Proximal Tibial Osteotomy - Single Service

Clinical Guidelines for Medical Necessity Review

Version: 1.0
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Important Notices

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Guideline Information:

Specialty Area: Diseases & Disorders of the Musculoskeletal System (M00-M99)
Guideline Name: Proximal Tibial Osteotomy (Single Service)

Literature review current through: 12/15/2023
Document last updated: 12/15/2023
Type: [**X**] Adult (18+ yo) | [_] Pediatric (0-17yo)

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Medical Necessity Criteria

Service: Proximal Tibial Osteotomy

General Guidelines

- **Units, Frequency, & Duration:** None.
- **Criteria for Subsequent Requests:** None.
- **Recommended Clinical Approach:** Periarticular anesthesia is recommended to decrease postoperative pain and opioid use (e.g., local anesthesia infiltration, peripheral nerve block, and neuraxial anesthesia).[1-2] General anesthesia is also acceptable.
- **Exclusions:** None.

Medical Necessity Criteria

Indications

➔ **Proximal Tibial Osteotomy** is considered appropriate if **ANY** of the following is **TRUE**[1-12]:

- Genu valgum; **OR**
- Knee instability with **ANY** of the following[2,12]:
  - 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[5]; **OR**
- Tibial torsion with **ALL** of the following[6]:
  - 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)[7]; **OR**
- Unicompartmental degenerative knee arthritis with **ALL** of the following[8]:
  - Knee range of motion includes **ALL** of the following:

    - Knee extension is normal or flexion contracture is not greater than 15 degrees; **AND**
    - Knee flexion is greater than or equal to 90 degrees; **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; **OR**
    - Marginal osteophytes or subchondral sclerosis in the medial compartment only with joint space narrowing (less than 50%); **AND**
- Failure of conservative management for greater than 3 months including **ALL** of the following:
    - Oral steroids or anti-inflammatory medication; **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**[9]:

- Lateral compartment osteoarthritis or meniscal deficiency; **OR**
- Rheumatoid arthritis; **OR**
- Open growth plates; **OR**
- Severely limited range of motion (knee flexion less than 90° and a flexion contracture greater than 10°); **OR**
- Severe patellofemoral symptoms, or patients with patella baja because an osteotomy may increase the forces on articular cartilage in these patients; **OR**
- Active use of nicotine-derived products due to the high risk of nonunion; **OR**
- Body mass index (BMI) greater than or equal to 40 kg/m^2 (severely obese); **OR**
- Chronic lower extremity ischemia; **OR**
- Skeletal immaturity; **OR**
- Active infection; **OR**
- Lower extremity weakness, especially quad strength/knee extensor weakness.

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

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 (HTO), 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 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]

National and Professional Organization

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.[11] 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]

References

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