MASSACHUSETTS

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Medical Policy

Autografts and Allografts in the Treatment of Focal Articular Cartilage Lesions

Table of Contents

Policy Number: 111

BCBSA Reference Number: 7.01.78
NCD/LCD: N/A

Related Policies

- Autologous Chondrocyte Implantation #374
- Meniscal Allografts and Other Meniscal Implants, #110

Policy

Commercial Members: Managed Care (HMO and POS), PPO, and Indemnity Medicare HMO Blue℠ and Medicare PPO Blue℠ Members

Osteochondral fresh allografting may be considered **MEDICALLY NECESSARY** as a technique to repair:

- Full-thickness chondral defects of the knee caused by acute or repetitive trauma when other cartilage repair techniques (eg, microfracture, osteochondral autografting or autologous chondrocyte implantation) would be inadequate due to lesion size, location, or depth.
- Large (area >1.5 cm^2) or cystic (volume >3.0 cm^3) osteochondral lesions of the talus when autografting would be inadequate due to lesion size, depth, or location.
- Revision surgery after failed prior marrow stimulation for large (area >1.5 cm^2) or cystic (volume >3.0 cm^3) osteochondral lesions of the talus when autografting would be inadequate due to lesion size, depth or location.

Osteochondral allografting for all other joints is considered **INVESTIGATIONAL**.

Osteochondral autografting, using 1 or more cores of osteochrondral tissue, may be considered **MEDICALLY NECESSARY**:

- For the treatment of symptomatic full-thickness cartilage defects of the knee caused by acute or repetitive trauma in patients who have had an inadequate response to a prior surgical procedure, when **all** of the following have been met:
  - Adolescent patients should be skeletally mature with documented closure of growth plates (eg, ≥ 15 years). Adult patients should be too young to be considered an appropriate candidate for total knee arthroplasty or other reconstructive knee surgery (eg, ≤55 years)

    - Focal, full-thickness (grade III or IV) unipolar lesions on the weight-bearing surface of the femoral condyles, trochlea, or patella that are between 1 and 2.5 cm^2 in size
    - Documented minimal to absent degenerative changes in the surrounding articular cartilage (Outerbridge grade II or less), and normal-appearing hyaline cartilage surrounding the border of the defect
    - Normal knee biomechanics, or alignment and stability achieved concurrently with osteochondral grafting.
- Large (area >1.5 cm^2) or cystic (volume >3.0 cm^3) osteochondral lesions of the talus.
- Revision surgery after failed marrow stimulation for osteochondral lesion of the talus.

Osteochondral autografting for all other joints and any indications other than those listed above is considered **INVESTIGATIONAL**

Treatment of focal articular cartilage lesions with autologous minced or particulated cartilage is considered **INVESTIGATIONAL**.

Treatment of focal articular cartilage lesions with allogeneic minced or particulated cartilage is considered **INVESTIGATIONAL**.

Treatment of focal articular cartilage lesions with decellularized osteochondral allograft plugs (eg, Chondrofix) is considered **INVESTIGATIONAL**.

Treatment of focal articular cartilage lesions with reduced osteochondral allograft discs (eg, ProChondrix, Cartiform) is considered **INVESTIGATIONAL**.

Prior Authorization Information

Inpatient

- For services described in this policy, precertification/preauthorization **IS REQUIRED** for all products if the procedure is performed **inpatient**.

Outpatient

- For services described in this policy, see below for products where prior authorization **might be required** if the procedure is performed **outpatient**.

	Outpatient
Commercial Managed Care (HMO and POS)	Prior authorization is **required**.
Commercial PPO and Indemnity	Prior authorization is **required**.
Medicare HMO Blue℠	Prior authorization is **required**.
Medicare PPO Blue℠	Prior authorization is **required**.

CPT Codes / HCPCS Codes / ICD Codes

Inclusion or exclusion of a code does not constitute or imply member coverage or provider reimbursement. Please refer to the member's contract benefits in effect at the time of service to determine coverage or non-coverage as it applies to an individual member.

