

# Efficacy of Proximal Tibial Osteotomy in Treating Medial Knee Gonarthrosis in Middle-Aged Patients: A Detailed Case Series Analysis

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**Abstract:** *This case series analyzes the outcomes of high tibial osteotomy in five middle-aged patients with medial knee osteoarthritis. The study focuses on the procedures efficacy in addressing varus deformity and pain relief, including detailed preoperative and postoperative assessments. The results indicate significant improvement in symptoms and alignment, highlighting the procedure's potential as a treatment modality for this patient demographic. **Introduction:** Osteoarthritis of knee is a chronic debilitating disease causing considerable disability. Osteoarthritis commonly affect the medial compartment of knee giving rise to varus deformity in majority of cases. Significant varus deformity further aggravates pathology due to medialisation of load bearing axis. High tibial osteotomy is a valuable treatment modality for correcting malalignment. Thus producing postoperative valgus alignment of the limb with shifting of load bearing axis of lower limb laterally and thereby relieving the symptoms associated with medial unicompartmental knee osteoarthritis. **Materials and Methods:** We reported total of 5 cases who were of middle aged(33 - 55 years) presented with knee pain(VAS 7-8) and isolated medial osteoarthritis with good range of motion and without ligamentous instability. All these patients were diagnosed with medial compartment of knee osteoarthritis based on radiological assessment, Ahlback's grade I and II .We performed medial opening wedge high tibial osteotomy with iliac crest graft using tomofix plates in all five patients. **Results:** This procedure resulted in significant pain relief (two patients -VAS 3, two patients -VAS 2, one patient-VAS 1) and correction of deformity in all the patients. **Conclusion:** Medial opening wedge High tibial osteotomy is a good option in the treatment of uni-compartmental osteoarthritis knee.It relieves pain and improves functional outcome and prevents further progression of osteoarthritis.*

**Keywords:** High Tibial osteotomy, Medial open wedge osteotomy, Medial compartment osteoarthritis, knee osteoarthritis, varus deformity

## 1. Introduction

Osteoarthritis of knee is a chronic debilitating disease causing considerable deformity in majority of the cases. Significant varus deformity further aggravates pathology due to medialisation of load bearing axis. High tibial osteotomy is a valuable treatment modality in correcting malalignment .Primary or secondary medial knee compartment arthrosis is the most common indication of high tibial osteotomy. Both opening and closing wedge high tibial osteotomy are the most common treatment options of varus malalignment and medial arthrosis of knee.

We present five cases of medial knee compartment osteoarthritis who reported to our institution in a span of 2 years and underwent medial opening wedge high tibial osteotomy and assessed postoperatively.

## 2. Case Reports

Total of five patients who were middle aged(35-55 years) reported to us with a complaint of knee pain.On clinical examination, all the patients had significant varus deformity and medial joint line tenderness(VAS 6-8)

On radiological assessment, all the patients were falling in Ahlback's grade I and II .

## 3. Materials and Methods

10 cm anteromedial incision over proximal tibia

Skin and subcutaneous tissue dissected, pes anserinus retracted posteriorly. This exposes medial collateral ligament.

The long fibers of superficial medial collateral ligament are then detached until posteromedial cortex of proximal tibia is exposed 3mm guide wire passed from medial to lateral side just above the fibula head

Osteotomy done parallel to the joint line at the apex of the deformity between the two guide wires from medial to lateral side keeping lateral cortex intact .Chisel size 10,15 and 20 is used and valgus opening is done. Desired amount of correction done using spreader and checked for mechanical axis of limb Iliac graft is taken and placed in the wedge and checked for mechanical axis of limb Graft is fixed using tomofix plates.



