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Rethinking Possibilities, Reshaping Lives

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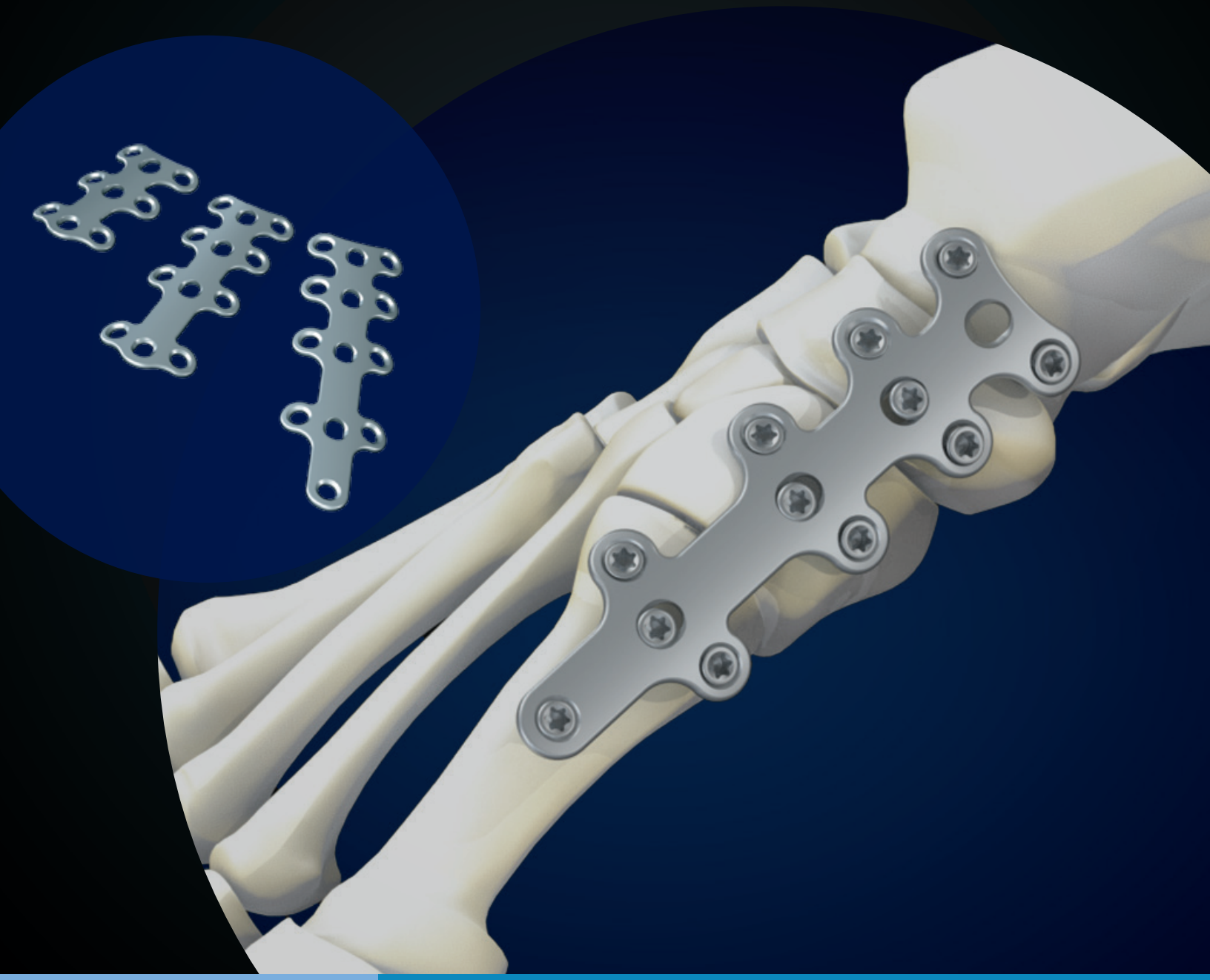
ExtremiLock Foot Medial Column "VERSA" Plate



Abstract:

Medial column arthrodesis has been a longstanding surgical option for deformity correction and pain reduction for a multitude of etiologies[1]. The need for this procedure has been increasing with an aging population and the rise of diabetes.

The ExtremiLock Foot Medial Column Plate (aka VERSA plate) by OsteoMed provides the foot and ankle surgeon with a low profile titanium locking plate specifically designed for medial column fusions. The VERSA plate has up to 40 degrees of locking range and has compression slots to assist in compression across fusion sites.

This white paper demonstrates the need and importance of the VERSA plate in medial column foot reconstructions through a case study of a 60 year old female with osteopenia and longstanding osteoarthritis on her medial column.

Introduction:

Medial column arthrodesis consists of a fusion of the talonavicular (TN), medial naviculocuneiform (NC), and 1st tarsometatarsal (TMT) joints. It can be used to treat a multitude of etiologies including pes planus, degenerative or rheumatoid arthritis, trauma, and Charcot arthropathy[1]. Medial column arthrodesis is becoming a more frequently performed procedure due to medical advances keeping older patients ambulatory longer which results in more osteoarthritis as well as an increasing diabetic population leading to more diabetic Charcot feet.

