



Surgical Repair of a Jones Fracture Utilizing Novel Compression Screw Design

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5MS CoLag® Jones Fracture Screw

INTRODUCTION

A healthy 43-year-old male patient who lives an active lifestyle and works on his feet all day in his occupation presented ten days after sustaining an injury from a slip and fall from a curb.

The patient reported that he decided to present to the office when the pain had worsened while walking, when aided by a boot.

Films were taken during the visit and a displaced 5th metatarsal fracture in the Jones region with mild gapping was observed. Mild, subtle, cavus foot was also noted. (Figure 1)



Figure 1. Pre-op x-ray

Based on the patient's activity level, the location of the fracture, and the mild gapping seen on x-ray, it was determined that operative placement of an In2Bones 5MS CoLag® Jones Fracture Screw was the best course of action. (Figure 2)

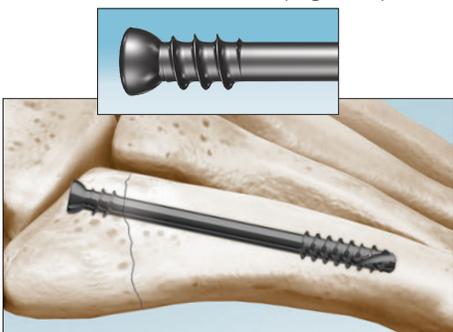


Figure 2. 5MS CoLag® Jones Fracture Screw

PROCEDURE

The patient was marked for the procedure and brought to the operative suite. Once positioned on the table, a tourniquet was applied to the right leg. The patient was then prepped and draped in the usual sterile fashion.

A small poke-hole incision was made at the base of the fifth metatarsal, ensuring to protect the sural nerve and peroneus brevis tendon. The fracture was clamped and reduced, with the 5MS® Reduction Forceps.

Using the C-arm and Drill Guide, a 2.2mm Steinmann pin was placed starting in the high and inside position, then advanced down the shaft and across the fracture site until just beyond the desired screw depth (Figure 3). The position was verified on AP and lateral views.

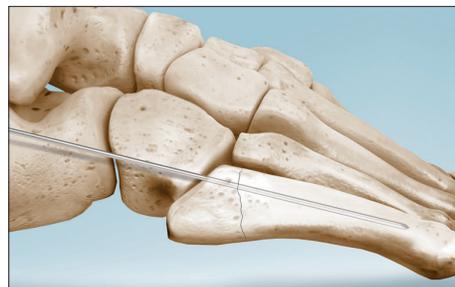


Figure 3. Proper pin placement

After reduction of the metatarsal, preparation for the In2Bones 5MS CoLag® Jones Fracture Screw was initiated.

The pilot hole for the screw was drilled with a 3.5mm Cannulated Drill and followed by a 4.5mm tap. The 2.2mm Steinmann pin was removed and replaced by a 1.6mm Guide Pin. The appropriate screw length was assessed and identified to be a 5.5mm diameter by 45mm length.

The corresponding sterile screw package was retrieved; the screw was then placed over the Guide Pin and advanced until fully seated (Figure 4). The screw was tolerated very well by the patient.

The Guide Pin was removed from the operative area and final C-arm images



Figure 4. Placement of In2Bones 5MS CoLag® Jones Fracture Screw

(Figure 5) were taken to ensure that the fracture was adequately reduced and stabilized. The wound was irrigated and closed with 3-0 nylon suture, and a soft sterile dressing was applied.



Figure 5. Final intra-op film

POST-OPERATIVE COURSE

Following the operation, instructions were given to keep the incision dry during the first week and to ice and elevate the foot.

The patient was then instructed to be non-weight bearing for four weeks in a boot, followed by weight bearing (as tolerated) for an additional four weeks. At twelve weeks, the patient progressed to wearing a stiff-soled shoe and was able to resume running.

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RESULTS

At the patient's follow up visit, good position and alignment of the fracture and good screw placement were observed as expected. The wound was also healing well.

DISCUSSION

When determining the appropriate treatment method for this patient a variety of factors were considered, especially with the fact that the patient leads an active lifestyle and spends most of the day standing in his occupation.

Due to the requirements of the patient and the desired outcomes for healing and mobility, the In2Bones 5MS CoLag® Jones Fracture Screw was chosen. The operation for this system is minimally invasive, quick, and easy to perform. This is supported by existing screw fixation literature¹ that indicates faster recovery, increased union rates, and quicker return to activity.

The 5MS CoLag® Jones Fracture Screws are designed to treat Jones Fractures by uniting the rotational stability of a headless screw with high

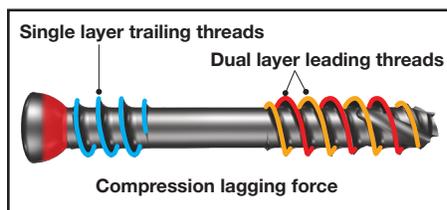


Figure 6. In2Bones 5MS CoLag® Jones Fracture Screw; design features

compression levels typically seen when using a conventional headed lag screw. The screws feature dual-lead primary threads to aid fast insertion, and differential pitch secondary threads (Figure 6). Primary and secondary threads work together to deliver significantly greater compression than both headless compression and headed lag screws (Figure 7). The low-profile head is less prominent than the traditional headed screw, a design feature intended to cause less risk of irritation.

Of note, the CoLag® Jones Screws are cannulated but at a reduced size of 1.6mm, increasing screw wall thickness and thereby, screw strength.

Delivered in individual, sterile packaging, the In2Bones 5MS CoLag®

CoLag® Screw vs. Headless & Headed Screws

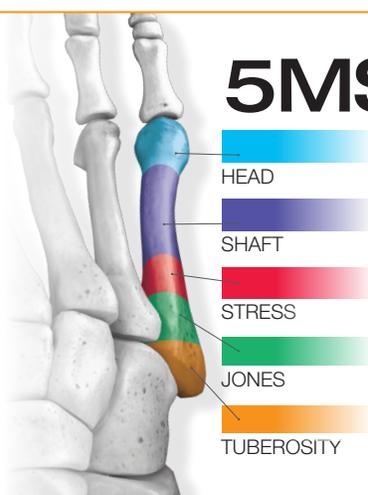
	CoLag® Screws	51% More Compression
77% More Compression		
Headless Screws		Headed Screws
Competitive 4.5mm x 55mm headless compression screw	CoLag® 4.5mm x 55mm CoLag® Compression Screw	Competitive 4.5mm x 55mm headed compression screw

Figure 7. Compression study

Jones Fracture Screws reduce sterilization requirements and equipment needed for each case, resulting in cost-savings and efficiencies for the hospital, surgical staff, and surgeon.

Reference:

1. Mologne TS, Lundeen JM, Clapper MF, O'Brien TJ. Early Screw Fixation versus Casting in the Treatment of Acute Jones Fractures. *The American Journal of Sports Medicine*. 2005;33(7):970-975. doi:10.1177/0363546504272262



5MS® A Comprehensive 5th Metatarsal Fracture Management System

- Lateral Neck Plates 
- Plantar Plates 
- CoLag® Jones Fracture Screws 
- Pseudo Jones Hook Plate 

The 5MS CoLag® Jones Fracture Screw is part of the 5MS® Fracture Repair System: the only comprehensive portfolio of plates, screws, and instruments on the market capable of treating every fracture type of the fifth metatarsal.

The 5MS® Fracture Repair System also features Lateral Neck Plates, a Pseudo Jones Hook Plate, and unique Plantar Plates which are designed for increased biomechanical strength to resist rotational instability and plantar-lateral gapping.



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