

Approach to Multiligament Knee Injury: To Wedge or Not To Wedge

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INTRODUCTION:

Realignment osteotomy is performed to correct the mechanical axis of the lower limb, hence helps in neutralizing the load going through the knee joint and reduce excessive stresses on the soft tissue.

REPORT:

20 years old male presented with right knee instability following a motor vehicle accident. His has posterior sagging with grade II anterior cruciate ligament (ACL) laxity and grade III posterior cruciate ligament (PCL) laxity. Varus test was positive. Dial test positive with $>15^\circ$ discrepancy at 90° . MRI reported as nonunion medial tibial plateau fracture Schatzker IV, partial tear of ACL, complete tear of PCL and medial meniscus tears. He underwent open wedge corrective osteotomy followed by PCL reconstruction, ACL and LCL augmentation and chondral injury debridement 16 months apart. At 4 months post surgery, noted that he still has grade II PCL laxity and grade I ACL laxity



Figure 1: Xray knee show posterior translation of tibia with varus



Figure 2: open wedge medial osteotomy done with anteromedial placement of tibial plate

DISCUSSION:

An opening wedge (OW) high tibial osteotomy (HTO) leads to an increased tibial slope that help in ACL deficiency and closing wedge

(CW) osteotomy to a flattened tibial slope will help in PCL deficiency.

Levy et al. suggested a comprehensive approach with performing ligament reconstruction and reassess the patient once weight bearing has been started; if there is evidence of varus deformity, a second stage valgising HTO is performed. In chronic scenario, realignment osteotomy as a first stage treatment followed by ligament reconstruction.

Review by Cantin et al. and Herman et al. concluded that patient outcomes are better when knee deformity is addressed first in addition to treating the soft tissue injury.

In case of neglected ligament injuries with significant posterolateral laxity, realignment osteotomy needs to be done primarily, before the soft tissue procedure as suggested by Savarese et al and Noyes et al.

CONCLUSION:

Primary osteotomy along with ligament reconstruction can be an option for treatment of multi ligament knee injury with obvious malalignment or a significant varus deformity

REFERENCES:

1. Bushan et al., A review of role of osteotomy in knee ligament injuries; J Clin Orthop Trauma. 2022.