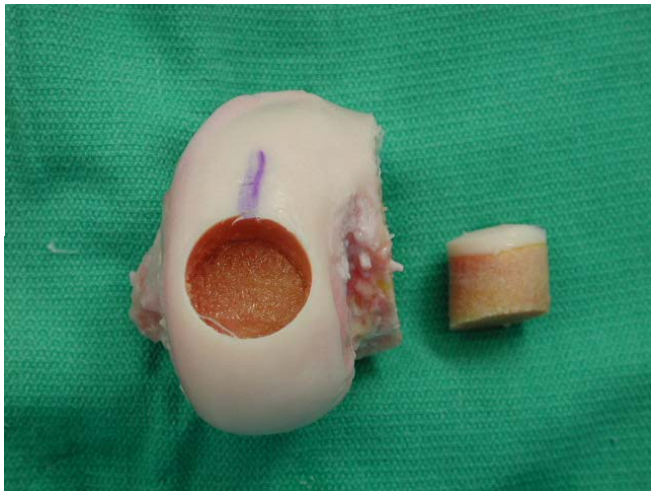

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Disclosure

- No conflicts are reported for Gracitelli, Meric, Pulido, McCauley.

- Bugbee is a paid consultant for DePuy, Zimmer, Zimmer Biologic, Smith & Nephew, Joint Restoration Foundation, Moximed, Organogensis, and Orthoalign

Introduction

- Subchondral Marrow stimulation (SMS) can cause a stiffer and harder subchondral plate, intralesional osteophytes, and cystic formation
- The aim of the present study was to examine the influence of previous cartilage repairs in subsequent OCA transplantation
- We designed a retrospective matched-pair cohort of (Group 1) primary OCA transplantation compared with (Group 2) OCA transplantation after failure of previous cartilage repair surgery

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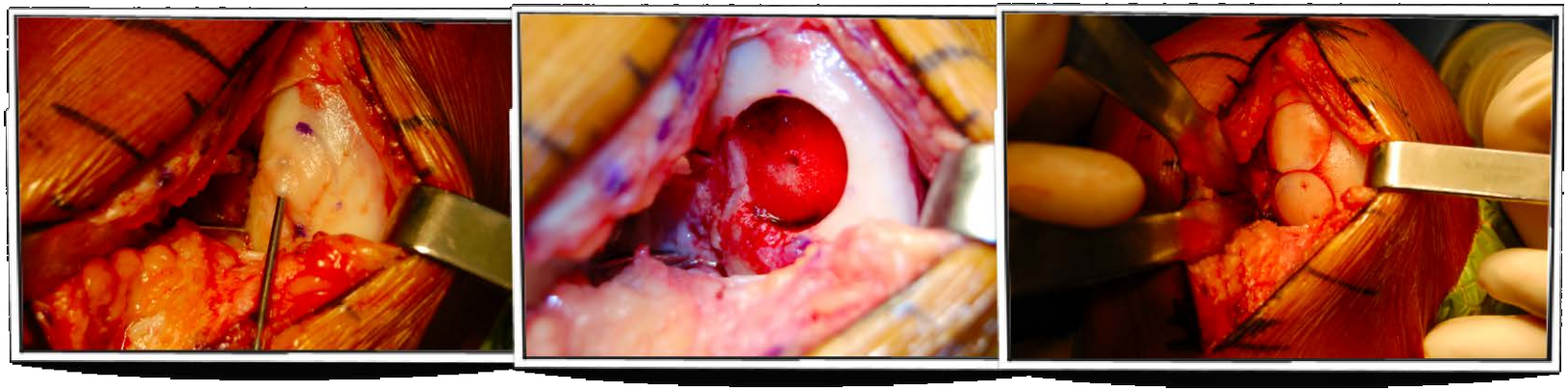
Material and Methods

- Group 1: 46 knees that had OCA transplantation performed as a primary treatment
- Group 2: 46 knees that underwent OCA transplantation after failure of previous subchondral marrow stimulation (SMS)
- Patients in each group were matched for:
  - Age (± 5 years),
  - Diagnosis (osteochondral lesion, degenerative chondral lesion, traumatic chondral injury) and
  - Graft size (small <5 cm^2; medium 5-10 cm^2, large >10 cm^2).



Material and Methods

- 91.3% of knees in group 1 and 95.7% in group 2 were located in femoral condyle
- Functional outcomes were evaluated using the modified Merle d'Aubigné-Postel (18-point) scale, IKDC subjective knee evaluation form, KOOS scale, and KS-F scale.
- Failure was defined as any reoperation resulting in removal of the graft, such as allograft revision and any form of arthroplasty.