Providers should report all services using the most up-to-date industry-standard procedure, revenue, and diagnosis codes, including modifiers where applicable.

The following codes are included below for informational purposes only; this is not an all-inclusive list.
The above medical necessity criteria MUST be met for the following codes to be covered for Commercial Members: Managed Care (HMO and POS), PPO, Indemnity, Medicare HMO Blue and Medicare PPO Blue:

CPT Codes

CPT codes:	Code Description
27415	Osteochondral allograft, knee, open
27416	Osteochondral autograft(s), knee, open (e.g., mosaicplasty) (includes harvesting of autograft[s])
29866	Arthroscopy, knee, surgical; osteochondral autograft (s) (e.g., mosaicplasty) (includes harvesting of the autograft[s])
29867	Arthroscopy, knee, surgical; osteochondral allograft (eg, mosaicplasty)

ICD-10 Procedure Codes

ICD-10-PCS procedure codes:	Code Description
0SBC0ZZ	Excision of Right Knee Joint, Open Approach
0SBC3ZZ	Excision of Right Knee Joint, Percutaneous Approach
0SBC4ZZ	Excision of Right Knee Joint, Percutaneous Endoscopic Approach
0SBD0ZZ	Excision of Left Knee Joint, Open Approach
0SBD3ZZ	Excision of Left Knee Joint, Percutaneous Approach
0SBD4ZZ	Excision of Left Knee Joint, Percutaneous Endoscopic Approach
0SQC0ZZ	Repair Right Knee Joint, Open Approach
0SQC3ZZ	Repair Right Knee Joint, Percutaneous Approach
0SQC4ZZ	Repair Right Knee Joint, Percutaneous Endoscopic Approach
0SQCXZZ	Repair Right Knee Joint, External Approach
0SQD0ZZ	Repair Left Knee Joint, Open Approach
0SQD3ZZ	Repair Left Knee Joint, Percutaneous Approach
0SQD4ZZ	Repair Left Knee Joint, Percutaneous Endoscopic Approach
0SQDXZZ	Repair Left Knee Joint, External Approach

The following ICD Diagnosis Codes are considered medically necessary when submitted with the CPT and ICD Procedure codes above if <u>medical necessity criteria</u> are met:

ICD-10 Diagnosis Codes

ICD-10-CM Diagnosis codes:	Code Description
M12.561	Traumatic arthropathy, right knee
M12.562	Traumatic arthropathy, left knee
M12.569	Traumatic arthropathy, unspecified knee
M17.0	Bilateral primary osteoarthritis of knee
M17.10	Unilateral primary osteoarthritis, unspecified knee
M17.11	Unilateral primary osteoarthritis, right knee
M17.12	Unilateral primary osteoarthritis, left knee
M17.2	Bilateral post-traumatic osteoarthritis of knee
M17.30	Unilateral post-traumatic osteoarthritis, unspecified knee
M17.31	Unilateral post-traumatic osteoarthritis, right knee
M17.32	Unilateral post-traumatic osteoarthritis, left knee
M17.4	Other bilateral secondary osteoarthritis of knee
M17.5	Other unilateral secondary osteoarthritis of knee
M17.9	Osteoarthritis of knee, unspecified
M22.40	Chondromalacia patellae, unspecified knee
M22.41	Chondromalacia patellae, right knee
M22.42	Chondromalacia patellae, left knee

