Minimally Invasive Bunion Surgery with Revcon™ Anchor Screw Technology

Bunionplasty® 360 Bunion Repair™ | Case Study

Surgeon Profile

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Case Highlights

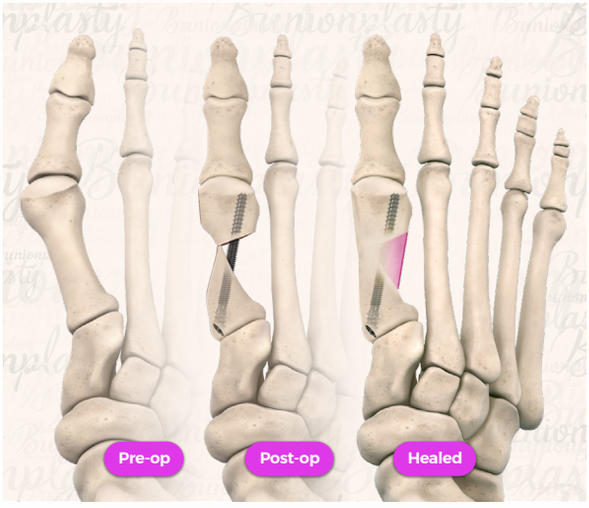
- Bilateral moderate hallux valgus deformities
- Bunionplasty® procedure performed
- Bilateral same-day surgery
- Revcon™ Anchor Single Screw™ fixation
- Immediate weightbearing with surgical shoe
- Osseous regeneration at 3 months

Case History

A 53-year-old female patient presented for surgical consultation for painful bunion deformity to both feet for over 10 years. The pain was significant and rated a 10/10 for the left foot and 8/10 for the right foot on a visual analogue scale. The pain was dull in nature at the bunion regions and interfered with her daily activities and job functions, leading to decreased overall quality of life. She had failed conservative options and elected surgical intervention.

Clinical exam demonstrated a hallux valgus deformity bilaterally with erythema to medial eminence and hallux abutting second toe. The medial eminence region was tender to touch. Weightbearing preoperative radiographic measurements demonstrated moderate deformities with an intermetatarsal angle of 14˚ for the right foot and 13.4˚ for the left foot. The hallux valgus angle measured 30˚ for the right foot and 33.2˚ for the left foot.

The decision was made for surgical intervention where the patient agreed to and understood the procedure, risks, benefits and postoperative course.



Series demonstrating minimally invasive bunion correction with Revcon™ Anchor Single Screw™ fixation with resultant first metatarsal regeneration (pink area).[1]

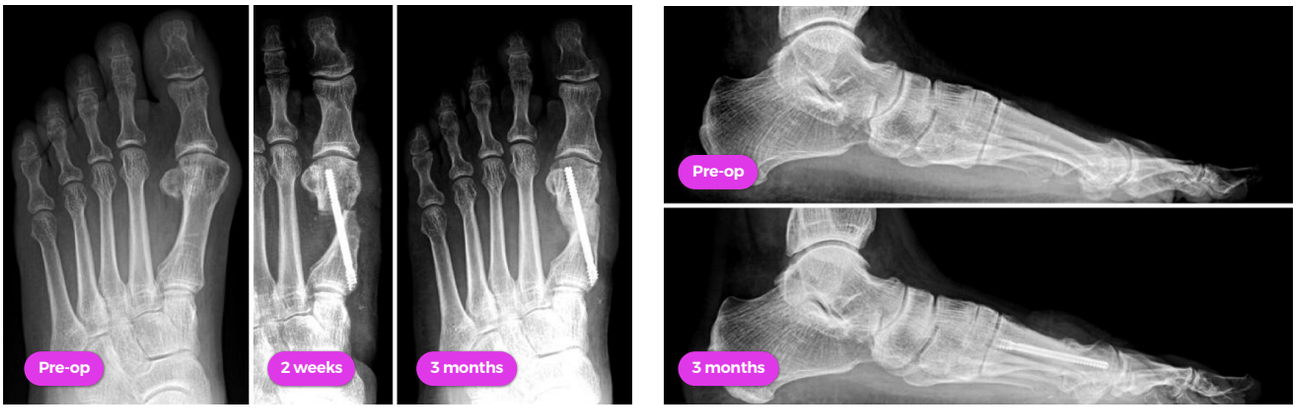
Surgical Procedure (Bilaterally)

Small percutaneous incisions were made medially along the region of the first metatarsal using intraoperative fluoroscopy to determine landmarks. The Transveron™ osteotomy was performed at distal aspect of the midshaft, using the high torque low speed rotary 2.0-mm Shannon bur under irrigation and intraoperative fluoroscopy. Instrumentation was used to translate the capital fragment laterally and the position was maintained using a percutaneously placed guidewire for the 4.0-mm Revcon™ Anchor screw. The metatarsal head was corrected in all planes for 360 Bunion Repair™ procedure.