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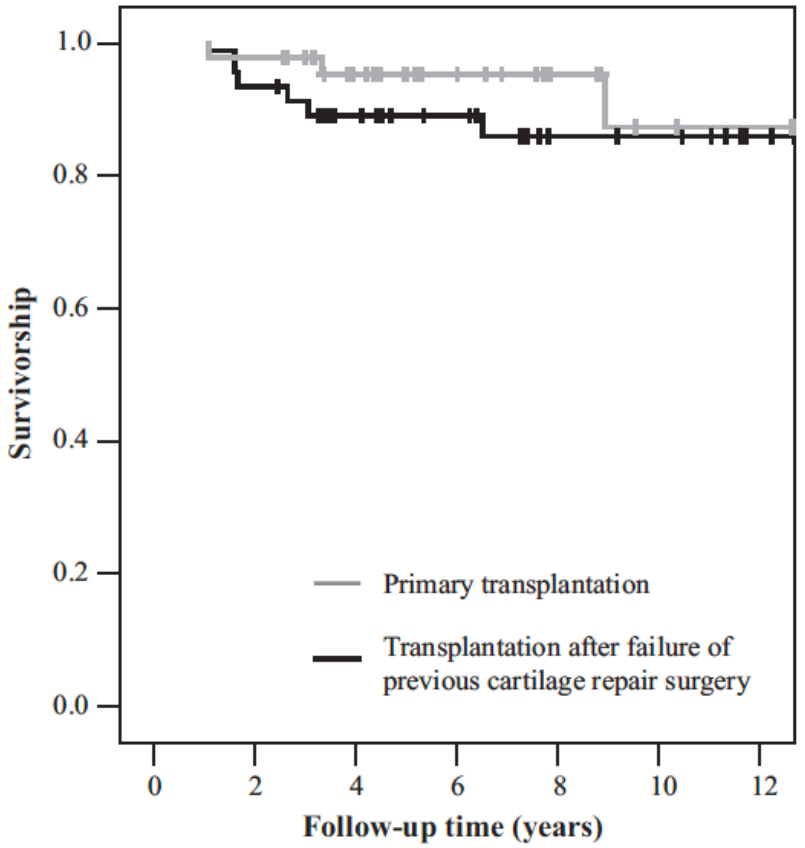
Results

- At 10 years of follow-up, survivorship of the graft was 87.4% and 86% in Groups 1 and Group 2.



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Results

- 24% in Group 1 had reoperations and 44% in Group 2 (p = 0.04)

Frequency and Type of Reoperations After OCA Transplantation[a]

Reoperation	Group 1	Group 2
Arthroscopic debridement, diagnosis, or loose body removal	6	15
Meniscectomy	—	3
Meniscal repair	1	3
Extensor mechanism realignment	—	1
Lateral retinacular release	1	2
Osteotomy	—	1
Hardware removal	—	3
Reoperation defined as allograft failure		
Revision of allograft	2	3
Total knee arthroplasty	3	4

[a]Values are numbers of knees.

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Results

- 11% of failures in Group 1 and 15% in Group 2 (p = 0.53)
- 87% of patients in Group 1 and 97% in Group 2 were “satisfied” or “extremely satisfied” with the OCA transplantation.
- Both groups showed improvement in pain and function on all subjective scores.

Pain and Function Measured Preoperatively and at Follow-up[a]

	Group 1 (Primary Treatment)			Group 2 (Failed Cartilage Repair)			
Measure	Preoperative	Follow-up	Difference	Preoperative	Follow-up	Difference	*P* Value[b]
Modified Merle d’Aubigné-Postel (18 points)	12.7	16.6	3.9	12.9	16.2	3.2	.46
% Excellent (18)	—	39		2.6	32		
% Good (15-17)	18	49		21	55		
% Fair (12-14)	58	13		50	8		
% Poor (<12)	25	—		26.3	5		
IKDC							
Pain	6.2	2.4	−4.2	5.4	2.6	−3.2	.09
Function	2.9	7.8	5.1	3.5	7.5	4.4	.34
Total	36.9	78.2	45.6	41.8	78.8	38.3	.29
KS-F	68.9	89.5	23.8	68.2	91.9	24.8	.86
KOOS subscale							
Symptoms	57.8	87.8	27.5	53.0	79.8	31.2	.81
Pain	65.6	89.9	31.2	64.3	82.1	10.0	.06
ADL	72.0	94.5	29.3	70.9	87.1	14.0	.11
Sport/Rec	37.5	72.7	40.6	30.6	70.7	43.3	.41
QOL	28.2	69.5	45.5	25.0	64.6	47.0	.92

[a]ADL, activities of daily living; IKDC, International Knee Documentation Committee; KOOS, Knee Osteoarthritis and injury Outcome Score; KS-F, Knee Society function; QOL, quality of life; Sport/Rec, sport and recreation.

[b]*P* value for Mann-Whitney *U* test to compare difference scores between groups (change from preoperative state to latest follow-up) and chi-square test to compare postoperative score distributions between groups on the modified Merle d’Aubigné-Postel (18-point) scale.

Conclusion

Despite the higher reoperation rate in the previous treated group, previous cartilage surgery did not adversely affect the survivorship and functional outcome of OCA transplantation.

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