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Paper #69

Primary, Ankle Lateral Ligament Augmentation Improves Clinical Outcome Relative to Modified Brostrom-Gould Procedure: A 2-Year Randomized Controlled Trial

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Summary:
A RCT compared the patient-scored outcome (FAOS) following a LARS procedure (21 patients), with that of the MBG procedure (20 patients), for lateral ankle instability that had failed non-operative treatment, and found a superior outcome in the LARS patients at both 12 and 24 month follow-up.

Abstract:
BACKGROUND
"Ankle sprain" is a common injury, and although most patients recover with non-operative treatment, more than 20% of patients may develop chronic instability. Numerous surgical techniques have been described for these patients. "Anatomic" procedures, such as the modified Brostrom-Gould procedure (MBG), are generally regarded as the treatment of choice. However, there is little high quality scientific data to support the MBG over other procedures, and not all patients are suitable for this procedure. The strength of the construct resulting from the imbrication of damaged tissues has been questioned, and the inclusion of the inferior extensor mechanism in the repair can alter hind foot biomechanics. The "non-anatomic procedures" improve the strength of the reconstruction by the re-routing of tendons, but at the cost of increased morbidity. Reconstruction of the lateral ligament complex using autograft is associated with graft site morbidity. Augmentation of a primary repair using an extra-capsular synthetic ligament, such as the ligament augmentation reconstruction system (LARS), offers the potential for a stronger reconstruction without the complications seen with either "non-anatomical procedures", or with the harvesting of autograft.

HYPOTHESIS
LARS technique produces better patient-scored outcome than the MBG for patients with chronic lateral ankle instability.

STUDY DESIGN
Prospective randomized controlled clinical trial

METHODS
Patients who satisfied the inclusion criteria were invited to take part in the study. Patients were physically active, skeletally mature, less than 90kg body weight, with an isolated rupture of both anterior talofibular and calcaneofibular ligaments, which had failed to recover despite 3 months of appropriate non-operative treatment. Patients were randomly allocated to undergo the LARS procedure or the MBG procedure. Both groups followed a similar rehabilitation program. The outcome of interest was change in the Foot and Ankle Outcome Score (FAOS), which has been validated for use with lateral ligament injury. Patients completed the FAOS before surgery, and then at one year, and two years, following surgery. Changes in scores were used to measure the outcome of surgery and statistical analysis was used to compare the groups ($P<0.05$). Both the T-test and Mann-Whitney-U tests were used.

Paper #69

RESULTS
Forty-one patients took part in the study, 21 were randomized to the LARS group and 20 to the MBG group. The LARS group had a significantly better improvement in the total FAOS at both one year (25.5 SE3.8 vs 16.0 SE3.3), and two years (27.1 SE 4.5 vs 15.8 SE4.9), post surgery. This was also seen within each of the sub-scales of the FAOS. Using a significance level of 5%, a power of 80% and a standard deviation of 5 units for the total FAOS score, the study was sufficiently powered.

There were a similar number of complications in both groups.

CONCLUSION
Primary repair combined with LARS results in better clinical outcome at two years post surgery, than the MBG procedure, for physically active patients with chronic lateral ligament instability. Longer term follow-up of these patients will provide valuable information with regard to the long term outcome of these patients.

KEY TERMS: Modified Brostrom-Gould, lateral ankle instability, LARS