**Case no. 1:**



**Case no. 2:**



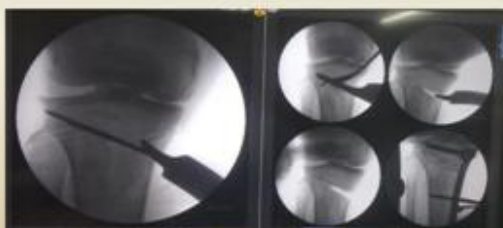
**Case no. 3:**



Preoperative radiographs



Intraoperative photograph



Intraoperative radiographs



Postoperative radiographs

**Case no. 4:**



Preoperative radiographs



Intraoperative radiographs :Medialisation of mechanical axis

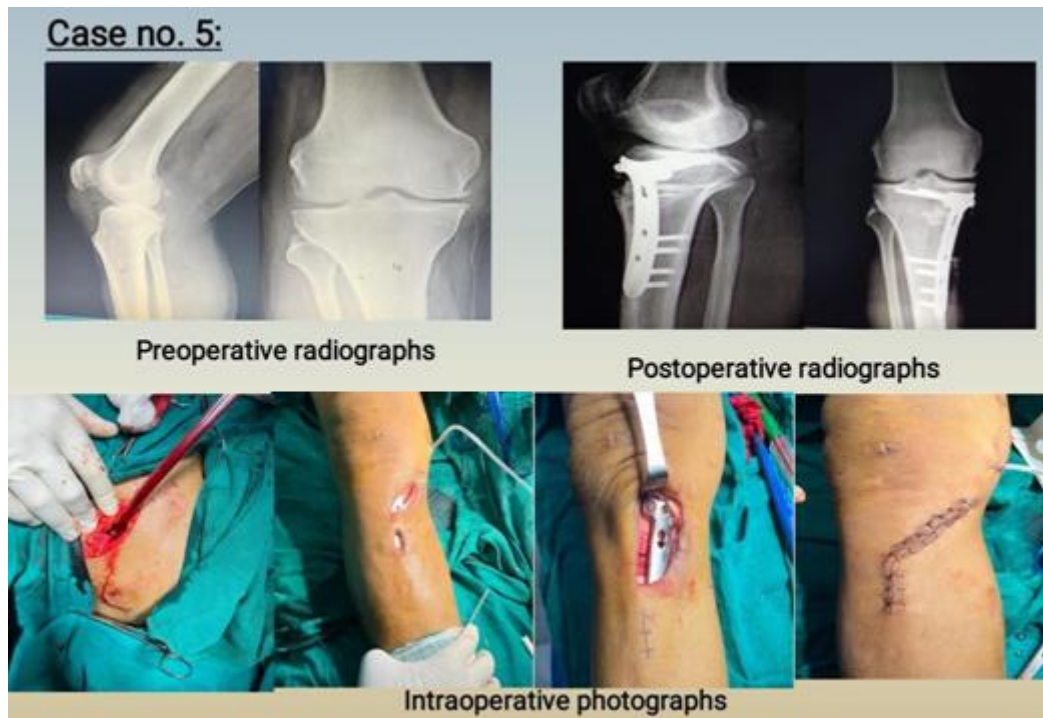


Intraoperative radiographs :centering of mechanical axis



Intaoperative radiograh (a)plate fixation prior to bone graft (b) after bone graft





#### 4. Discussion

- Knee osteoarthritis is the most common joint disorder.
- The most common deformity seen in knee OA is varus malalignment, which increases the load going through the medial compartment resulting in cartilage degeneration and symptomatic arthritis.
- For varus alignment and symptomatic medial knee osteoarthritis there are non surgical and surgical options
- All the five patients we operated had significant pain relief postoperatively (2 year)
- 2 patients -VAS -3,
- 2 patients -VAS-2
- One patient -VAS -1
- Outerren et al in 2017 did a comparative study on HTO and non surgical treatment in patients with medial knee osteoarthritis' and their study proved **high tibial osteotomy** was more effective in pain reduction .
- All five patients had good range of motion(ROM) after 2 year of follow up
- Zhenwu cao et al in 2018 did a systematic review and concluded **HTO** group achieved superior Range of motion compared to other surgical procedures.
- Postoperatively correction of deformity achieved through the procedure in all patients.
- Robinson et al, Hee-Soo et al have achieved correction of deformity in their studies done on HTO for medial knee OA

#### 5. Conclusion

“Opening wedge high tibial osteotomy” for medial knee osteoarthritis could provide satisfactory symptomatic relief and good range of motions in middle aged patients.

#### References

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