Cohere Medical Policy - Proximal Tibial Osteotomy

Clinical Guidelines for Medical Necessity Review

Version: 2
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Guideline Information:

Specialty Area: Disorders of the Musculoskeletal System
Guideline Name: Cohere Medical policy - Proximal Tibial Osteotomy

Date of last literature review: 1/15/2025
Document last updated: 2/5/2025
Type: [**X**] Adult (18+ yo) | [_] Pediatric (0-17yo)

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Medical Necessity Criteria

Service: Proximal Tibial Osteotomy

Recommended Clinical Approach

A proximal tibial osteotomy (PTO) is a surgical procedure to treat unicompartmental osteoarthritis of the knee. The surgery is also used to correct the alignment of the bones that form the knee joint, particularly in patients with a knock knee deformity (genu valgum) or with genu varum, also known as bowlegs. A PTO for genu varum can be conducted in several ways, including as a lateral closing wedge (LCW) or a medial opening wedge procedure (MOW). While 10-year survivorship of the two procedures is comparable, MOW may decrease patellar height significantly, while an LCW may result in peroneal nerve injuries.[1-3]

Medical Necessity Criteria

Indications

- ➔ **Proximal tibial osteotomy** is considered appropriate if **ANY** of the following is **TRUE**[4-19]:
  - ◆ Genu valgum; **OR**
  - ◆ Knee instability with **ANY** of the following[5,19]:
    - ACL deficiency with coronal malalignment; **OR**
    - ACL deficiency with medial compartment arthrosis; **OR**
    - ACL deficiency with sagittal malalignment (increased tibial slope); **OR**
    - ACL deficiency with varus malalignment; **OR**
    - Chronic lateral/posterolateral ligamentous insufficiency (can be combined with cartilage restoration or meniscus preserving/replacing therapies); **OR**
  - ◆ Osteogenesis imperfecta; **OR**
  - ◆ Patellofemoral instability; **OR**
  - ◆ Posttraumatic tibial malalignment; **OR**
  - ◆ Spontaneous osteonecrosis of medial femoral condyle[8]; **OR**
  - ◆ Tibial torsion with **ALL** of the following[9]:
    - Symptoms of patellofemoral pain or patellar instability that do not respond to physical therapy; **AND**
    - Torsion of 30 degrees or more as confirmed by imaging; **OR**
  - ◆ Tumor excision or biopsy (e.g., giant cell tumor of bone, osteosarcoma)[10]; **OR**

- Unicompartmental degenerative knee arthritis with **ALL** of the following[11]:
  - Knee range of motion includes **ALL** of the following:
    - Knee extension is normal or flexion contracture is not greater than 10°[9]; **AND**
    - Knee flexion is greater than or equal to 90°; **AND**
  - A weight-bearing radiograph shows **ANY** of the following evidence of knee arthritis:
    - Joint space narrowing (greater than 50%) in the medial compartment only[10]; **OR**
    - Marginal osteophytes or subchondral sclerosis in the medial compartment only with joint space narrowing (less than 50%)[10]; **AND**
  - Failure of conservative management for greater than 3 months, including **ALL** of the following:
    - Anti-inflammatory medications, analgesics, or prescription medications (oral steroids, narcotics, neuropathic pain medications)if not contraindicated; **AND**
    - Physical therapy; **AND**
    - Activity modifications; **AND**
    - **ANY** of the following:
      - Corticosteroid injection if medically appropriate; **OR**
      - Corticosteroid injection is contraindicated; **AND**
  - Symptoms limit activities of daily living (ADLs).

Non-Indications

➔ **Proximal tibial osteotomy** is **NOT** considered appropriate if **ANY** of the following is **TRUE**[19]:

- Lateral compartment moderate to severe osteoarthritis or meniscal deficiency; **OR**
- Rheumatoid arthritis; **OR**
- Severely limited range of motion (knee flexion less than 90° and a flexion contracture greater than 10°)[9]; **OR**
- Active use of nicotine-derived products; **OR**
- Body mass index (BMI) greater than or equal to 30kg/m^2 [11]; **OR**
- Lower extremity ischemia; **OR**
- Active infection.

Site of Service Criteria

Inpatient or Outpatient.

Procedure Codes (HCPCS/CPT)

HCPCS/CPT Code	Code Description
27457	Osteotomy, proximal tibia, including fibular excision or osteotomy (includes correction of genu varus [bowleg] or genu valgus [knock-knee]); after epiphyseal closure

Medical Evidence

Coakley et al. (2023) conducted a systematic review of the outcomes of high tibial osteotomy for valgus knee. The review included 17 papers collectively representing 517 knee procedures. The authors found HTO to be a viable treatment for correct hip-knee-ankle angles, and that there is evidence to suggest that the procedure may delay the need for a total knee replacement.[12]

Bin et al. (2023) reviewed 21 studies, including 17 randomized control trials with 1749 patients. The studies compared the complications, revisions, reoperations, and functional outcomes among patients undergoing total knee arthroplasty (TKA), unicompartmental knee arthroplasty (UKA), high tibial osteotomy, bicompartmental knee arthroplasty (BCA), bi-unicompartmental knee arthroplasty (BIU), and knee joint distraction KJD). While some HTOs may require a conversion to TKA if osteoarthritis advances, successful reconstruction of joint function is accomplished by correcting varus malalignment. In addition, TKA after HTO has a higher complication rate and poor outcomes.[10]

Murray et al. (2021) discuss the indications, techniques, and outcomes for high tibial osteotomy. Evidence supports the procedure as a durable solution for joint preservation. Research shows positive outcomes with the lateral closing wedge and medial opening wedge, including the mechanical medial proximal tibial angle.[2]

The American Academy of Orthopaedic Surgeons (AAOS) published a clinical practice guideline on the *Management of Osteoarthritis of the Knee (Non-Arthroplasty).* High tibial osteotomy may improve pain and function in properly indicated patients with unicompartmental knee osteoarthritis. Studies demonstrate a pain reduction with survival rates of approximately 70% at 10 years.[18] The AAOS also published a guideline on the *Surgical Management of Osteoarthritis of the Knee.* Unicompartmental knee arthroplasty or tibial osteotomy is recommended to treat knee osteoarthritis.[8]

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Clinical Guideline Revision History/Information

Original Date: December 15, 2023		
Review History		
Version 2	February 6, 2025	• Annual Review • Aligned the knee flexion angles in the indications and non-indications. • Removed "open growth plates" from the non-indications, as this policy is limited to adults. • Changed the BMI non-indication from 40 to 30 kg/m^2 • Added references to indications and non-indications that included precise percentages, angles, or weights [e.x. joint space narrowing (less than 50%)]. • Added references #1-3 and 9-12