The Significance of Intraoperative First Metatarsal Traction Test in Hallux Valgus Surgical Decision Making

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Category: Bunion

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Introduction/Purpose: To investigate the significance of using an intraoperative first metatarsal traction test in hallux valgus correction surgery in decision making of the procedure choice and operation designs.

Methods: From Jun 2015 to Jun 2016, correction surgery performed in patients with hallux valgus 40 cases with 68 feet. We used the intra-operative first metatarsal traction test to judge the grade of laxity of the 1st TMT and the factual IMA and thus help to make the decision of the level of osteotomy and or fusion. We adopted distal Chevon osteotomy (11 cases 16.2%) when the congruence of the surface of the 1st MPJ remains more than ½ under tension with the traction test. Proximal Scarf osteotomy (54 cases 79.4%) was used when the congruence was less than ½. While if there was a complete incongruent dislocation, Lapidus procedure (3 cases 4.4%) was carried out. We measured IMA and HVA in the patients preoperative, intraoperative, 3 days after operation and at 6 months’ follow-up. Same measurements were done on the 40 patients from the same time without traction test.

Results: Retrospective review of the 2 groups showing significant improvement (p<0.001) but more reliable larger correction of IMA angles in the intraoperative traction test group. The patients of the intraoperative traction test group had average higher satisfaction rate with more reliable improvement of symptoms and less postoperative complications. Significant improvement (P<0.001) and postoperative AOFAS score average of 93.2 was recorded in traction test method group vs. a 84.3 in control group. The traction test group largely retained the correction in half year follow up which is significant when comparing to the control.

Conclusion: The intraoperative traction test of first metatarsal objectively guided the decision making of procedure choice and operation design optimization. The traction test gave a reliable assessment of the laxity of first TMT thus avoiding inadequate correction of Hallux Valgus with improper surgical designs. The test can be potentially used as an objective intraoperative guidance in avoidance of inadequate correction with inappropriate surgical choices and thus maintain the correction in the long term with patient satisfaction.

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