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Corporate Medical Policy

Osteochondral Allograft Transplantation and Autograft Transfer System (OATS/mosaicplasty) in the Treatment of Articular Cartilage Lesions

File name: Osteochondral Allograft Transplantation and Autograft Transfer System
(OATS/Mosaicplasty in the Treatment of Articular Cartilage Lesions)

Last Review: New Policy

Next Review: 7/09

Effective Date: 9/9/08

Description

Focal chondral defects of the knee, either due to trauma or other conditions such as osteochondritis dissecans, often fail to heal on their own and may be associated with pain, loss of function, disability, and the long-term complication of osteoarthritis. The ideal resurfacing technique would eliminate symptoms, restore normal biomechanics of the knee joint, and prevent the long-term emergence of osteoarthritis and the necessity for total knee arthroplasty. Various methods of cartilage resurfacing have been investigated including marrow-stimulation techniques such as subchondral drilling, microfracture, and abrasion arthroplasty, all of which are considered standard therapies and all of which attempt to restore the articular surface by inducing the growth of fibrocartilage into the chondral defect. However, fibrocartilage does not share the same biomechanical properties as hyaline cartilage, and thus various strategies for chondral resurfacing with hyaline cartilage have been investigated. Autologous chondrocyte transplant involves the harvesting of normal chondrocytes from normal non-weight-bearing articular surfaces, which are then cultured and expanded in vitro and then transplanted back into the patient. Autologous chondrocyte transplantation is considered separately in policy No. 7.01.48.

Osteochondral grafts have also been investigated. Both fresh and cryopreserved allogenic 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. For these reasons, there has been ongoing interest in autologous osteochondral grafts as an option to increase the survival rate of the grafted cartilage and to eliminate the risk of disease transmission. Autologous grafts have been limited by the small number of donor sites; single grafts have been harvested from the patella, femoral condyle, and proximal part of the fibula. In an effort to extend the amount of the available donor tissue, investigators have used multiple, small osteochondral cores harvested from various non-weight-bearing sites in the knee. Two related procedures, osteochondral mosaicplasty and osteochondral autograft transfer system (OATS) have been described. These terms have been used interchangeably.

In the mosaicplasty procedure the chondral lesion is excised, and abrasion arthroplasty is performed to refresh the bone base of the defect. Multiple individual osteochondral cores are harvested from the donor site, typically from a peripheral non-weight-bearing area of the femoral condyle. The grafts are press fit into the lesion in a mosaic-like fashion within the same-sized drilled recipient tunnels. The resultant surface consists of transplanted hyaline cartilage and fibrocartilage arising from the abrasion arthroplasty. The fibrocartilage is thought to provide "grouting" between the individual autografts. Mosaicplasty may be performed with either an open approach or arthroscopically if the lesion is small and not more than 4 to 6 grafts are needed.

The OATS procedure focuses on chondral defects that are associated with chronic tears of the anterior cruciate ligament (ACL), using an arthroscopic approach that can provide access to both the ACL for reconstruction and performance of the autograft. Although mosaicplasty and OATS may use different instrumentation, the underlying principle is similar; i.e., the use of multiple osteochondral cores harvested from a non-weight-bearing region of the femoral condyle and autografted into the chondral defect. In contrast to autologous chondrocyte transplant, in which separate surgical procedures are required to harvest and then transplant the cultured

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chondrocytes, in osteochondral autografting, the harvesting and transplantation can be performed during the same surgical procedure. While osteochondral autografting has been principally performed on the knee, osteochondral grafts from the femoral condyle have also been used to repair chondral defects of the patella, tibia, and ankle.

Policy

Benefits are subject to all terms, limitations and conditions of the subscriber contract.

Prior approval may be required subject to all terms, limitations and conditions of the subscriber contract.

For New England Health Plan (NEHP) members an approved referral authorization is required.

When service or procedure is covered

The Plan considers osteochondral allograft or autograft (OATS/mosaicplasty) transplantation of the knee medically necessary if the member meets all of the following criteria:

- Age 15 – 50 years
- Persistent symptoms of disabling localized knee pain for at least 6 months, which has failed to respond to conservative treatment
- Size of the cartilage defect is between 1.0 to 2.5 square centimeters in total area (autograft) or greater than 2.0 square centimeters (allograft)
- An intact meniscus is present
- The lesion must be discrete, single, and unipolar (involving only one side of the joint. “Kissing lesions” are not covered)
- Condition involves a focal, full thickness, (grade III or IV) isolated defect of the knee involving the weight bearing surface of the medial or lateral femoral condyles or trochlear region caused by acute or repetitive trauma
- The lesion is largely contained with near normal surrounding articular cartilage and articulation cartilage (grades 0, 1, 2)
- A normal joint space is present
- No active infection is present
- No inflammation or osteoarthritis is presented in the joint
- The knee is stable, with normal alignment (corrective procedure may be performed in combination with or prior to transplantation)
- Patient is willing and able to comply with post-operative weight-bearing restrictions and rehabilitation
- No history of cancer in the bones, cartilage, fat, or muscle of the affected limb
- Body Mass Index (BMI) less than or equal to 30

When service or procedure is not covered

Osteochondral autografting is considered not medically necessary when any of the following conditions exist:

- When any of the above criteria are not met
- For joints other than the knee, including, but not limited to, the ankle (talus)

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Eligible Providers:

Participating Orthopaedic surgeons

Billing and Coding Information:

See Attachment I

Policy Implementation/Update Information:

2006 New Policy

2007 minor wording changes; Reviewed by the CAC July 2007

2008 Policy completely revised to correspond to BCBS of Massachusetts Medical Policy for benefit consistency with the New England Health Plan and the Vermont legal definition of medical necessity, based upon expert medical opinion and generally accepted practice parameters in New England. Reviewed by the CAC 9/08.

Scientific Background and Reference Resources:

Blue Cross and Blue Shield of Massachusetts Medical Policy Osteochondral Autograft Transplantation dated 04/04/2008

Blue Cross and Blue Shield Association Medical Policy 7.01.78 Osteochondral Autografts and Allografts in the Treatment of Focal Articular Cartilage Lesions dated May 2008

Approved by BCBSVT Medical Director

Stephen E. Perkins, M.D. (BCBSVT)

Date Approved:

Attachment I OATS/mosaicplasty

CPT Coding:

27415	Osteochondral allograft, knee, open
27416	Osteochondral autograft(s), knee, open (eg, mosaiclasy) (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 (e.g., mosaicplasty)

ICD-9 Diagnoses Codes That Support Medical Necessity:

717.7	Chondromalacia patellae
719	Other and unspecified disorders of joint
732.7	Osteochondritis dissecans
733.90	Disorder bone and cartilage; unspecified