



What comes first?

Ankle fracture surgery or cardiac catheterization?

Eden Gelman, MD, Elaine Winge, MD, Meghana Attaluri, MD, Carolyn Thai, DO
Columbia University Department of Anesthesiology

COLUMBIA UNIVERSITY
IRVING MEDICAL CENTER

Introduction

Optimal sequencing of urgent interventions in a medically complex patient remains a critical challenge in perioperative medicine. This case discusses the multidisciplinary decision-making required in the perioperative management of a 47-year-old morbidly obese female with a trimalleolar ankle fracture with concurrent symptomatic type II myocardial infarction (MI). Multidisciplinary coordination is essential to balance the risks of delaying fracture fixation against perioperative myocardial infarction and major adverse cardiovascular events in a morbidly obese patient. While left heart catheterization is not routine for type II MI workup, patients with ongoing ischemic symptoms, those at high risk of recurrence and those with multiple comorbidities, such as this patient, LHC would be considered due to the likelihood of underlying coronary artery disease. Although this patient demonstrated high risk features of ischemic stunning on myocardial perfusion scan, there was equal concern for limb instability and post-traumatic osteoarthritis due to the fracture, risks that increase after 48 hours of the inciting trauma.



XRay: Right Ankle with displaced trimalleolar fracture



Nuclear Polar Plot demonstrating reversible, apical, anterior perfusion defect and medium sized, mild, reversible, apical to mid, inferior and inferolateral perfusion defect

Discussion

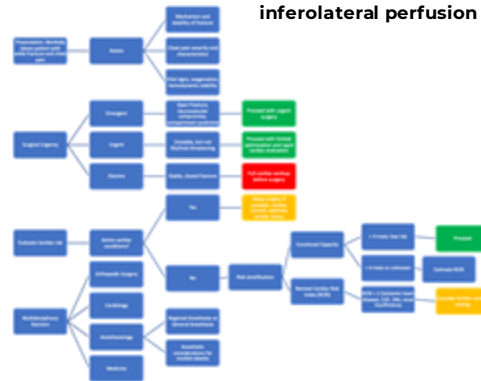
A favorable outcome for this patient required a thoughtful, multidisciplinary approach with the orthopedic, medicine, cardiology, and anesthesiology teams to discuss timing of surgery and cardiac intervention, type of surgical fixation, and thromboembolism prevention. The anesthetic plan for the surgery determined which procedure the patient would undergo first. General anesthesia placed this patient at increased risk of cardiac complications. The cardiologist felt that she would need to delay her surgery in favor of cardiac intervention prior. Regional anesthesia allows the patient to undergo the surgery, but due to the patient's body habitus, peripheral nerve blocks may be technically difficult and does not completely cover tourniquet pain and therefore have a high chance of converting to general anesthesia. The patient's coagulopathy precluded her from neuraxial analgesia. We opted to proceed with external fixation of the ankle and avoid using a tourniquet. We placed sciatic and adductor canal blocks and proceeded with light sedation with dexmedetomidine infusion. The patient was comfortable, arousable with verbal stimuli throughout the procedure. Several days after fixation, patient underwent left heart catheterization with diffuse obstructive disease not amenable to PCI.

Conclusion

We aim to highlight that the correct sequencing of coronary intervention and surgical intervention of a traumatic injury, is variable in each patient—the individual risk factors may dictate differing decisions in individual patients. Alongside cardiology colleagues we weigh risks of delaying surgical fixation, benefits of proceeding with surgery, length of anticoagulation, and types of anesthetic that optimize our goals.

References

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Decision pathway: Management of ankle fracture in patient with chest pain

Case Report

47-year-old female with a past medical history of unprovoked pulmonary embolism on anti-coagulation, poorly controlled Type 2 Diabetes on insulin, chronic kidney disease, hypertension, and morbid obesity (body mass index 50) presented to the Emergency Department with chest pressure on exertion and a trimalleolar ankle fracture 3 weeks prior with persistent dislocation. Her stress test showed abnormal myocardial perfusion with ischemia and reduced LVEF. Cardiology determined that she had a type II MI and needed a left heart catheterization, especially prior to general anesthesia for her surgery, where intervention was likely. The orthopedic team determined that she had an unstable ankle fracture, which needed to be fixed urgently to preserve function and reduce risk of loss of limb. After careful multidisciplinary team discussion, regional anesthesia was successfully performed and general anesthesia was avoided. The patient was hemodynamically stable throughout her ankle surgery.