

- Functional Outcome Of Arthroscopic Anterior Cruciate Ligament (Acl) Reconstruction With Biplanar Medial Open Wedge High Tibial Osteotomy In Chronic Acl Deficient Knee With Varus Deformity

Arvind P. Gupta MBBS, MS, MRCS, Dip SICOT
Patna Bihar INDIA

Disclosure

- Nothing

Background

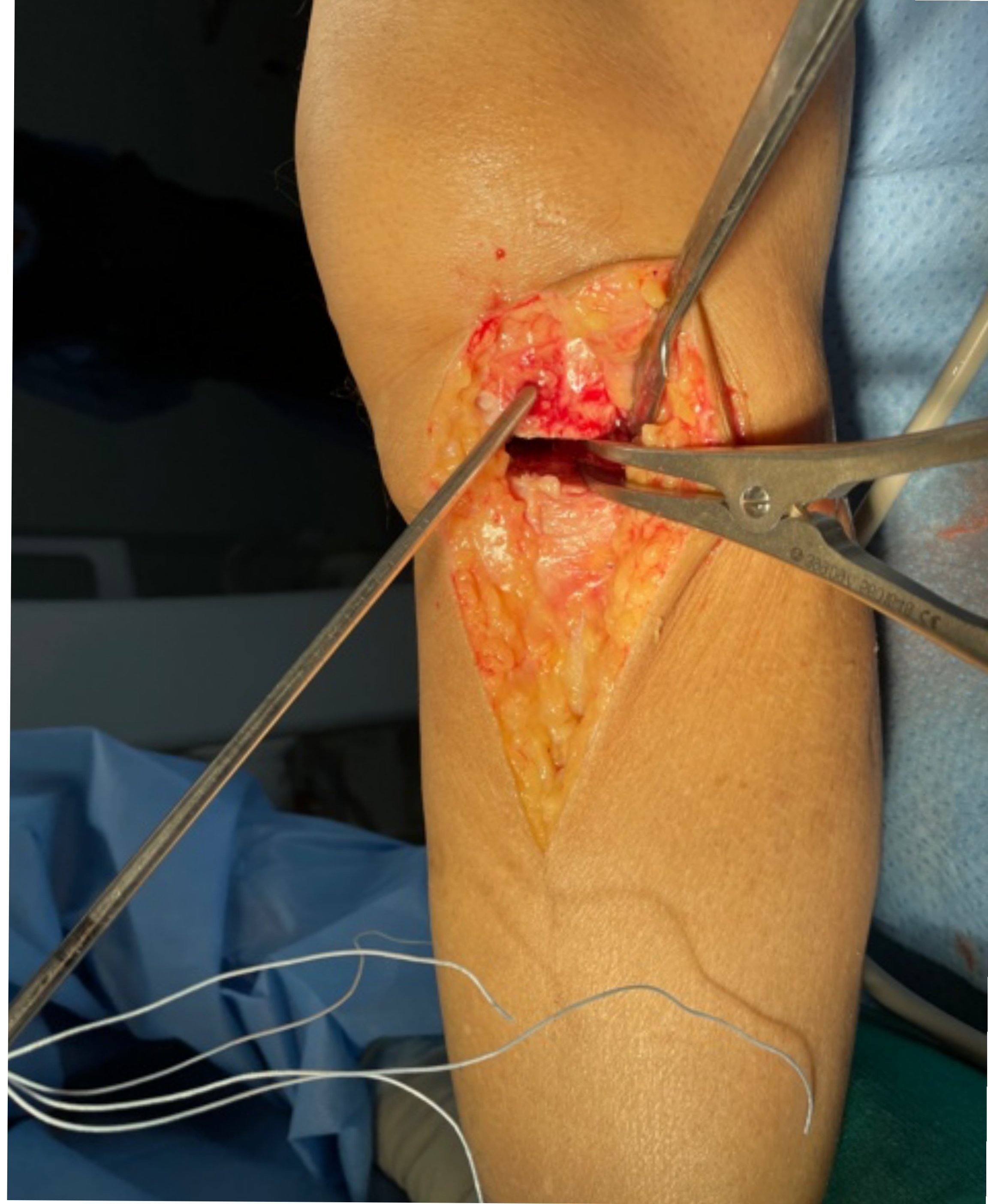
- This ambispective study aims to evaluate the clinical and radiological outcomes of the concurrent arthroscopic ACL reconstruction with biplanar medial open wedge high tibial osteotomy (HTO) in patients with chronic ACL deficient knees with medial compartment osteoarthritis (OA) with varus deformity.

