
Metrics of Osteochondral Allografts (MOCA) Group Consensus Concerning the Use of Viable Osteochondral Allografts

Arthrex Research and Development

MOCA Members

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Background

Osteochondral allograft (OCA) transplantation usage continues to increase; however, OCAs are still limited in availability and therefore this transplantation procedure is only done in volume by a small group of surgeons. Given the considerable experience and firsthand knowledge about OCA treatment, these surgeons formed the Metrics of Osteochondral Allografts (MOCA) group with the goal, in part, to share their expertise with the general orthopedic community regarding the indications and surgical technique using OCAs, as well as rehabilitation and return to sports.

Study Design:

Expert opinion, Level of evidence, 5.

Methods

To share their scientific, empirical, and clinical knowledge with OCAs, a focus group of clinicians with extensive experience in the field participated in a three-round modified Delphi process to generate a list of statements and establish consensus surrounding OCA use. Questions and statements were initially developed on specific topics that lacked clarity and clinical evidence. Face-to-face discussion occurred where statements were not agreed upon after round 2 of voting. After the final vote, the level of consensus and percentage of agreement were determined. A systematic literature review was performed and the level of evidence and grade were calculated for each statement.

Results:

Seventeen statements covering surgical technique, graft matching, indications, and rehabilitation reached consensus following the final round of voting. Of these 17 statements, 11 received unanimous (100%) agreement and six received strong (80%-99%) agreement.



Materials and Methods

Modified Delphi Method

A group of 23 clinicians with extensive experience with OCA research and implantation was formed to address controversies and identify areas of research opportunity for various clinical, scientific, and technical aspects of OCA cartilage restoration. All focus group members are surgeons and have reported on their experience through publications and podium presentations. All members have performed over 100 OCA procedures and collectively make up MOCA, a focus group dedicated to improving OCA transplantation through scientific and outcomes research.

The focus group identified four main topics involving OCA cartilage restoration: (1) patient indications, (2) surgical technique, (3) graft matching, and (4) rehabilitation and return to sport. Initially 14 questions were generated and a modified Delphi method was used to develop the consensus statements.¹ Questions and agree or disagree responses and comments from the initial round facilitated development of the second round. Results from the second round were used to draft preliminary consensus statements, which were voted on and discussed during an in-person forum of all participants. The discussions and voting were based on a standardized format. Below are the OCA statements receiving consensus from MOCA.

Indications

1. OCA indications include symptomatic cartilage defect(s) including defect(s) secondary to trauma, osteochondritis dissecans (OCD), osteonecrosis, intra-articular fractures in patients of any age, and activity level not suitable for prosthetic replacement.²⁻³⁹
2. Relative contraindications for OCA use include: uncorrected ligamentous instability, uncorrected malalignment, and end-stage osteoarthritis except in rare instances where used as a bridging procedure.^{2,25,26,29,30,33,36,40-44}
3. OCAs can be used to revise previously failed cartilage restoration procedures.^{11,45-53}
4. OCAs can be considered as a primary treatment for reconstruction of OCDs lesions.^{5,14,16,27,34,54}
5. Systemic autoimmune/inflammatory joint disease is not an absolute contraindication to OCA implantation.⁴¹

Surgical Technique

1. Supplemental fixation of an OCA is needed only if the graft is unstable.^{5,18,20,31,33,34,36-39}
2. Cysts beneath a lesion being restored with an OCA should be addressed by curettage and bone grafting.
3. The ideal depth of a femoral OCA recipient site is between 6 mm and 10 mm.^{53,55}
4. The osseous component of OCAs should be pulse-lavaged with sterile irrigation fluid with or without antibiotics prior to implantation.⁵⁵⁻⁵⁹
5. It is unknown if OCA bone incorporation can be enhanced by biologic adjuncts.⁶⁰⁻⁶²

Graft Matching

1. A contralateral graft is an OCA from the opposite condyle, eg, a lateral condyle for a medial condyle restoration procedure.^{63,64}
2. A contralateral OCA can be used for single-plug restoration up to 25 mm in diameter.^{21,59,63-66,81,83,88}
3. Femoral condyle OCAs can be adequately size-matched using condyle and/or tibial width measured on X-rays with magnification marker or MRI/CT.^{65,67}
4. A standardized method for testing cartilage viability and metabolic activity should be established.

Rehabilitation and Return to Sport

1. An initial period of partial weightbearing (up to 6 weeks) for tibiofemoral OCA reconstructions is appropriate.^{11,12,18,23,28,31,32,45,46,68-70}
2. Weightbearing as tolerated in conjunction with extension bracing (up to 6 weeks) after patellar and/or trochlear OCA reconstructions is appropriate.^{6,19}
3. Time (minimum 12 weeks from surgery) and functional recovery should both be used as criteria to return to impact.



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