

Multimodal Pain Management in Sickle Cell Disease With Renal-Adjusted Bilateral Hip Avascular Necrosis and Barriers to Surgery

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Introduction

- Pain in sickle cell disease is often multifactorial, with vaso-occlusive, neuropathic, and structural components.
- Management becomes more challenging in the presence of chronic kidney disease, opioid neurotoxicity, and socioeconomic barriers that delay definitive orthopedic intervention.
- This case illustrates the complexity of analgesic titration, opioid stewardship, and functional rehabilitation in a medically fragile patient.

Methods

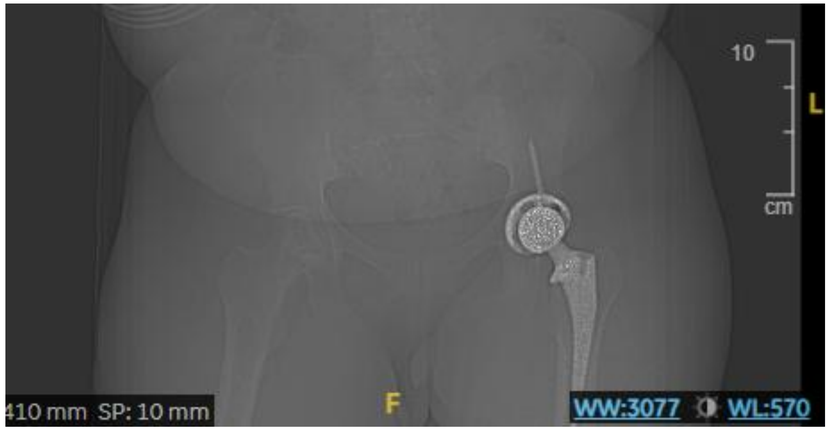
- As the case is devoid of patient identifiable information, it is exempt from IRB review requirements as per LewisGale Medical Center policy. This is a scientific abstract with no patient protected health information.

Case Report

- A 37-year-old female with sickle cell disease, CKD3b, chronic pain syndrome, and bilateral hip avascular necrosis presented with severe acute-on-chronic pain.
- Examination revealed marked bilateral hip tenderness, limited lower-extremity strength due to pain, and inability to ambulate.
- Laboratory evaluation showed hemoglobin 5.6 g/dL, requiring transfusion.

Case Report Continued

- Imaging confirmed bilateral hip AVN with fracture requiring hemiarthroplasty; however, surgery was delayed because dental caries prevented clearance, and insurance barriers limited access to timely dental care.
- Pain management was complicated by reduced GFR, sedation from tizanidine, and myoclonus consistent with opioid neurotoxicity. Morphine and gabapentin doses were reduced, tizanidine was down-titrated, and hydromorphone PO was used for breakthrough pain to minimize IV opioid exposure.
- The patient declined PCA, methadone, and acupuncture.
- Non-pharmacologic adjuncts included 4-7-8 breathing for relaxation. PT and OT were initiated to prevent deconditioning and support functional progression.



Case Report Continued

- Renal-adjusted multimodal analgesia stabilized pain sufficiently to allow participation in therapy, improved respiratory effort, and reduced reliance on IV opioids. However, definitive orthopedic management remained delayed due to dental-access barriers, prolonging structural pain and functional limitations.

Discussion

- This case highlights the challenges of managing severe structural pain superimposed on sickle cell disease in the context of CKD-related opioid limitations and patient-driven treatment preferences.
- It underscores the importance of opioid stewardship, integrative pain strategies, and interdisciplinary rehabilitation.
- Critically, it demonstrates how system-level barriers, specifically limited access to urgent dental care, can delay essential orthopedic surgery and prolong suffering, emphasizing the need for improved cross-specialty care pathways.

References

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