The patients that need a medial column fusion are typically older and have osteopenic bone. Charcot arthropathy also frequently results in osteopenic bone. Both of these pathologies will typically necessitate the use of a locking plate to provide stability during healing.

Literature regarding locking plates in medial column fusions is quite sparse. However, LaPorta in 2015, highlights the usage of a distal fibular locking plate for a medial column fusion in cases of peritalar subluxation and Charcot arthropathy with restoration of Meary's angle in both cases.[1]

The OsteoMed ExtremiLock Foot Medial Column Plate is a low profile locking plate specifically designed for medial column fusions. It has a locking range of 40 degrees and has compression slots to assist in compression across fusion sites. This white paper highlights the usage of the VERSA plate for a 60 year old female with osteoporosis who had severe osteoarthritis to her TN and NC joints as well as a bunion deformity.

ExtremiLock Foot Medical Column Plate | Case Study

Case Presentation:

Patient CW is a 60 year old female with longstanding severe painful osteoarthritis to her left TN and NC joints that has becoming more disabling over time. She also has a moderate bunion deformity. She has failed conservative care which consisted of anti-inflammatories, custom orthotics, and physical therapy. Her physical exam revealed posterior tibial tendon dysfunction and overpronation.
She is a fairly healthy female with her PMH being restless leg syndrome, IBS, HTN, HLD, and GERD. She does not smoke or use recreational drugs and rarely drinks wine. She works for the government and is on her feet frequently at work.

Figure 1:
Preoperative AP x-ray demonstrating a moderate bunion deformity and arthritic changes to the left NC joint.

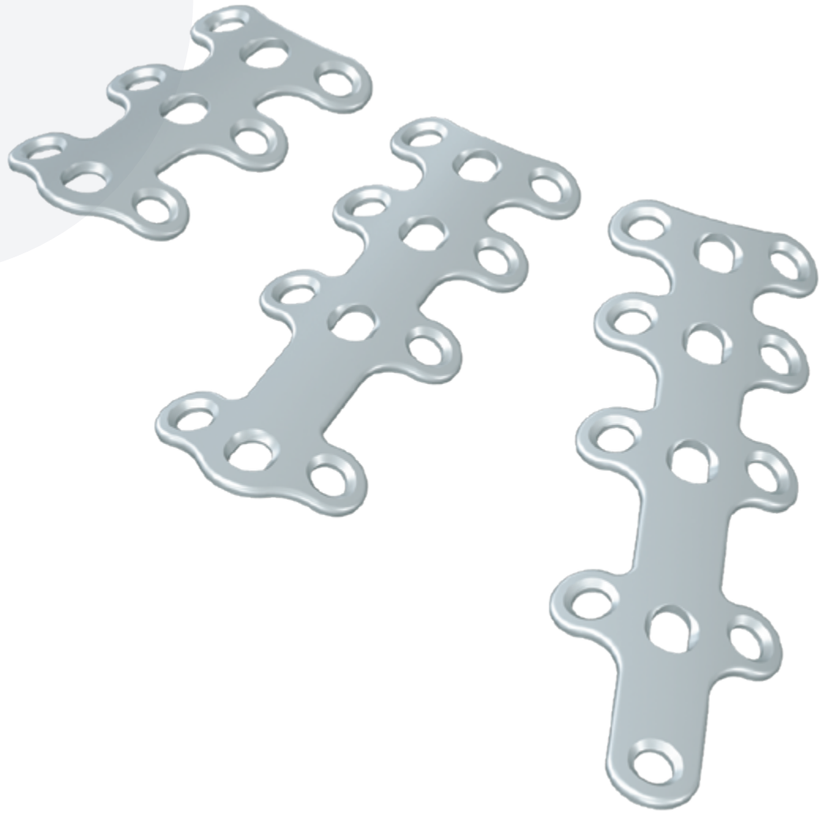
Figure 2:
Preoperative x-ray demonstrating significant arthritic changes and dorsal spurring to the TN and NC joints.

Management and Outcome:

The patient was consented for a left TN fusion, medial NC fusion, Lapidus bunionectomy, and Akin bunionectomy. The patient was placed on the operating table in the supine position and general anesthesia was administered.

A linear incision was made from the tip of the left medial malleolus down to the hallux interphalangeal joint.
The TN, NC, and 1st TMTJ were prepped for fusion using curettage, reciprocal planning, fenestration, and fishscaling. A sagittal saw was used to take a laterally based wedge from the medial cuneiform in order to reduce the intermetatarsal 1 - 2 angle. All dorsal spurring and sharp bony prominences were resected with a rongeur. Three 4.0 mm headless screws were inserted across each joint in order to provide interfragmentary compression. The bone was noted to be very soft and osteopenic.