M23.8X1	Other internal derangements of right knee
M23.8X2	Other internal derangements of left knee
M23.8X9	Other internal derangements of unspecified knee
M93.261	Osteochondritis dissecans, right knee
M93.262	Osteochondritis dissecans, left knee
M93.269	Osteochondritis dissecans, unspecified knee
M94.261	Chondromalacia, right knee
M94.262	Chondromalacia, left knee
M94.269	Chondromalacia, unspecified knee
M94.9	Disorder of cartilage, unspecified
S83.30xA	Tear of articular cartilage of unspecified knee, current, initial encounter
S83.30xD	Tear of articular cartilage of unspecified knee, current, subsequent encounter
S83.30xS	Tear of articular cartilage of unspecified knee, current, sequela
S83.31xA	Tear of articular cartilage of right knee, current, initial encounter
S83.31xD	Tear of articular cartilage of right knee, current, subsequent encounter
S83.31xS	Tear of articular cartilage of right knee, current, sequela
S83.32xA	Tear of articular cartilage of left knee, current, initial encounter
S83.32xD	Tear of articular cartilage of left knee, current, subsequent encounter
S83.32xS	Tear of articular cartilage of left knee, current, sequela
S89.90xA	Unspecified injury of unspecified lower leg, initial encounter
S89.90xD	Unspecified injury of unspecified lower leg, subsequent encounter
S89.90xS	Unspecified injury of unspecified lower leg, sequela
S89.91xA	Unspecified injury of right lower leg, initial encounter
S89.91xD	Unspecified injury of right lower leg, subsequent encounter
S89.91xS	Unspecified injury of right lower leg, sequela
S89.92xA	Unspecified injury of left lower leg, initial encounter
S89.92xD	Unspecified injury of left lower leg, subsequent encounter
S89.92xS	Unspecified injury of left lower leg, sequela

The above <u>medical necessity criteria MUST</u> be met for the following codes to be covered for Commercial Members: Managed Care (HMO and POS), PPO, Indemnity, Medicare HMO Blue and Medicare PPO Blue:

CPT Codes

CPT codes:	Code Description
28446	Open osteochondral autograft, talus (includes obtaining graft[s])

ICD-10 Procedure Codes

ICD-10-PCS procedure codes:	Code Description
0QQL0ZZ	Repair Right Tarsal, Open Approach
0QQM0ZZ	Repair Left Tarsal, Open Approach
0QQL3ZZ	Repair Right Tarsal, Percutaneous Approach
0QQM3ZZ	Repair Left Tarsal, Percutaneous Approach
0QQL4ZZ	Repair Right Tarsal, Percutaneous Endoscopic Approach
0QQM4ZZ	Repair Left Tarsal, Percutaneous Endoscopic Approach

The following ICD Diagnosis Codes are considered medically necessary when submitted with the CPT and ICD Procedure codes above if <u>medical necessity criteria</u> are met:

ICD-10 Diagnosis Codes

ICD-10-CM Diagnosis codes:	Code Description
M93.271	Osteochondritis dissecans, right ankle and joints of right foot
M93.272	Osteochondritis dissecans, left ankle and joints of left foot
M93.279	Osteochondritis dissecans, unspecified ankle and joints of foot
M94.271	Chondromalacia, right ankle and joints of right foot
M94.272	Chondromalacia, left ankle and joints of left foot
M94.279	Chondromalacia, unspecified ankle and joints of foot
M94.8X7	Other specified disorders of cartilage, ankle and foot
S99.911A	Unspecified injury of right ankle, initial encounter
S99.911D	Unspecified injury of right ankle, subsequent encounter
S99.911S	Unspecified injury of right ankle, sequela
S99.912A	Unspecified injury of left ankle, initial encounter
S99.912D	Unspecified injury of left ankle, subsequent encounter
S99.912S	Unspecified injury of left ankle, sequela
S99.919A	Unspecified injury of unspecified ankle, initial encounter
S99.919D	Unspecified injury of unspecified ankle, subsequent encounter
S99.919S	Unspecified injury of unspecified ankle, sequela

Description

ARTICULAR CARTILAGE LESIONS

Damaged articular cartilage can be associated with pain, loss of function, and disability, and can lead to debilitating osteoarthrosis over time. These manifestations can severely impair an individual's activities of daily living and quality of life. The vast majority of osteochondral lesions occur in the knee with the talar dome and capitulum being the next most frequent sites. The most common locations of lesions are the medial femoral condyle (69%), followed by the weight-bearing portion of the lateral femoral condyle (15%), the patella (5%), and trochlear fossa.[1] Talar lesions are reported to be about 4% of osteochondral lesions.[2]

Treatment

There are two main goals of conventional therapy for patients who have significant focal defects of the articular cartilage: symptom relief and articular surface restoration.

