A 36 y/o male with no significant PMH presented to the ED after a motor cycle vs vehicle crash. He reported colliding with a vehicle and multiple injuries that included a laceration to his lip, thigh injury and left foot pain. His medical history was otherwise unremarkable. On examination, DP and PT were audible as triphasic on doppler examination. Epicritic and gross sensation were intact. Clinically, there was a dorsal protrusion noted at the 1st and 2nd TMTJ. Skin tenting was also observed at the dorsal aspect of the medial column.

Radiographs revealed dorsal dislocation of the 1st and 2nd metatarsal bases along with diastasis observed at the Lis Franc joint.

A CT scan was ordered. A quigley maneuver was performed in the ED. Appropriate reduction was noted and the patient was placed in a posterior splint.
A case of Lisfranc injury: Ex Fix vs ORIF

CT scan of the extremity showed severe comminution of the 1st and 2nd TMTJ complexes on sagittal and coronal views, avulsion fractures of the third and fourth metatarsals and rupture of the lisfranc ligament. Due to significant soft tissue swelling, severe comminution, dorsal dislocation at the 1st and 2nd TMTJ, and shortening of the first ray, a decision was taken to apply an external fixator device before definitive fixation. A multiplanar minirail was discussed as an option due to the involvement of the first and second TMTJ complexes.
A case of Lisfranc injury: Ex Fix vs ORIF

The advantages of using an external fixator in our case was to allow the soft tissue swelling to decrease before eventual fixation, reduce the first and second metatarsals and bring the first ray out to length. The patient was placed in a mini rail for 14 days, discharged and asked to follow up as outpatient.
A case of Lisfranc injury: Ex Fix vs ORIF

The patient was instructed to remain non weight bearing to the RLE. Once the swelling had clinically improved, definitive fixation was applied as the patient underwent arthrodesis at the 1st and 2nd TMTJ. Post operatively, the patient was placed in a posterior splint for one week, and below knee cast for an additional five weeks. Patient was prescribed opioids for post operative pain and anti coagulation. He was transitioned in to a CAM boot at 6 weeks. At 10 weeks, he was advised to begin physical therapy. At follow up, the patient reported controlled pain levels with some stiffness, but overall improvement in his condition.
Discussion: The use of multiplanar external fixator for the treatment of closed Lisfranc injury

Historically, there has been a vigorous debate over ORIF and primary arthrodesis for the treatment of Lisfranc injury. We attempted to utilize a multiplanar minirail for our patient. When it comes to multiplanar deformities, external fixators provide neutralization and stabilization with adjustable amounts of compression or distraction. This allows correction (compression or distraction) throughout the postoperative period through a minimally invasive procedure and a multifunctional correction. Finally, once the desired correction has been achieved, the pins are removed and the patient is left with no internal hardware that may cause pain in the future. An additional advantage to using an ex fix is that the pins are placed percutaneously, thus eliminating unnecessary incisions and risks of infection.

Key Readings recommended prior to externships:

1. **20 patients underwent arthrodesis, while 21 underwent ORIF, the former showed 92% post operative level of activity compared to pre operative while the latter showed 65%**

2. **At one year F/U, mean AOFAS score was 72.5 in ORIF group, while 88.0 in primary arthrodesis group**

3. **Group undergoing primary arthrodesis spent, on average, $99,445 less than ORIF group**
A special mention to our residency director, Dr. Stacey Schwartz, for allowing us to share her case for this month’s newsletter.

For more information regarding our program, questions regarding the case or to schedule a visit, you can reach us at the following emails:

mshamim2@dmc.org
Rbasatne@dmc.org

Follow our Facebook page: www.facebook.com/DMCPodSurg
Case compiled by Resident Physician Muhammed Shamim and Rami Basatneh.