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Comparative analysis of results following femoral fixation methods (aperture vs. non-aperture) in arthroscopic anterior cruciate ligament reconstruction (tight rope vs. interference SCEW) – A prospective study

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Background: Several methods are available for fixing the femoral side of a hamstring auto graft in ACL reconstruction and the best method is unclear. Biomechanical studies have shown varying results with regard to fixation failure. There are 2 fixation types for ACL grafts in femoral tunnel: aperture fixation and non-aperture fixation. Aperture fixation describes graft fixation at the opening of the bone tunnel, typically with an interference screw. Suspensory fixation describes graft fixation that is remote from the intra-articular space (i.e., at the femoral or tibial cortices) using endobutton or tight rope. Our study compares the results following two methods.

Material & Methods: A total of 60 patients were undertaken in the study and institutional review board approval was taken along with patient's consent. They were divided into two groups randomly. The ACL reconstruction was done in two groups using endobutton in 30 and interference screw in another 30. The tibial site was fixed with interference screw in all the cases. Our primary outcome measure was comparison of lysholm II score and tibial translation while secondary outcome was surgery time, tourniquet time, Lachman test, pivot shift, range of motion, Quadriceps control.

Results: At 6 months follow up 60 patients completed clinical evaluation. The primary outcome measure Tibial translation using rolimeter (KT-1000) was 3.6 ± 1.2 mm (tight rope) and 2.9 ± 1.12 mm (interference screw). $P=0.027$ is considered to be statistically significant. The post op lysholm II score was 96.5 ± 6.42 (IS group) and 95.9 ± 8.6 , P -value equals 0.77 this difference is not statistically significant. There was no significant complication in either group in addition no difference was found in two groups in secondary outcomes.

Conclusions: Our study concludes that while there is significant difference in tibial translation the lysholm II scoring and secondary outcomes showed no significant difference in the two groups.

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