First, there are procedures intended primarily to achieve symptomatic relief: débridement (removal of debris and diseased cartilage) and rehabilitation. Second, there are procedures intended to restore the articular surface. Treatments may be targeted to the focal cartilage lesion, and most such treatments induce local bleeding, fibrin clot formation, and resultant fibrocartilage growth. These marrow stimulation procedures include microfracture, abrasion arthroplasty, and drilling, all of which are considered standard therapies.

Microfracture

Efficacy of the microfracture technique for articular cartilage lesions of the knee was examined by Mithoefer et al (2009) in a systematic review.[3] Twenty-eight studies (total N=3122 patients) were selected; 6 studies were randomized controlled trials. Microfracture was found to improve knee function in all studies during the first 24 months after the procedure, but the reports on durability were conflicting. A prospective longitudinal study of 110 patients by Solheim et al (2016) found that, at a mean of 12 years (range, 10-14 years) after microfracture, 45.5% of patients had poor outcomes, including 43 patients who required additional surgery.[4] The size of the lesion has also been shown to affect outcomes following marrow stimulation procedures.

Abrasion
Fibrocartilage is generally considered to be less durable and mechanically inferior to the original articular cartilage. Thus, various strategies for chondral resurfacing with hyaline cartilage have been investigated. Alternatively, treatments of very extensive and severe cartilage defects may resort to complete replacement of the articular surface either by osteochondral allotransplant or artificial knee replacement.

Osteochondral Grafting
Autologous or allogeneic grafts of osteochondral or chondral tissue have been proposed as treatment alternatives for patients who have clinically significant, symptomatic, focal defects of the articular cartilage. It is hypothesized that the implanted graft's chondrocytes retain features of hyaline cartilage that is similar in composition and property to the original articulating surface of the joint. If true, the restoration of a hyaline cartilage surface might restore the integrity of the joint surface and promote long-term tissue repair, thereby improving function and delaying or preventing further deterioration.

Both fresh and cryopreserved allogeneic osteochondral grafts have been used with some success, although cryopreservation decreases the viability of cartilage cells, and fresh allografts may be difficult to obtain and create concerns regarding infectious diseases. As a result, autologous osteochondral grafts have been investigated as an option to increase the survival rate of the grafted cartilage and to eliminate the risk of disease transmission. Autologous grafts are limited by the small number of donor sites; thus, allografts are typically used for larger lesions. In an effort to extend the amount of the available donor tissue, investigators have used multiple, small osteochondral cores harvested from non-weight-bearing sites in the knee for treatment of full-thickness chondral defects. Several systems are available for performing this procedure: the Mosaicplasty System (Smith & Nephew), the OATS (Osteochondral Autograft Transfer System; Arthrex), and the COR and COR2 systems (DePuy Mitek). Although mosaicplasty and autologous osteochondral transplantation (AOT) may use different instrumentation, the underlying mode of repair is similar (ie, use of multiple osteochondral cores harvested from a non-weight-bearing region of the femoral condyle and autografted into the chondral defect). These terms have been used interchangeably to describe the procedure.

