RESEARCH PAPER

SINGLE-STAGE REVISION ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION WITH LATERAL EXTRA-ARTICULAR TENODESIS: A NARRATIVE REVIEW

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ABSTRACT

Anterior cruciate ligament (ACL) reconstruction is widely performed to restore knee stability after ACL rupture. However, graft failure may occur due to persistent rotational instability, technical errors, or traumatic reinjury. Lateral extra-articular tenodesis (LET) has gained renewed interest as an adjunct to ACL reconstruction to improve rotational stability and protect the intra-articular graft. This narrative review summarizes the current literature regarding single-stage revision ACL reconstruction combined with LET. Evidence suggests that LET improves rotational control, decreases strain on the ACL graft, and may reduce graft failure rates in high-risk patients undergoing revision ACL reconstruction.

Keywords: ACL reconstruction, Revision ACL, Lateral extra-articular tenodesis, Knee instability, Graft failure, Rotational control.

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Introduction

ACL injuries are common in young active individuals and athletes involved in pivoting sports. Arthroscopic ACL reconstruction is considered the gold standard treatment for symptomatic ACL deficiency. Despite advancements in surgical techniques, graft fixation, and rehabilitation protocols, a proportion of patients experience graft failure requiring revision surgery. Persistent rotational instability due to injury to the anterolateral complex has been identified as a major contributor to ACL graft failure.

METHODS

A narrative review of literature was performed using databases including PubMed, Scopus, and Google Scholar. Keywords used included revision ACL reconstruction, lateral extra-articular tenodesis, rotational instability, and anterolateral complex. Relevant clinical studies, systematic reviews, and biomechanical investigations evaluating LET in revision ACL reconstruction were included.

RESULTS

Several studies have demonstrated that LET improves rotational stability and reduces pivot shift in patients undergoing revision ACL reconstruction. Biomechanical studies also show reduced strain on the intra-articular graft when LET is added. Functional outcome scores such as Lysholm and IKDC scores have been reported to improve significantly after combined ACL reconstruction and LET.

DISCUSSION

Revision ACL reconstruction is technically challenging due to altered anatomy, tunnel widening, retained implants, and associated injuries. LET reinforces the anterolateral structures of the knee and limits internal tibial rotation, thereby protecting the ACL graft. Modern studies support its use in high-risk patients, particularly those with high-grade pivot shift, generalized ligamentous laxity, and young athletes returning to

pivoting sports.

CONCLUSION

Single-stage revision ACL reconstruction combined with lateral extra-articular tenodesis improves rotational stability and functional outcomes while reducing graft failure risk. LET is increasingly recommended as an adjunct procedure in selected high-risk revision ACL cases.

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