Introduction
Implantable intrathecal opioid delivery systems have been used effectively to treat select patients with intractable chronic pain conditions. However, this treatment is not without side effects and complications. We present a case of two episodes of herpes simplex virus (HSV) meningitis following intrathecal pump refills.

Case Report
A 55 year old male with failed back surgery syndrome has an intrathecal pump with satisfactory pain relief. The patient had a refill of his intrathecal pump with hydromorphone and approximately two weeks later he developed back pain, nausea, and headache. He was admitted to the hospital and blood and cerebrospinal fluid (CSF) cultures were obtained. The HSV polymerase chain reaction (PCR) was positive. All other studies were negative. He was treated with oral acyclovir and symptoms resolved. The patient was asymptomatic for the next nine months. During this period he had three intrathecal pump refills without recurrence. Seven days following the fourth intrathecal pump refill, the patient was admitted for a repeat episode of HSV meningitis confirmed by PCR. He was treated with oral acyclovir and symptoms resolved. The patient was asymptomatic for the next nine months. During this period he had three intrathecal pump refills without recurrence. Seven days following the fourth intrathecal pump refill, the patient was admitted for a repeat episode of HSV meningitis confirmed by PCR. He was treated with oral acyclovir and symptoms resolved. The patient was asymptomatic for the next nine months. During this period he had three intrathecal pump refills without recurrence.

Discussion
HSV causes infection which can have a wide spectrum of clinical manifestations, including lesions of the oro-facial and genital region. The involvement of the central nervous system has been implicated as a cause of recurrent meningitis (1). Factors that are known to trigger reactivation of HSV include stress, trauma, fever, infection, pregnancy, immunosupression and chemotherapy (2).

Significant evidence points to a link between the use of neuraxial morphine and HSV reactivation of the oral mucosa (herpes labialis) (3). HSV meningitis has been documented to occur 7-10 days following epidural injection of steroid and lidocaine for spinal stenosis (4).

Aside from the use of neuraxial narcotic, our patient did not present with any of the above risk factors associated with reactivation of latent HSV virus. The close proximity on two separate occasions suggests an association between the pump refill event and development of viral reactivation. We believe the patient might have a dormant viral infection at the pocket site, which can be introduced into the pump reservoir by needle placement during refill. Subsequent spread of virus into the CSF could potentially trigger HSV meningitis.

Alternatively minor variations in pump flow rate may contribute to reactivation of latent virus. Infusion rate of a full pump may be as much as 4% higher than a near empty pump. Increased neuraxial narcotic delivery shortly after refill may contribute to reactivation of latent virus.

Though long term prophylactic anti-viral therapy with acyclovir may be considered in this case, there is no consensus on standardized therapy for HSV-2 meningitis (4). We elected to continue to manage the patient without the use of prophylactic anti-viral therapy.

Though rare, this case demonstrates that intrathecal pump refill can potentially cause reactivation of latent herpes simplex virus.

References