Clinical Policy: Articular Cartilage Defect Repairs

Reference Number: LA.CP.MP.26 Coding Implications
Date of Last Revision: ~~05/22~~04/23 Revision Log

See Important Reminder at the end of this policy for important regulatory and legal information.

Description
Cartilage transfer procedures include autologous chondrocyte implantation, osteochondral allograft transplantation (OAG or OCA) [i.e., including repair of anterior cruciate ligament and meniscus], and osteochondral autograft transplantation [mosaicplasty, Osteochondral Autograft Transplantation System (OATS)]. They are techniques for repairing articular cartilage that has been damaged by trauma or degenerative processes. This policy outlines the medical necessity criteria for each of these procedures.

Policy/Criteria

I. It is the policy of Louisiana Healthcare Connections that autologous chondrocyte implantation (ACI) is medically necessary when *all* of the following criteria are met:

- **A.** Age 18 through ~~–~~ 55 years, or documented skeletal maturity if < 18;
- **B.** BMI < 35 kg/m^2;
- **C.** Focal, full-thickness (grade III or IV) articular cartilage defect involving the femoral condyle (medial, lateral, or trochlear);
- **D.** Femoral condyle defect size 1 through ~~–~~10 cm^2;
- **E.** Disabling symptoms such as locking, swelling, or knee pain that are unresponsive to conservative treatment for a minimum of two~~2~~ months (e.g., medication, physical therapy);
- ~~**E.**~~**F.** ~~AND~~ Previous unsuccessful arthroscopic or ~~other~~ surgical revision/repair procedure;
- ~~**F.**~~**G.** Knee is stable with intact menisci and ligaments, has normal joint space by X-ray, and is in good alignment (a corrective procedure to stabilize the knee may be performed in combination with or prior to autologous chondrocyte implantation [ACI]);
- **H.** Surgery is not intended to treat osteoarthritis of the knee;
- ~~**G.**~~**I.** No previous surgery to repair artcular cartilage defects with cartilage transfer;
- ~~**H.**~~**J.** Member/enrollee~~Patient~~ is willing and able to comply with prescribed postoperative rehabilitative program.

II. It is the policy of Louisiana Healthcare Connections that osteochondral allograft transplant OR osteochondral autograft transplant of the knee is considered **medically necessary** when *all* of the following criteria are met:

- **A.** Age 18 through 55 years, or documented skeletal maturity if < 18;
- **B.** BMI <35 kg/m^2;
- ~~**A.**~~**C.** Focal, full-thickness (grade III or IV) articular cartilage defect of the lateral or medial femoral condyle, or trochlear region of the knee;
- ~~**B.**~~**D.** For osteochondral autograft transplant (e.g., osteochondral autograft transplantation system [OATS]/m~~M~~osaicplasty), lesion is ≤ 2 cm^2; or for osteochondral allograft (OCA) transplant ~~(e.g., OCA)~~, unipolar lesion that is > 2cm^2;
- ~~**C.**~~**E.** Disabling symptoms such as locking, swelling, or knee pain that are unresponsive to conservative treatment for a minimum of two months (medication, physical therapy);

~~D.~~F. No evidence of arthritis on the corresponding tibial surface;
~~E.~~G. Normal appearing hyaline cartilage surrounding the border of the defect, and absent or minimal changes in surrounding articular cartilage;
~~F.~~H. Normal knee alignment;
~~G.~~I. Not currently a candidate for total or partial knee replacement.

III. It is the policy of Louisiana Healthcare Connections that meniscal allograft transplant is considered **medically necessary** when all of the following criteria are met:
- **A.** Physically active and physiologically young, under age 55;
- **B.** Documented mild to moderate articular damage (Outerbridge grade II or less);
- **C.** Missing > 50% of a meniscus as a result of previous surgery or injury, or a meniscus tear that cannot be repaired;
- **D.** Disabling knee pain refractory to conservative treatment (e. g., medication, physical therapy);
- **E.** Normal alignment without varus or valgus deformities;
- **F.** None of the following contraindications to meniscal allograft transplant:
  1. Systemic metabolic degenerative disease (i.e., gout);
  2. BMI > 35 kg/m^2;
  ~~2.~~3. Arthritis of the knees or rheumatoid arthritis;
  ~~3.~~4. Flattening of the femoral condyles or severe degenerative changes (> 50% joint space narrowing, bone on bone, or erosion to subchondral bone);
  ~~4.~~5. Has undergone partial or total meniscectomy and does not presently have symptoms or problems with their knee.

IV. It is the policy of Louisiana Healthcare Connections that current evidence does not support the use of minced articular cartilage repair (allograft or autograft).

V. It is the policy of Louisiana Healthcare Connections that current evidence does not support the use of autologous chondrocyte implantation (ACI), osteochondral allograft transplant, or osteochondral autograft transplant for any other indication or any other joint surface not listed above.

