

# Jones Fracture Overview

Lawrance et al in 1993 described three fracture patterns at the base of the 5th metatarsal bone:

Zone 1 – tuberosity avulsion fractures

Zone 2 – Jones fractures

Zone 3 – diaphyseal stress fractures including the proximal 1.5 cm of the diaphysis

## **Surgical Tips and Pearls:**

1. Place the patient in a lateral decubitus position and use a thigh tourniquet for hemostasis. If surgery is performed in a supine position, place a bump under the ipsilateral hip to improve visualization of the lateral foot during the surgery.
2. Preoperatively, measure the medullary canal width and length of the 5th metatarsal (proximal to the lateral deviation of the 5th metatarsal bone) as this helps to anticipate the screw size length and width. The screw diameter should be maximized within the diaphyseal canal to improve purchase. A solid core screw seems to provide superior fatigue strength as compared to cannulated screws (comment below on your preferred choice of fixation).
3. Outline the 5th metatarsal medullary canal on the A-P and lateral radiographic views prior to the incision using intraoperative C-arm fluoroscopy.
4. A 1 cm incision is placed 1 cm proximal to the 5th metatarsal base
5. A guidewire is inserted “high and inside” on the 5th metatarsal base -confirm proper placement on the A-P and Lateral views. Once the k-wire pierces the proximal cortex, a mallet can be utilized to advance the wire down the medullary canal of the 5th metatarsal bone.
6. Place the intramedullary screw making sure that the threads cross the fracture site and engage the medial and lateral cortices of the 5th metatarsal bone. According to a cadaveric study published in the Journal of Foot and Ankle Surgery in 2015, a 4.5 mm screw is the smallest diameter screw that should be utilized for this type of surgery. (see source)

## **Torg Classification for Proximal Fifth Metatarsal Fractures**

This classification system describes the chronicity of these types of fractures based on the degree of sclerosis adjacent to the fracture on imaging and can assist with treatment planning.

Type 1 – Acute fracture demonstrating no intramedullary sclerosis, minimal periosteal reaction, and no widening at the fracture line

Type 2 – Delayed union – Fracture line involves both the medial and lateral cortices with periosteal reaction noted. A widened fracture line is noted with adjacent radiolucent (due to bone resorption). Intramedullary sclerosis of bone is developing.

Type 3 – Nonunion – There is a wide fracture line with obliteration of the medullary canal by sclerotic bone.