Chronic Deltoid Ligament Insufficiency Repair with Internal Brace™ Augmentation

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Introduction/Purpose: Patients with chronic deltoid ligament insufficiency (CDLI) present a challenging situation in foot and ankle surgery. Although numerous surgical procedures have been described, optimal treatment is still a matter of debate. While the treatment armamentarium ranges from simple ligament repair to complex deltoid reconstructions with or without realignment osteotomies, direct repair augmented with an Internal Brace™ (Arthrex, Inc., Naples FL, USA) device appears to be an attractive intermediate option. We investigated functional outcomes and complications in patients with CDLI operated on using Internal Brace™ augmentation.

Methods: After IRB approval, a prospective study was conducted. Patients were included if they were older than 18 years, presented medial ankle pain and/or giving way, exhibited asymmetric flexible hindfoot valgus, failed conservative treatment, and had a positive MRI evaluated by an independent radiologist. Patients with less than six months of follow-up, stage IV flatfoot deformity, neuropathy and/or inflammatory arthritis were excluded from the study. CDLI diagnosis was confirmed intraoperatively with the arthroscopic ankle drive-through sign. Patients were evaluated preoperatively and postoperatively using foot and ankle ability measure (FAAM) score, 36-item short form survey (SF-36), and grade of satisfaction. Paired t-tests were used to assess the pre- and postoperative FAAM and SF-36 scores.

Results: Eleven patients met inclusion criteria. Nine patients were male and two female, with a mean age of 32 (18-61). Six ankles were right and five left. 88% presented with medial ankle pain, 67% medial drawer, 88% asymmetric hindfoot valgus, and 44% multidirectional ankle instability. No patient was lost to follow-up, with a mean follow-up time of 13.5 months (6-21). Preoperative FAAM and SF-36 scores improved from 58.7 to 75.3 and from 60.2 to 84.4 postoperatively, respectively (p<0.05). Two implant failures were observed, with no apparent compromise of construct stability. No patient was re-operated.

Conclusion: Our results suggest that deltoid ligament repair with Internal Brace™ augmentation in patients with CDLI is a reliable option with good functional outcomes and high satisfaction grade in short term follow-up.