Background

Articular cartilage is a highly resilient, viscoelastic material that plays an essential role in reducing stress on subchondral bone and minimizing friction within the joint. Articular cartilage is hyaline cartilage, which consists primarily of matrix, water and only a small number of chondrocytes (cartilage cells). Hyaline cartilage has a low capacity for regeneration because of its avascular and relatively acellular composition.[23,24]

Osteochondral (OC) surfaces that are damaged by trauma or degenerative process usually fill in with fibrocartilage which is less suitable for absorbing stress than is hyaline cartilage. In younger adults, trauma is the most frequent cause of articular cartilage damage. Indications for OC repair include tears, chondral flaps, and loose bodies. All of these defects can result in joint pain, swelling, locking, and giving way.[23,24]

Other causes of articular defects include degenerative conditions such as osteonecrosis, osteochondritis dissecans, and osteoarthritis. Osteonecrosis is the death of bone en masse and may arise spontaneously or can result from chronic steroid use. The etiology of this condition is uncertain, although it is thought to result from loss of the blood supply to an area of the subchondral bone. Osteoarthritis, or degenerative arthritis, is the most common form of arthritis in the United States and is characterized by the erosion of articular cartilage. ~~(NIAMS, 2001; Hangody et al., 2004; Koulalis et al., 2004).~~ .[24]

Autologous chondrocyte implantation (ACI) is a two-stage process in which ~~, first,~~ the healthy cartilage cells are harvested and cultured and then, reimplanted into the defect under a membranous patch at a later date. Allograft transplant involves the transplant of a cadaveric graft consisting of viable articular cartilage and underlying subchondral bone to cover large (> 2 cm^2), full-thickness cartilage defects of the knee. Autograft procedures consist of removing small osteochondral cylinders from low weight-bearing surfaces of the affected joint or another joint in the same patient and inserting them into the affected area to create a mosaic of islands of hyaline cartilage in an area that would otherwise remain without cartilage or fill with only fibrocartilage.[16,23,24]

Meniscal allograft transplantation is a surgical procedure that involves grafting a donor meniscus into the knee of a recipient. The goal of meniscal transplant surgery is to replace the meniscus cushion before the articular cartilage is damaged. The donor cartilage supports and stabilizes the knee joint, and therefore relieves knee pain.[2]

Nonsurgical treatment options for damage to articular cartilage include weight reduction, physical therapy, braces and orthotics, intra-articular injection of hyaluronic acid derivatives, and non-steroidal anti-inflammatory agents. A realignment osteotomy (i.e., proximal tibial, distal femoral) is a surgical option to reduce the compressive stress on the damaged articular cartilage in the medial or lateral compartments of the knee. This can be performed instead of, or in addition to, a cartilage replacement procedure listed above. Total joint replacement provides a surgical option but is not advised for younger patients because implants might not withstand the higher levels of physical activity for an extended period of time. A 2003 National Institutes of Health (NIH) Consensus Conference advised that other options should be considered for patients under the age of 55~~-~~.[8]

The American Academy of Orthopaedic Surgeons (AAOS) believes that for appropriate patients musculoskeletal allografts represent a therapeutic alternative. These tissues should be acquired from facilities that demonstrate compliance, use well-accepted banking methodology, and follow Food and Drug Administration Good Tissue Practices. The AAOS urges all tissue banks to follow rigorous national guidelines and standards and recommends the use of tissue from banks that are accredited by the American Association of Tissue Banks.[23~~3~~]

The AAOS has information on meniscal transplant surgery and notes that patient eligibility for this procedure includes missing more than half of a meniscus as a result of previous surgery or injury, or a meniscus tear that cannot be repaired.[23~~3~~]

In summary, there have been ~~a number of~~several randomized controlled studies as well as non-comparative studies that have noted improvement in repairing articular cartilage that has been damaged by trauma or degenerative processes, using~~through~~ the procedures noted within this policy.

Coding Implications

This clinical policy references Current Procedural Terminology (CPT®). CPT® is a registered trademark of the American Medical Association. All CPT codes and descriptions are copyrighted 2020, American Medical Association. All rights reserved. CPT codes and CPT descriptions are from the current manuals and those included herein are not intended to be all-inclusive and are included for informational purposes only. Codes referenced in this clinical policy are for informational purposes only. Inclusion or exclusion of any codes does not guarantee coverage and may not support medical necessity. Providers should reference the most up-to-date sources of professional coding guidance prior to the submission of claims for reimbursement of covered services.

