INTRODUCTION: Plantar plate injury is an underdiagnosed and difficult to treat pathology (1-7). Surgical management of 2nd metatarsalphalangeal joint (MTPJ) is challenging, with sometimes unpredictable long-term result (1,3,4,10-12). Direct planter plate repair techniques via a plantar approach have been described in expert opinion or technical guides, with few reports of outcomes or clinical result (3,18-21). More recently, in addition to direct plantar plate repair techniques via plantar approach, dorsal techniques have been developed to address concerns regarding potential painful plantar scar tissue (1,10,12-15). The purpose of this retrospective review was to determine the outcomes of a previously described plantar plate repair technique (3).

METHODS: A retrospective analysis of patients 18 years of age and older who underwent 2nd or 3rd planter plate repair via plantar approach, and without concurrent Weil osteotomy or other surgical procedure, reported at a single foot and ankle specialty practice from December 2010 through April 2014 identified via chart review, as well as a prospective patient reported subjective outcomes analysis was performed. Patients who underwent revision plantar plate repair, indirect (e.g. dorsal) repair, underwent other surgical repair of the 2nd MTPJ (e.g. Girdlestone-Taylor procedure), experienced acute surgical repair of plantar plate injury, patients younger than 18 years of age at the time of surgery, or patients without adequate available medical record documentation were excluded.

RESULTS: Ultimately, 131 patients (144 toes) were included and the response rate for mailed surveys was 52.8% (76 of 144 toes). Clinical outcomes reported a well-aligned toe in 87.1% of cases, with a recurrence rate of 7.6% (11 of 144) and a revision rate of 2.8% (4 of 144). Statistically significant improvement in overall modified FFQI (p<0.001) and subscales scores for pain (p<0.001), disability (p<0.001), and activity limitation (p<0.001) were noted post-operative when compared to pre-operative data. The median post-operative VAS pain level reported at the time of survey completion was 2.0 (range 0.0 to 10.0, mean 2.3; SD 0.6). Regardless of subjective patient survey, every patient reported 72.4% of affected toes “to touch the ground when standing.” There was no difference in patient satisfaction with the outcome of the procedure for toes that touched the ground compared to toes that did not touch the ground (x2:1.73; p=0.188). Patients were more likely to report being dissatisfied with the outcome of the procedure for toes in which the scar on the bottom of the foot caused pain compared to toes in which the scar on the bottom of the foot was not present (x2: 26.08; p<0.001). Return patient surveys indicated some wound healing complications in 7 toes (9.2%, 7 of 76), interestingly contrary to the clinical review documenting repair toe results 6.2% (4 of 64) with wound healing complications. For 55.3% (42 of 75) of affected toes, the patient reported that knowing what they know now about the procedure and recovery, they would have this repair again in the future if needed.

DISCUSSION: Despite the modified FFQI scores, patient satisfaction questionare data reported mixed results. The modified FFQI results demonstrate this approach provides excellent post-operative pain relief, improvement of associated disability, and improvement of activity limitations. The importance of managing patient expectations is acknowledged secondary to the discrepancy with patient satisfaction data and the modified FFQI results. Further prospective study is warranted comparing this technique to alternate dorsal approaches for plantar plate repair and without associated commercially available suture passing systems.