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Review

The use of the ligament augmentation and reconstruction system for posterior cruciate ligament reconstruction in isolated and multiligament knee injuries: A systematic review

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ABSTRACT

Purpose: To evaluate the efficacy and safety of the Ligament Augmentation and Reconstruction System (LARS) in posterior cruciate ligament (PCL) reconstruction in isolated PCL injuries and multiligament knee injuries, analysing clinical, radiographic, and patient reported outcome measures (PROMs).

Methods: A systematic review according to PRISMA guidelines was performed through Embase via Ovid, PubMed, and the Cochrane Library to identify studies reviewing LARS use for PCL reconstruction. The methodological quality was assessed using the Methodological Index for Non-Randomized Studies (MINORS) criteria.

Results: From 225 results screened, 13 studies were included published between 2004 and 2020, analysing LARS use for PCL reconstruction. Mean follow-up was 21 months to 11.9 years, however only four studies had follow-up of over five years. Results in isolated PCL reconstruction utilising LARS demonstrated scores that were consistent with good function and minimal limitation in daily or sporting activities, in addition to a significant improvement in knee laxity and low complication rates. Symptomatic rupture and synovitis rates were both 1.7% in this group. LARS use in complex multiligament injuries demonstrated satisfactory PROMs, although there was concern regarding residual laxity on stress radiography.

Conclusions: LARS demonstrates good outcomes in PCL injury reconstruction in the short to mid-term, particularly in isolated PCL injuries, achieving equivocal or improved results compared to autograft reconstruction using hamstring tendon in the three comparative studies included. LARS has a quicker recovery time and no donor-site morbidity, however long-term data is lacking. Utilising LARS for reconstruction of the PCL in multiligament injuries revealed more variable results.

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