Preparation of the chondral lesion involves débridement and preparation of recipient tunnels. Multiple individual osteochondral cores are harvested from the donor site, typically from a peripheral non-weight-bearing area of the femoral condyle. Donor plugs range from 6 to 10 mm in diameter. The grafts are press fit into the lesion in a mosaic-like fashion into the same-sized tunnels. The resultant surface consists of transplanted hyaline articular cartilage and fibrocartilage, which is thought to provide "grouting" between the individual autografts. Mosaicplasty or AOT may be performed with either an open approach or arthroscopically. Osteochondral autografting has also been investigated as a treatment of unstable osteochondritis dissecans lesions using multiple dowel grafts to secure the fragment. While osteochondral autografting is primarily performed on the femoral condyles of the knee, osteochondral grafts have been used to repair chondral defects of the patella, tibia, and ankle. With osteochondral autografting, the harvesting and transplantation can be performed during the same surgical procedure. Technical limitations of osteochondral autografting are difficulty in restoring concave or convex articular surfaces, the incongruity of articular surfaces that can alter joint contact pressures, short-term fixation strength and load-bearing capacity, donor-site morbidity, and lack of peripheral integration with peripheral chondrocyte death.

Reddy et al (2007) evaluated donor-site morbidity in 11 of 15 patients who had undergone graft harvest from the knee (mean, 2.9 plugs) for treatment of osteochondral lesions of the talus.[5] At an average 47-month follow-up (range, 7-77 months), 5 patients were rated as having an excellent Lysholm Knee Scale score (95-100 points), 2 as good (84-94 points), and 4 as poor (≤64 points). The reported knee problems were instability in daily activities, pain after walking 1 mile or more, slight limp, and difficulty squatting. Hangody et al (2001) reported that some patients had slight or moderate complaints with physical activity during the first postoperative year, but there was no long-term donor-site pain in a series of 36 patients evaluated 2 to 7 years after AOT.[6]

Filling defects with minced or particulated articular cartilage (autologous or allogeneic) is another single-stage procedure being investigated for cartilage repair. The Cartilage Autograft Implantation System

(CAIS; Johnson & Johnson) harvests cartilage and disperses chondrocytes on a scaffold in a single-stage treatment. The Reveille Cartilage Processor (Exactech Biologics) has a high-speed blade and sieve to cut autologous cartilage into small particles for implantation. BioCartilage (Arthrex) consists of a micronized allogeneic cartilage matrix that is intended to provide a scaffold for microfracture. DeNovo NT Graft (Natural Tissue Graft) is produced by ISTO Technologies and distributed by Zimmer. DeNovo NT consists of manually minced cartilage tissue pieces obtained from juvenile allograft donor joints. The tissue fragments are mixed intraoperatively with fibrin glue before implantation in the prepared lesion. It is thought that mincing the tissue helps both with cell migration from the extracellular matrix and with fixation.

A minimally processed osteochondral allograft (Chondrofix; Zimmer) is now available. Chondrofix is composed of decellularized hyaline cartilage and cancellous bone; it can be used “off the shelf” with precut cylinders (7-15 mm). Multiple cylinders may be used to fill a larger defect in a manner similar to AOT or mosaicplasty.

ProChondrix (AlloSource) and Cartiform (Arthrex) are wafer-thin allografts where the bony portion of the allograft is reduced. The discs are laser etched or porated and contain hyaline cartilage with chondrocytes, growth factors, and extracellular matrix proteins. ProChondrix is available in dimensions from 7 to 20 mm and is stored fresh for a maximum of 28 days. Cartiform is cut to the desired size and shape and is stored frozen for a maximum of 2 years. The osteochondral discs are typically inserted after microfracture and secured in place with fibrin glue and/or sutures.

Autologous chondrocyte implantation is another method of cartilage repair involving the harvesting of normal chondrocytes from normal non-weight-bearing articular surfaces, which are then cultured and expanded in vitro and implanted back into the chondral defect. Autologous chondrocyte implantation techniques are discussed in medical policy #374.

