Clinical Vignette:
A 35-year-old male helmeted motorcyclist was involved in a high-speed freeway crash in which witnesses reported that the patient struck the rear of a semi-truck at high speeds resulting in the patient being separated from his motorcycle and being launched into the rear of the truck. Upon arrival of prehospital providers, the patient’s Glasgow Coma Scale was noted to be 8. The patient was hypotensive and noted to have bilateral open lower extremity fractures as well as an unstable pelvis for which a pelvic binder was placed. Following intubation, 2 grams of tranexamic acid and a 1-liter bolus of Normal Saline were administered on route to the trauma center.

Following initial assessment and stabilization in the trauma bay, the patient underwent a pan CT which demonstrated a left subdural hematoma (SDH), bilateral frontal-temporal cerebral contusions, left hemopneumothorax, stable pelvic fractures, and multiple lower extremity fractures without vascular compromise. Given the patient’s GCS and severe open lower extremity fractures, the patient was brought to the operating room for placement of an ICP monitor and damage control orthopedic interventions for his bilateral lower extremities. In the OR, the patient underwent bilateral knee-spanning external-fixation. ICPs were in the normal range and the patient was subsequently admitted to the ICU. Definitive fixation occurred on hospital day 3. Following a prolonged hospitalization, the patient was discharged to an inpatient rehabilitation center neurologically intact and without major complication.

Clinical Pearls:
- Among polytrauma patients with lower extremity and neurologic injury, timing and technique of fracture fixation are not associated with neurologic outcomes.

- The decision to perform definitive fixation versus damage control orthopedic interventions for patients with diaphyseal femur or tibia fractures should be guided by several variables including but not limited to patient physiology, injury burden, degree of contamination, and the presence of a concurrent major peripheral vascular injury.

- Following TBI, neurologic outcomes are impacted by head injury severity and not timing or approach to lower extremity fracture fixation.
Figure 1: Bilateral Knee-Spanning External Fixators