



Matthew O'Connor MD, Christopher Maughan DO, L Daniel Strawn MD, A Conner Moss MD, Michael G Schloss DO, Rene Powell DO, Justin Eichinger MD, Sahil Gandhi MD, Prentiss Lawson MD, Brandon Brooks MD

University of Alabama at Birmingham
Department of Anesthesiology and
Perioperative Medicine

Introduction

- Intrathecal drug delivery systems (IDDS) have been used in practice since the 1980s
- Opioid delivery via IDDS is utilized in chronic pain when more conservative measures fail
- Like all medical devices, IDDS are subject to malfunction
- We present a case in which a indwelling hydromorphone IDDS became infected, requiring removal
- The device was subsequently found to be nonfunctional at the time of removal

Materials / Methods

- IRB review was not required for case-report per institution policy.

Regression to Relative Opioid Naivety Due to a Malfunctioning Intrathecal Opioid Pump

Case Report



- 65-year-old male with a history of multiple spine surgeries who had an indwelling hydromorphone IDDS that was placed in 1994
- His device required multiple revisions, most recently in 2018
- He presented with expanding erythema overlying the pump pocket with seropurulent peri-incisional drainage
- IV vancomycin was initiated
- The inpatient pain service (IPS) was consulted for opioid recommendations prior to device explanation
- Perioperatively, he was started on a 100mcg/hr fentanyl patch with a hydromorphone PCA at a rate of 1mg/hr with a 0.5mg q15 minute bolus and no lockout
- Opioid transition regimen requirements were calculated based on the presumption that the programmed amount of hydromorphone was still being delivered by a functional IDDS
- In the OR, upon disconnection of the pump from the catheter, no backflow of CSF through the catheter was seen, indicating its lumen was no longer patent
- < 24 hours after surgery, he was found to be in acute hypercapnic respiratory failure, requiring opioid reversal with 0.3mg of naloxone and BIPAP for ventilatory assistance
- Fentanyl and hydromorphone were discontinued
- He was started on 75mcg buprenorphine buccal film BID and later transitioned to an oral morphine regimen with close follow-up



Discussion

- The patient's IDDS was likely occluded at the, causing accumulation of hydromorphone in the space surrounding the pump
- The timeframe of the faulty IDDS remains unknown
- It can be deduced that the patient was unintentionally being weaned from hydromorphone due to a device malfunction
- Thus, the patient returned to a state of relative opioid naivety
- This case highlights that when an IDDS fails, monitoring at the appropriate level of care is necessary to facilitate the safe transition of high-dose opioid regimens, even when OME conversions and conservative dose reductions accounting for decreased cross-tolerance are utilized

References

- Wilkes, D. (2014). Programmable intrathecal pumps for the management of chronic pain: recommendations for improved efficiency. *Journal of Pain Research*, 7, 571–577. <https://doi.org/10.2147/JPR.S46929>