



Using the Orthofix Contours LPS (Lapidus Plating System) for the Treatment of Hallux Valgus



Case History

A 45-year-old female presented with a painful bunion on the right foot for two years. Pain was significant and rated 8/10 on a visual analogue scale. The pain was pulsating in nature at the bunion region and interfered with her job functions as a waitress. She had failed conservative treatment and elected surgical intervention.

Physical Examination

An obvious bunion was present on the right foot; with the hallux abutting the second toe. The medial eminence region was tender to touch. Medial column hypermobility was present. Standing pre-operative radiographs illustrate the large bunion deformity with an intermetatarsal angle of 14 degrees (Figures 1 & 2).



Fig 1



Fig 2

Surgical Procedure

A dorsal medial incision was made over the first metatarsal; from the first metatarsal-phalangeal joint (MTPJ) to the 1st tarso-metatarsal joint (TMT). Distally, the medial eminence was resected and the adductor tendon was released. Proximally, the first TMT was accessed via a linear capsulotomy between the Extensor Hallucis Longus Tendinous (superiorly) and the Tibialis Anterior Tendon Insertion (inferiorly). Cartilage was removed with the curettage method using osteotomes and curettes. A smooth lamina spreader allowed access to the deep aspect of the joint. The subchondral plate was perforated with a 1.4mm (0.062) K-wire and a bone pick until good, bleeding bone was identified.

The first metatarsal was clinically realigned, the intermetatarsal (IM) angle was reduced, and inferior translation of the first metatarsal was performed (to accommodate form intrinsic shortening of associated with fusion). The fusion site was temporarily fixated with two 1.4mm (0.062) K-wires.

The Contours Lapidus Plate (right) was placed on the dorsal-medial aspect of the fusion site. The position of the plate is guided by the geography of the underlying bone and the contour of the plate. Temporary fixation of the plate was performed with two 1.4mm (0.062) K-wires.

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Fixation of the plate to the fusion site was performed under C-arm assistance. The first screw placed was a non-locking 3.5mm screw into a hole on the medial cuneiform. Next, a 3.5mm Delta/compression screw was placed into the compression hole; providing compression across the fusion site. Temporary fixation between the first metatarsal and second metatarsal and/or the intermediate cuneiform was removed prior to placing the Delta/compression screw. All temporary fixation was removed after one (1) screw was implanted both proximally and distally. The remaining screws holes were filled with 3.5mm locking screws. The initial non-locking screw was exchanged for a locking screw. Stress relieving bone graft was performed at the dorsal and medial aspects of the fusion site with locally derived bone from the medial cuneiform and first metatarsal base. In this case, the Delta/compression screw was left in place but it can be removed. This Delta/compression screw is not necessary for stability of the construct. Closure was performed in standard technique.

Post-Operative Course

The patient's fixation was stable intraoperatively with good bone stock. She was prescribed a weight-bearing program to begin once the soft tissue was healed (typically within 14 days after the surgery). [1-12]

Post-operatively she was discharged in Jones Splint with crutches.

First post-operative visit (2 weeks): The skin was healed. She was placed in a walking boot and graduated weight-bearing program.

Second post-operative visit (6 weeks): Patient missed her appointment due to family emergencies outside of the United States.

Last visit (7 months): Patient reported no pain and is happy with the function and appearance of her foot. She had returned to full activity and regular shoes. She reported returning to regular shoes approximately 6-8 weeks after her index operation. She reported no feeling, or could identify, any underlying hardware at the fusion site. Post-operative radiographs demonstrate a well-aligned, healed 1st TMT fusion with the Orthofix Contours LPS (Figures 3-6).



Fig 3



Fig 4



Fig 5



Fig 6

Discussion

As long as the construct is stable, successful fusion of the Lapidus Bunionectomy can be achieved with a variety of methods. Surgeons have also used early weight-bearing programs to mobilize patients quicker after a stable fusion when good bone stock has been confirmed [1-12].

Plates have dramatically evolved from simple linear tubular plates, to "H" and "T" plates, and onto highly engineered plating systems designed specifically for the Lapidus fusion. The Orthofix Contours LPS is considered a third-generation Lapidus Plating System [13].

The Contours LPS has several important design features. First, the plate is anatomically designed for the first tarso-metatarsal joint (TMT). The plate fits between the tibialis anterior insertion (inferiorly) and the extensor tendons (superiorly). The implant is contoured specifically for the underlying geography of the medial cuneiform and metatarsal. Second, the design incorporates peri-articular locking screws in a trapezoidal fashion. Furthermore, the long metatarsal component is designed to resist significant loads [14]. The medial cuneiform's surface is maximized for screw options with three points of fixation. A dedicated compression hole (Delta hole) allows for uniform compression. Lastly, the plate design, screw position/arrangement, and the corresponding screw angles incorporate the final position of the fusion site.

In this case, the Orthofix Contours LPS was used and successful fusion was achieved. The patient was initially lost to follow-up after her first postoperative visit where she was placed into a walking boot. She re-presented 7 months after surgery with a solid fusion in anatomic position (unchanged from the operating room) with a reported return to shoes at 6-8 weeks from her index operation.

Surgeon Information

Dr. Neal Blitz, DPM, FACFAS, is the Chief of Foot Surgery & Associate Chairman of Orthopaedics at Bronx-Lebanon Hospital in New York. He is a Fellow of the American College of Foot & Ankle Surgeons and specializes in simple and complex reconstructive foot surgery. Dr. Blitz is the lead surgeon for the Contours Lapidus Plating System. He receives royalties and serves as a per diem consultant in an advisory role.

References

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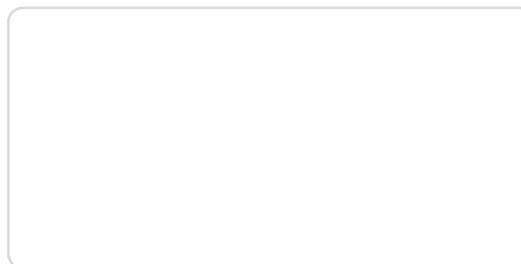
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