Summary

Osteochondral grafts are used to repair full-thickness chondral defects involving a joint. In the case of osteochondral autografts, one or more small osteochondral plugs are harvested from non-weight-bearing sites, usually from the knee, and press fit into a prepared site in the lesion. Osteochondral allografts are typically used for larger lesions. Autologous or allogeneic minced cartilage, decellularized osteochondral allograft plugs, and reduced osteochondral allograft discs are also being evaluated as a treatment of articular cartilage lesions.

Knee Lesions

For individuals who have full-thickness articular cartilage lesions of the knee who receive an osteochondral autograft, the evidence includes randomized controlled trials (RCTs), systematic reviews of RCTs, and longer term observational studies. Relevant outcomes are symptoms, functional outcomes, quality of life, and treatment-related morbidity. Several systematic reviews have evaluated osteochondral autografting for cartilage repair in the short- and mid-term. Compared with abrasion techniques (eg, microfracture, drilling), there is evidence that osteochondral autografting decreases failure rates and improves outcomes in patients with medium-size lesions (eg, 2-6 cm^2) when measured at longer follow-up. This is believed to be due to the higher durability of hyaline cartilage compared with fibrocartilage from abrasion techniques. There appears to be a relatively narrow range of lesion size for which osteochondral autografting is most effective. The best results have also been observed with lesions on the femoral condyles, although treatment of lesions on the trochlea and patella may also improve outcomes. Correction of malalignment is important for the success of the procedure. The evidence suggests that osteochondral autografts may be considered an option for moderate-sized symptomatic full-thickness chondral lesions of the femoral condyle, trochlea, or patella. The evidence is sufficient to determine that the technology results in a meaningful improvement in the net health outcome.

For individuals who have full-thickness articular cartilage lesions of the knee when autografting would be inadequate due to lesion size, location, or depth who receive a fresh osteochondral allograft, the evidence includes case series. Relevant outcomes are symptoms, functional outcomes, quality of life, and treatment-related morbidity. Due to the lack of alternatives, this procedure may be considered a salvage

operation in younger patients for full-thickness chondral defects of the knee caused by acute or repetitive trauma when other cartilage repair techniques (eg, microfracture, osteochondral autografting, autologous chondrocyte implantation) would be inadequate due to lesion size, location, or depth. The evidence is sufficient to determine that the technology results in a meaningful improvement in the net health outcome.

Ankle Lesions

For individuals who have primary full-thickness articular cartilage lesions of the ankle less than 1.5 cm2 who receive an osteochondral autograft, the evidence includes observational studies and a systematic review of these studies. Relevant outcomes are symptoms, functional outcomes, quality of life, and treatment-related morbidity. A systematic review found similar improvements in outcomes following microfracture and autologous osteochondral transplantation (AOT). Given the success of marrow stimulation procedures for smaller lesions (<1.5 cm^2) and the increase in donor-site morbidity with graft harvest from the knee, current evidence does not support the use of AOT as a primary treatment for smaller articular cartilage lesions of the ankle. The evidence is insufficient to determine the effects of the technology on health outcomes.

For individuals who have large (area >1.5 cm^2) or cystic (volume >3.0 cm3) full-thickness articular cartilage lesions of the ankle who receive an osteochondral autograft, the evidence includes an RCT and 2 observational studies. Relevant outcomes are symptoms, functional outcomes, quality of life, and treatment-related morbidity. An RCT in patients with large lesions found similar efficacy for AOT, marrow stimulation, and arthroplasty at 2-year follow-up. Longer term results were not reported. Because observational studies of marrow stimulation in the talus have generally reported worse outcomes and high failure rates for large lesions, there is a strong rationale for using autografts. However, there is limited evidence that osteochondral autografts lead to better outcomes than microfracture at longer follow-up. The strongest evidence is derived from an observational study that showed good improvement on the Foot and Ankle Outcome Score through at least 5-year follow-up using AOT in both larger (2 plugs) and smaller (1 plug) lesions. Additional study is needed to evaluate the durability of AOT in larger lesions. The evidence is insufficient to determine the effects of the technology on health outcomes.