Temporary k-wire fixation was placed. The 4.0-mm Revcon™ Anchor screw was placed with standard technique under fluoroscopic guidance. The fixation was stable and the position was acceptable clinically and radiographically. Using the NervePreserv™ technique, the medial proximal metatarsal redundant bony ledge was then resected with the 2.0-mm Shannon bur under irrigation and fluoroscopy. The medial eminence was also resected with the rotary bur under irrigation and fluoroscopic assistance. A percutaneous lateral release was performed in both feet.

Radiographic series of a bilateral bunion deformity treated with the Bunionplasty® procedure utilizing the Single Screw™ Voom™ dual-zone Revcon™ Anchor screw technology.

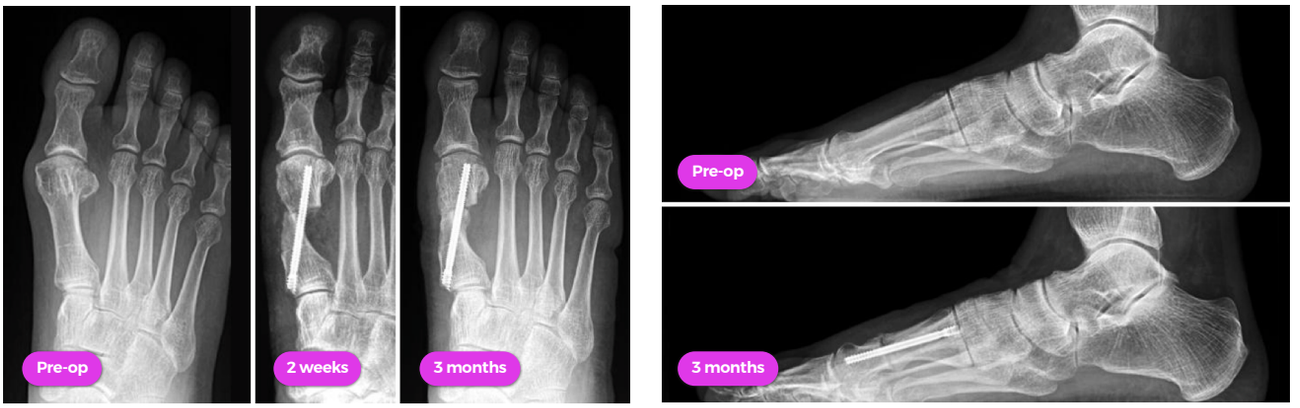
Left Foot



Pre-op: IMA 13.4˚, HVA 33.2˚ | Post-op: IMA 3.2˚, HVA 1.2˚

Revcon™ Anchor Screw Cortical Runway: 10-mm | CPZ Stability Region[2]: Safety | FMR Type[1]: III

Right Foot



Pre-op: IMA 14˚, HVA 30˚ | Post-op: IMA 2.9˚, HVA 2.0˚

Revcon™ Anchor Screw Cortical Runway: 10-mm | CPZ Stability Region[2]: Safety | FMR Type[1]: II

Post-Operative Course

The patient was permitted bilateral immediate weightbearing as tolerated with post-op shoes. Sutures were removed at 2 weeks and first metatarsophalangeal joint range of motion was initiated. The patient was transitioned into stable sneakers at 6 weeks and permitted to slowly begin increasing activities.

Clinical Outcome

At the 3-month follow-up, the patient was painfree in both feet and back to full activity without any restrictions. The patient was pleased with her results. Weightbearing radiographs demonstrated a postoperative intermetatarsal angle of 2.9˚ for the right foot and 3.2˚ for the left foot. The postoperative hallux valgus angle measured 2.0˚ on the right foot and 1.2˚ on the left foot.

Discussion

Minimally invasive bunion surgery has evolved with modern minimally beveled invasive screw fixation technology allowing osseous osteotomy correction through small or tiny "laparoscopic-like" portals using precise low-speed, high-torque burs and intraoperative fluoroscopic imaging. This method allows for bone healing (i.e., regeneration) through callus formation around the fixation. The stability of the construct is partially determined on how well the fixation engages the lateral cortical wall of the first metatarsal shaft. The patented Revcon™ Anchor screw allows for Single Screw™ fixation, as the dual-zone neutral non-compressive pitch of the screw is designed to match the bone densities for the lateral cortical metatarsal shaft, the cancellous bone of the metatarsal head, and the cancellous bone of the metatarsal base. Furthermore, this particular bilateral case report also highlights the use of an immediate weightbearing protocol with Single Screw™ dual-zone fixation method resulting in osseous healing and maintenance of the corrective position of this patient's bunion deformities.

References

1. Blitz NM, Wong DT, Grecea B, Baskin ES. Characterization Of First Metatarsal Regeneration After New Modern Minimally Invasive Bunion Surgery. A Retrospective Radiographic Review Of 172 Cases. J Min Invasive Bunion Surg. https://doi.org/:10.62485/001c.92756
2. Blitz NM, Grecea B, Wong DT, Baskin ES. Defining the Cortical Purchase Zone in New Minimally Invasive Bunion Surgery. A Retrospective Study of 638 Cases. J Min Invasive Bunion Surg. https://doi.org/:10.62485/001c.92777

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