CPT® Codes	Description
27407	Repair, primary, torn ligament and or capsule of knee; cruciate
27412	Autologous chondrocyte implantation, knee
27415	Osteochondral allograft, knee, open
27416	Osteochondral autograft(s), knee, open (e.g., mosaicplasty) (includes harvesting of autograft[s])
28446	Open osteochondral autograft, talus (includes obtaining graft[s])
29866	Arthroscopy, knee, surgical; osteochondral autograft(s) (e.g. mosaicplasty) (includes harvesting of the autograft[s])
29867	Arthroscopy, knee, surgical; osteochondral allograft (e.g., mosaicplasty)
29868	Arthroscopy, knee, surgical; meniscal transplantation (includes arthrotomy for meniscal insertion), medial or lateral

HCPCS Codes	Description
J7330	Autologous cultured chondrocytes, implant
S2112	Arthroscopy, knee, surgical, for harvesting of cartilage (chondrocyte cells

~~ICD-10-CM Diagnosis Codes that Support Medical Necessity~~

~~ICD-10-CM Code~~	~~Description~~
~~M17.0-M17.9~~	~~Osteoarthritis of knee~~
~~M25.561-M25.569~~	~~Pain in knee~~
~~M25.861-M25.869~~	~~Other specified joint disorders, knee~~
~~M93.261-M93.269~~	~~Osteochondritis dissecans of knee~~
~~M94.9~~	~~Disorder of cartilage, unspecified~~
~~S83.30X (A,D,S)-S83.32X(A,D,S)~~	~~Tear of articular cartilage of knee, current~~
~~S89.80X (A,D,S)-S89.82X (A,D,S)~~	~~Other specified injuries of lower leg~~

Reviews, Revisions, and Approvals	Revision Date	Approval Date
Converted corporate to local policy.	08/15/2020	
Annual review. References reviewed and updated.	3/2021	
Annual review. "Changed “review date” in the header to “date of last revision” and “date” in the revision log header to “revision date.” “Experimental/investigational” verbiage replaced in criteria IV. And V. with descriptive language. References reviewed, updated, and reformatted. Reviewed by specialist. Added “and may not support medical necessity” to Coding Implications section.	5/22	8/13/22
Annual review completed. Removed "AND arthroscopic or other repair" from I.E. and added separate criteria I.F. as well as new criteria I.I regarding no previous articular cartilage transfer to treat the defect. Changed "patient" to "member/enrollee" in I.J. Added age and BMI requirements as II.A and B. Updated verbiage in criteria II.D. Added examples to III.D. and BMI criteria to III.F.2. ICD-10 diagnosis code table removed. Background updated with no clinical significance. Dashes removed from ranges. References reviewed and updated.	4/23	

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Important Reminder

This clinical policy has been developed by appropriately experienced and licensed health care professionals based on a review and consideration of currently available generally accepted standards of medical practice; peer-reviewed medical literature; government agency/program approval status; evidence-based guidelines and positions of leading national health professional organizations; views of physicians practicing in relevant clinical areas affected by this clinical policy; and other available clinical information. LHCC makes no representations and accepts no liability with respect to the content of any external information used or relied upon in developing this clinical policy. This clinical policy is consistent with standards of medical practice current at the time that this clinical policy was approved.

The purpose of this clinical policy is to provide a guide to medical necessity, which is a component of the guidelines used to assist in making coverage decisions and administering benefits. It does not constitute a contract or guarantee regarding payment or results. Coverage decisions and the administration of benefits are subject to all terms, conditions, exclusions and limitations of the coverage documents (e.g., evidence of coverage, certificate of coverage, policy, contract of insurance, etc.), as well as to state and federal requirements and applicable LHCC administrative policies and procedures.

This clinical policy is effective as of the date determined by LHCC. The date of posting may not be the effective date of this clinical policy. This clinical policy may be subject to applicable legal and regulatory requirements relating to provider notification. If there is a discrepancy between the effective date of this clinical policy and any applicable legal or regulatory requirement, the requirements of law and regulation shall govern. LHCC retains the right to change, amend or withdraw this clinical policy, and additional clinical policies may be developed and adopted as needed, at any time.

This clinical policy does not constitute medical advice, medical treatment or medical care. It is not intended to dictate to providers how to practice medicine. Providers are expected to exercise professional medical judgment in providing the most appropriate care, and are solely responsible for the medical advice and treatment of members/enrollees. This clinical policy is not intended to recommend treatment for members/enrollees. Members/enrollees should consult with their treating physician in connection with diagnosis and treatment decisions.

Providers referred to in this clinical policy are independent contractors who exercise independent judgment and over whom LHCC has no control or right of control. Providers are not agents or employees of LHCC.

members/enrollees and their representatives are bound to the terms and conditions expressed herein through the terms of their contracts. Where no such contract exists, providers, members/enrollees and their representatives agree to be bound by such terms and conditions by providing services to members/enrollees and/or submitting claims for payment for such services.