For individuals who have osteochondral lesions of the ankle that have failed primary treatment who receive an osteochondral autograft, the evidence includes 2 nonrandomized comparative trials and case series. Relevant outcomes are symptoms, functional outcomes, quality of life, and treatment-related morbidity. The best evidence for revision AOT comes from a nonrandomized comparative study that found better outcomes with AOT than with repeat marrow stimulation. This finding is supported by case series that have indicated good-to-excellent results at mid-term and longer term follow-up with revision AOT. The evidence is sufficient to determine that the technology results in a meaningful improvement in the net health outcome.

For individuals who have primary full-thickness articular cartilage lesions of the ankle less than 1.5 cm^2 who receive a fresh osteochondral allograft, there is little evidence. Relevant outcomes are symptoms, functional outcomes, quality of life, and treatment-related morbidity. Because microfracture is effective as a primary treatment for lesions less than 1.5 cm^2 and AOT is effective as a revision procedure, use of allograft for small primary cartilage lesions has not been reported. The evidence is insufficient to determine the effects of the technology on health outcomes.

For individuals who have large (area >1.5 cm^2) or cystic (volume >3.0 cm^3) cartilage lesions of the ankle when autografting would be inadequate who receive a fresh osteochondral allograft, the evidence includes a small number of patients in an RCT, case series, and a systematic review of case series. Relevant outcomes are symptoms, functional outcomes, quality of life, and treatment-related morbidity. The systematic review found a significant failure rate with osteochondral allografts for talar lesions. Although there is a potential to delay or avoid arthrodesis or total ankle arthroplasty in younger patients, use of an allograft may be detrimental to future treatments. Additional study is needed. The evidence is insufficient to determine the effects of the technology on health outcomes.

For individuals who have revision osteochondral lesions of the ankle when autografting would be inadequate who receive a fresh osteochondral allograft, the evidence includes an RCT. Relevant

outcomes are symptoms, functional outcomes, quality of life, and treatment-related morbidity. The RCT found that outcomes were slightly, but not significantly, worse with osteochondral allografts than with autografts. However, failure due to nonunion was higher in the allograft group, consistent with other reports. The evidence is insufficient to determine the effects of the technology on health outcomes.

Elbow Lesions
For individuals who have full-thickness articular cartilage lesions of the elbow who receive an osteochondral autograft, the evidence includes a meta-analysis of case series. Relevant outcomes are symptoms, functional outcomes, quality of life, and treatment-related morbidity. Osteochondritis dissecans of the elbow typically occurs in patients who play baseball or do gymnastics. The literature on osteochondral autografts for advanced osteochondritis dissecans of the elbow consists of small case series, primarily from Europe and Asia, and a systematic review of case series. Although the meta-analysis suggested a benefit of osteochondral autographs compared with débridement or fixation, RCTs are needed to determine the effects of the procedure with greater certainty. The evidence is insufficient to determine the effects of the technology on health outcomes.

Shoulder Lesions
For individuals who have full-thickness articular cartilage lesions of the shoulder who receive an osteochondral autograft, the evidence includes a case series. Relevant outcomes are symptoms, functional outcomes, quality of life, and treatment-related morbidity. Evidence on osteochondral autografting for the shoulder is very limited. The evidence is insufficient to determine the effects of the technology on health outcomes.

Knee, Ankle, Elbow, or Shoulder Lesions
For individuals who have full-thickness articular cartilage lesions of the knee, ankle, elbow, or shoulder who receive autologous or allogeneic minced or particulated articular cartilage, the evidence includes a small RCT and small case series. Relevant outcomes are symptoms, functional outcomes, quality of life, and treatment-related morbidity. The evidence on autologous minced cartilage includes a small RCT. The evidence on allogeneic juvenile minced cartilage includes a few small case series. The case series have suggested an improvement in outcomes compared with preoperative measures, but there is also evidence of subchondral edema, nonhomogeneous surface, graft hypertrophy, and delamination. For articular cartilage lesions of the knee, further evidence, preferably from RCTs, is needed to evaluate the effect on health outcomes compared with other procedures. There are fewer options for articular cartilage lesions of the ankle. However, further study in a larger number of patients is needed to assess the short- and long-term effectiveness of this technology. The evidence is insufficient to determine the effects of the technology on health outcomes.

