

Orthopedic Complaints in the Post-Transplant Patient

Robert Healy LT, MC, USN, Tyler Lopachin LT, MC, USN, Patrick Cronyn, CDR, MC, USN

Emergency Department , Naval Medical Center Portsmouth, Virginia

History of Present Illness

A 69-year-old male presents to the ED 3 days after a fall from standing, striking his right elbow on the ground. He has since been experiencing generalized right elbow pain and noted discoloration of the area. The patient was sent directly to the ED from the internal medicine clinic after evaluation that day. Surgical history includes recent history of renal and liver transplant at local solid organ transplant center, as well as Open Reduction Internal Fixation of right radial neck fracture and right proximal ulna fracture, performed two months prior to ED visit. Current medications included tacrolimus, azathioprine, and prednisone for immunosuppression.

Physical Exam

BP: 126/72, Pulse: 86, Temp: 98.2, RR: 17, SpO2: 99% on Room air

The patient was alert, in no obvious pain. His right elbow revealed a 1cm wound without evidence of surrounding erythema or infection. Exposed hardware was visible on examination. The right elbow had no surrounding tenderness or discomfort with flexion or extension. He was neurovascularly intact distally.

Radiology Studies

Left Elbow X-ray:

- No radiopaque subcutaneous foreign body identified
- Post-surgical changes of plate and screw right ulnar fixation, in the setting of comminuted and displaced transverse fracture of the proximal ulnar diaphysis and no definite osseous bridging.
- Post-surgical changes of the right radial head arthroplasty

Clinical Questions

1. What is the correct disposition of this patient?

1. How are post solid-organ transplant patients at increased risk for orthopedic post-procedure complication?



Images: Med Photo of patient's extensor right elbow with obvious exposed hardware



Images: Right Elbow plain films series. Arrows point to exposed area.

Discussion

The lifespan of solid organ transplant patients continues to lengthen. Improved quality of life provided by orthopedic intervention in these patients leads to a higher prevalence of those both with solid organ transplant and retained orthopedic hardware. The rates of post-procedure complication are acceptably low, however organ transplant patients are at higher risk for mechanism failure leading to revision (Ledford 2017). Immunosuppression necessitated by organ transplant results in poor bone quality and significant risk for periprosthetic fracture and prosthesis failure (Nickel 2015). This confers a relatively higher risk of perioperative complications, including reoperation, and wound dehiscence (Ledford 2014, Curtis 2018). Management of exposed hardware includes irrigation and debridement, IV antibiotics, and usual removal of the existing hardware. The current standard of care of orthopedic intervention in solid organ transplant patients is a multidisciplinary approach with close cooperation of medical transplant team, who drives the perioperative medical optimization necessary in this unique subset of patients (Nickel 2015). Correct disposition of complicated patients is a critical skill of the emergency medicine physician. Exposed hardware is a unique presenting symptom of orthopedic patients. We postulate this patient's wound dehiscence was likely secondary to chronic immunosuppression. Recognizing and initiating prompt transfer of this stable patient to his previous organ transplant center for medical optimization was crucial to this patient's care.

Questions Answered

1. Transfer to organ transplant center. The current standard of care of orthopedic intervention in solid organ transplant patients is a multidisciplinary approach with close cooperation of medical transplant team, who drives the perioperative medical optimization necessary in this unique subset of patients
2. Immunosuppression necessitated by organ transplant results in poor bone quality and significant risk for periprosthetic fracture and prosthesis failure.

Case Outcome

After discussion with radiology regarding exposed hardware, orthopedics was consulted at the presenting ED, which was not an organ transplant center. Their recommendation was that due to complex history including solid organ transplant, the patient would need medical optimization prior to revision, and must be transferred to solid organ transplant center for multidisciplinary care. The case was discussed with nearest organ transplant center, where patient had previously undergone orthopedic procedure, and ED to ED transfer occurred. The patient would go on to undergo surgical intervention and revision, after prolonged inpatient stay.

Pearls

- Solid organ transplant patients are at higher risk for complications from routine procedures due to their chronic immunosuppression.
- Post-transplant patients are best managed and medically optimized by a multi-disciplinary approach, to include medical transplant team, offered by solid-organ transplant centers.
- A robust history and physical exam in the emergency department setting can distinguish complex injury sequelae from ordinary orthopedic complaints.
- As organ transplant procedures continue to confer progressively better outcomes, these patients make up a larger portion of our emergency department pool, necessitating unique treatment strategies and knowledge of transplant sequelae.

Disclosure: The views expressed in this poster reflect the results of research conducted by the author(s) and do not necessarily reflect the official policy or position of the Department of the Navy, Department of Defense, or the United States Government

Copyright: We are a military service members. This work was prepared as part of my official duties. Title 17 U.S.C. 105 provides that "Copyright protection under this title is not available for any work of the United States Government." Title 17 U.S.C. 101 defines a United States Government work as a work prepared by a military service member or employee of the United States Government as part of that person's official duties.