

## Results of High Tibial Osteotomy in Unicompartmental Osteoarthritis of kNee using Tomofix implant

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**Abstract:** (HTO) High Tibial Osteotomy still has a role in the management of OA in selected cases. This procedure is ideally suited for patients with a high demand for physical activity. High tibial osteotomy is generally considered a method of prolonging the time before a knee replacement is necessary, because the benefits typically fade after eight to ten years. This procedure is typically reserved for younger patients with pain resulting from instability and malalignment. Retention of the joint always shows advantages over unicompartmental replacement, TKR replacement in active and younger patient. The proximal high tibial osteotomy (HTO) is an established procedure for the treatment of varus osteoarthritis, and can be either of the open-wedge type or closed-wedge type. HTO is an established treatment for unicompartmental osteoarthritis of the knee with malalignment. **HTO closed wedge.** The classic procedure for correcting varus deformity is the -- lateral closed wedge osteotomy. of the tibia with osteotomy of the fibula. Closed wedge HTO has certain disadvantages. The risk of compartment syndrome, Peroneal nerve injuries. Fibular osteotomy cause difficulty in conversion to TKR. Because of the disadvantages of closed-wedge HTO the option of an open-wedge HTO technique gained importance and encouraging results were published by Hernigou- on **HTO open wedge.**

**Keywords:** Osteoarthritis, High tibial osteotomy, Closed wedge osteotomy, Opening wedge osteotomy

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### I. Tomofix

A new fixation device, which allows stable fixation of the open wedge osteotomy without the need to fill the osteotomy gap with bone grafts.

#### Closed v/s Open

Generally, the open-wedge osteotomy of the tibia offers several advantages: The technique is simple, the approach causes little trauma and the correction can be evaluated and fine tuning can be done intraoperatively. May or may not need bone grafting. May be converted TKR. So OWHTO with Plates and inter fragmentary metal spacers are easy to implant is a Joint-preserving therapy and more so realignment osteotomy. Disadvantage of OWHTO is that it is an open wedge HTO which has Danger of delayed healing of the osteotomy site. May need bone graft some time. It is not advisable in case of considerable loss of meniscal tissue in the lateral compartment, in third to fourth degree chondropathy in osteoarthritis of the lateral segment of the joint and restricted mobility of the knee -especially extension deficit of more than 20°.

### II. Material and Method

This work was done in PMCH. 14 cases were operated and evaluated. Short follow up period of about less than 4 yrs. Cases clinically and radiologically evaluated. No arthroscopic exam was done prior to operation.

#### Selection of patients

Patients not included were of over the age 55 yrs. They were not included when the degenerative process in the knee is too advanced and When bone healing was disturbed. When fixed extension deformity was present >20 deg.

Technique Done on ortho. Table. Pt. on supine position. Done under image and sand bag fixed on table to keep the limb flexed. Tourniquet may be used

#### Technique

**INCISION** Make a 6 – 8 cm long skin incision a point anterior to the insertion of the pes to the medial tibial plateau. Place the first posterior wire at the cranial border of the pes anserinus just in front of the posterior tibial ridge. Place the second wire about 2 cm anterior and parallel to the first wire.



Perform the transverse osteotomy with an oscillating saw below the two Kirschner wires that act as a guide. Pay attention to completing the osteotomy cut of the hard-posteromedial tibial cortex. Protect the anatomical structures dorsal to the posterior tibial surface with a blunt Hohmann retractor. LCP Spacer 5.0 mm, length 2 mm, Locking Screws 5.0 mm, self-tapping, length 24 mm up to 85 mm, Cortex Screws 4.5 mm, self-tapping, length 24 mm up to 52 mm, Locking Screw 5.0 mm, self-drilling, length 26 mm, Due to the medial collateral ligament complex, the osteotomy tends to open more anteriorly during spreading, thus increasing the caudal inclination of the tibial plateau. It is therefore important to ensure sufficient release of the long superficial fibers of the medial collateral ligament for symmetrical opening of the horizontal osteotomy. If needed, dissect the medial collateral ligament to provide subperiosteal and caudal release. Exert special care when tightening the cortical screw to avoid thread stripping and associated damage to the bone.

### **III. Review of literature**

In a prospective study, 14 consecutive cases were treated with this procedure. Bony healing with remodelling of the medial and posterior cortical bone was observed. Full weight-bearing was possible ten weeks after surgery. There were no implant failures. Complications included one delayed union, and one deep infection. Interligamentous closing wedge valgus osteotomy is still the standard procedure for this axial tibial correction. The disadvantages of closing wedge HTO are well known and include: Risk of peroneal nerve injury due to the necessary fibular osteotomy, compartment syndrome, persistent instability, secondary loss of correction, and difficult incorporation of the Total Knee Arthroplasty later.

#### **Complication**

Include one delayed union, two recurrences of varus deformity and one deep infection. There were no implant failures and no relevant neurovascular complications. In the survival and failure analysis, 86 of 92 required no further surgery. Pain relief was good to excellent. In six cases, a subsequent Total Knee Arthroplasty was performed.

### **IV. Conclusion**

Correct patient selection. Exact preoperative planning. Precise step-by-step operative technique. Adequate rehabilitation protocol. Early mobilisation and weight bearing are key success.

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