For individuals who have full-thickness articular cartilage lesions of the knee, ankle, elbow, or shoulder who receive decellularized osteochondral allograft plugs or reduced osteochondral allograft discs, the evidence includes small case series. Relevant outcomes are symptoms, functional outcomes, quality of life, and treatment-related morbidity. The case series on decellularized osteochondral allograft plugs reported delamination of the implants, and high failure rates. Evidence on reduced osteochondral allograft discs consists only of case reports and very small case series. The evidence is insufficient to determine the effects of the technology on health outcomes.

Clinical input obtained in 2017 supports that the following indications provide a clinically meaningful improvement in the net health outcome and are consistent with generally accepted medical practice.

- Use of osteochondral autograft for:
    - Primary treatment of large (area >1.5 cm^2) or cystic (volume >3.0 cm^3) osteochondral lesion of the talus.
    - Revision surgery after failed marrow stimulation for osteochondral lesion of the talus.
- Use of fresh osteochondral allograft for:
    - Primary treatment of large (area >1.5 cm^2) or cystic (volume >3.0 cm^3) osteochondral lesion of the talus when autografting would be inadequate due to lesion size, depth, or location.
    - Revision surgery for osteochondral lesions of the talus when autografting would be inadequate due to lesion size, depth, or location.

Thus, the above indications may be considered medically necessary considering the suggestive evidence and clinical input support.

However, the clinical input does not support whether the following indication provides a clinically meaningful improvement in the net health outcome or is consistent with generally accepted medical practice.

- Use of osteochondral grafts in the elbow.

Thus, the above indication may be considered investigational.

Policy History

Date	Action
9/2018	BCBSA National medical policy review. Policy revised to add "or particulated" to the investigational policy statements on minced cartilage. Prior Authorization Information reformatted. Effective 9/1/2018.
1/2018	Clarified coding information.
12/2017	BCBSA National medical policy review. New medically necessary indications described. Clarified coding information. Effective 12/1/2017.
2/2017	BCBSA National medical policy review. First medically necessary statement clarified. Investigational indications clarified. 2/1/2017
8/2015	New references added from BCBSA National medical policy.
11/2014	BCBSA National medical policy review. New medically necessary indications described. Coding information clarified. Effective 11/1/2014.
5/2014	Updated Coding section with ICD10 procedure and diagnosis codes, effective 10/2015.
12/2013	BCBSA National medical policy review. New investigational indications described. Effective 12/1/2013. Removed inpatient procedure code 81.49 as it does not pertain to the policy.
11/2011-4/2012	Medical policy ICD 10 remediation: Formatting, editing and coding updates. No changes to policy statements.
6/2011	Medical Policy Group – Orthopedics, Rehabilitation and Rheumatology. No changes to policy statements.
7/2010	Medical Policy Group – Orthopedics, Rehabilitation Medicine and Rheumatology. No changes to policy statements.
8/1/2009	New policy effective 8/1/2009 describing ongoing non-coverage.
7/2008	Medical Policy Group - Orthopedics. No changes to policy statements.
7/2007	Medical Policy Group - Orthopedic/Rheumatology. No changes to policy statements.
7/2006	Medical Policy Group - Orthopedic/Rheumatology. No changes to policy statements.

Information Pertaining to All Blue Cross Blue Shield Medical Policies

Click on any of the following terms to access the relevant information:

Medical Policy Terms of Use
Managed Care Guidelines
Indemnity/PPO Guidelines
Clinical Exception Process
Medical Technology Assessment Guidelines

References

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