The Versa Plate was then cut to the appropriate length and positioned over the medial column fusion sites. A series of locking screws were then applied in order to make a stable construct. The plate was noted to be affecting the gliding motion of the tibialis anterior tendon so the plantar arm of the plate at that location was cut in order to not interfere with the tendon. Finally, an Akin bunionectomy was performed because there was still a residual bunion deformity noted.



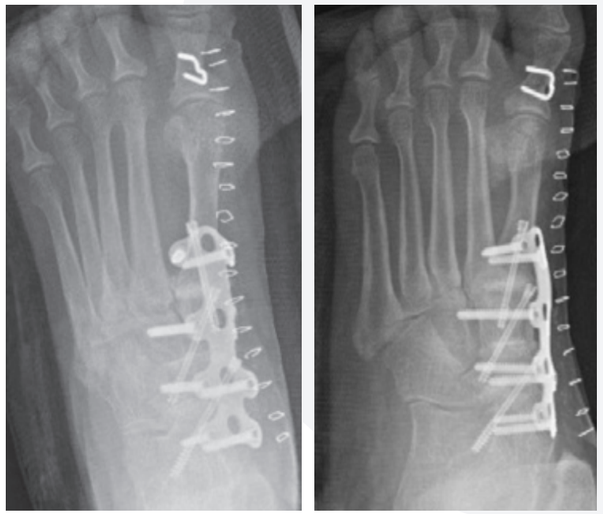


Figure 3 & 4:

Initial postoperative AP and MO x-rays demonstrating the medial column fusion with the VERSA plate as well as a staple for the Akin bunionectomy. The intermetatarsal 1-2 angle is now reduced.

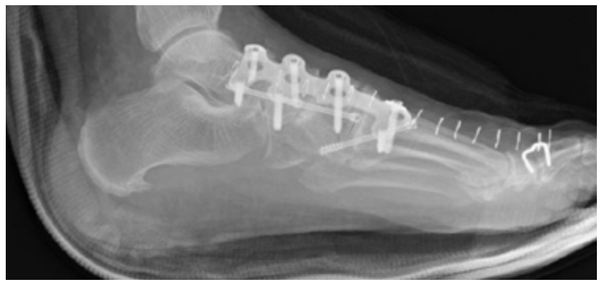


Figure 5:

Initial postoperative lateral x-ray demonstrates appropriate hardware placement. The patient is non-weight bearing in a posterior splint.

Figure 6 & 7:

2.5 weeks postoperative AP and MO x-rays. Correction has been maintained. Staples were removed and the patient was transitioned into a CAM boot. The patient remained non-weight bearing.

Figure 8:

2.5 weeks postoperative lateral x-ray. Callus bridging is noted across the medial column fusion sites.

Figure 9 & 10

7 weeks weightbearing postoperative AP and MO x-rays demonstrating successful healing of the Akin osteotomy and medial column fusion. The patient was allowed to begin partial weightbearing in a CAM boot at this time.

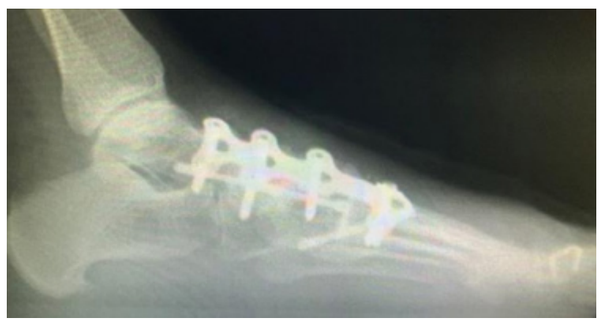


Figure 11:

7 weeks weightbearing postoperative lateral x-ray. Successful fusion of the medial column is noted.

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Discussion:

Locking plates have become an invaluable resource for foot and ankle surgeons who frequently encounter osteopenic bone. Locking plates allow for a stable construct in soft bone that otherwise could not be achieved through internal fixation. This case study highlights a 60 year old postmenopausal woman who has osteopenic bone and longstanding osteoarthritis necessitating a medial column fusion for pain relief.

The VERSA plate made an otherwise challenging case due to osteopenic bone much easier because it is a locking plate with compression slots built in. In addition, the plate is already contoured to the shape of the medial column of the foot which meant there was very little bending of the plate required. In this case, the plate was noted to be interfering with the tibialis anterior tendon and it was easy to cut the excess part of the plate off. The large locking angle of 40 degrees was also very beneficial because it allowed for adjusting screw trajectories while maintaining the benefits of a locking screw.

Overall, the ExtremiLock Foot Medial Column Plate is a very useful locking plate for the foot and ankle surgeon. It is ideal for a medial column arthrodesis and it can be used to treat many different foot pathologies.

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References

1. Nasser EM, Laporta GA, Trott K. Medial Column Arthrodesis Using an Anatomic Distal Fibular Locking Plate. J Foot Ankle Surg. 2015; 54(4):671-6.

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P/N 030-2156 Rev.A