Method

- This single-centre study was performed between 2019 and 2023 and included 32 patients diagnosed with chronic ACL deficient knee with medial compartment osteoarthritis with varus deformity who underwent biplanar medial open wedge HTO with simultaneous arthroscopic ACL reconstruction. The patients' ages ranged from 30 to 65 years, and the minimum follow-up period for the study was one year.

Technique







- The clinical outcomes of the study were Lysholm score, International Knee Documentation Committee (IKDC) score, range of motion, Lachman test, anterior drawer, and pivot-shift test. Radiological outcomes for the study were the degree of varus deformity, progression of OA, posterior tibial slope, union, tunnel position and postoperative complications.

Results

- A significant improvement in all clinical outcomes was observed in the postoperative period with no limitation in range motion in all the included patients (131.3 ± 3.2 preoperatively to 134.5 ± 4.0 postoperatively). The mechanical axis was corrected from mean 140 varus to mean 10 of valgus with no significant change in the tibial slope.

- There was a statistically significant improvement in the Lysholm score from 52.5 ± 9.0 preoperative to 92.0 ± 6.4 postoperatively. The IKDC score from 45.4 ± 3 to 94 ± 5 Grade II or more instability was observed in four Lachman and anterior drawer test patients. Two of them had positive pivot tests despite a significant improvement in the Lachman anterior drawer and the pivot-shift test postoperatively. Three patients had a progression of medial compartment osteoarthritis, and we did not observe nonunion or loss of fixation in any of our cases till the last follow-up.

Conclusion

- A simultaneous arthroscopic ACL reconstruction with biplanar medial open wedge HTO showed promising clinical and radiological outcomes in patients with ACL deficient knee with medial compartment OA with varus deformity with a lower rate of postoperative complications.

References

Noyes F.R., Barber-Westin S.D., Hewett T.E. High tibial osteotomy and ligament reconstruction for varus angulated anterior cruciate ligament-deficient knees. *Am J Sports Med.* 2000;28:282–296. doi: 10.1177/03635465000280030201.

Li Y., Zhang H., Zhang J., Li X., Song G., Feng H. Clinical outcome of simultaneous high tibial osteotomy and anterior cruciate ligament reconstruction for medial compartment osteoarthritis in young patients with anterior cruciate ligament-deficient knees: A systematic review. *Arthroscopy.* 2015;31:507–519. doi: 10.1016/j.arthro.2014.07.026.

Arun G.R., Kumaraswamy V., Rajan D. Long-term follow up of single-stage anterior cruciate ligament reconstruction and high tibial osteotomy and its relation with posterior tibial slope. *Arch Orthop Trauma Surg.* 2016;136:505–511.

Mehl J., Paul J., Feucht M.J. ACL deficiency and varus osteoarthritis: High tibial osteotomy alone or combined with ACL reconstruction? *Arch Orthop Trauma Surg.* 2017;137:233–240.

Deng F, Li Z, Liu J-C. Osteotomy combined with anterior cruciate ligament (ACL) reconstruction for the treatment of a patient with ACL injury and biplanar deformity. *Asian J Surg.* 2023;46(4):1768–1770.

Weiler A, Gwinner C, Wagner M, Ferner F, Strobel MJ, Dickschas J. Significant slope reduction in ACL deficiency can be achieved both by anterior closing-wedge and medial open-wedge high tibial osteotomies: early experiences in 76 cases. *Knee Surg Sports Traumatology Arthrosc.* 2022;30(6):1967–1975.