

## Case Report

# Elsberg Syndrome in Pregnancy: A Case of Acute Urinary Retention Due to Sacral Myeloradiculitis Resulting From a Recurrent Herpes Simplex Virus-2 Infection

Jenkins SMH<sup>1</sup> and Greer JA<sup>2\*</sup><sup>1</sup>Women's Health Department, Naval Medical Center Portsmouth, USA<sup>2</sup>Women's Health Department Division of Urogynecology, Naval Medical Center Portsmouth, USA

**\*Corresponding author:** Joy A. Greer, MD, Faculty, Division of Urogynecology, Women's Health Department, Naval Medical Center Portsmouth, USA, Email: Joy.Greer@med.navy.mil

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**Abstract**

**Background:** Urinary retention occurs in 2% of primary Herpes Simplex Virus (HSV) outbreaks, due either to the exquisite pain with voiding or to a sacral nerve radiculopathy causing detrusor areflexia. There are almost no reported cases, however, of urinary retention during a recurrent HSV outbreak in pregnancy.

**Case Presentation:** We present the case of a 23 year old female, gravida 1, para 0, diagnosed with acute urinary retention at 18 weeks gestational age. She presented with suprapubic abdominal pain and complete inability to void. Labs obtained three days earlier for a painful genital lesion were notable for positive HSV-2 viral culture and HSV-2 IgG serology. HSV-2 IgM and HSV-1 serologies were negative. She was treated with oral valacyclovir and an indwelling Foley catheter. Complex cystometrics revealed detrusor areflexia. Two weeks later, she was able to void via Valsalva maneuver. Her symptoms completely resolved within four weeks of initial presentation.

**Conclusions:** Elsberg Syndrome, a self-limiting syndrome of acute urinary retention in combination with other signs of spinal cord dysfunction, is commonly caused by HSV. Recurrent HSV as the cause of Elsberg Syndrome has only been reported in two other patients, both of whom had recurrent HSV meningitis. In our patient, a recurrent HSV-2 outbreak without prior history of HSV meningitis led to detrusor areflexia and subsequent urinary retention which resolved within four weeks. Elsberg Syndrome due to recurrent HSV should be considered in the differential diagnosis of acute urinary retention in pregnancy.

**Keywords:** Elsberg syndrome; Herpes Simplex Virus; Urinary retention; Pregnancy

**Abbreviations**

HSV: Herpes Simplex Virus

**Background**

Infections with herpes simplex virus (HSV) have the potential to affect multiple organ systems and are classified into three categories: primary, non-primary, and recurrent infections. A primary infection is diagnosed when either HSV-1 or HSV-2 IgM antibodies are discovered in an individual with no prior evidence of serum antibodies to either viral type. An individual who has evidence of a current viral infection with one viral type and a past infection with the opposite viral type (positive IgM to one type with positive IgG to the other) is classified as having a non-primary infection. A recurrent infection is when HSV is isolated in the presence of antibodies of the same serotype [1].

Urinary retention, a well-documented complication of primary HSV infections, complicates approximately 2% of primary HSV infections [2], due to either the exquisite pain as the urine stream contacts the ulcerated lesions, or to Elsberg Syndrome, a sacral myeloradiculitis due to direct infection of the sensory sacral nerves by HSV causing detrusor areflexia [3-5]. There are only two reported

cases of urinary retention or Elsberg Syndrome during a recurrent HSV-2 infection and no reported cases in a pregnant patient or patients without prior HSV meningitis.

**Case Presentation**

We present the case of a 23 year old female, gravida 1, para 0, diagnosed with acute urinary retention at approximately 18 weeks gestational age. She initially presented with mild genital lesions and viral studies were ordered. She denied any prior history of either oral or genital HSV lesions. Three days later she developed suprapubic abdominal pain and the complete inability to void, requiring placement of an indwelling Foley catheter in the emergency department. The initial urine culture did not reveal an infection, however the patient was noted to have a catheter-associated urinary tract infection at her outpatient urogynecology appointment. Results from the initially obtained viral studies revealed a recurrent HSV-2 infection. Her viral culture and serum IgG were positive. HSV-2 IgM and HSV-1 antibodies were negative.

The patient was treated with oral valacyclovir 1 gram twice daily for 10 days and the indwelling Foley catheter was continued as she was unwilling to perform intermittent self-catheterization. Once

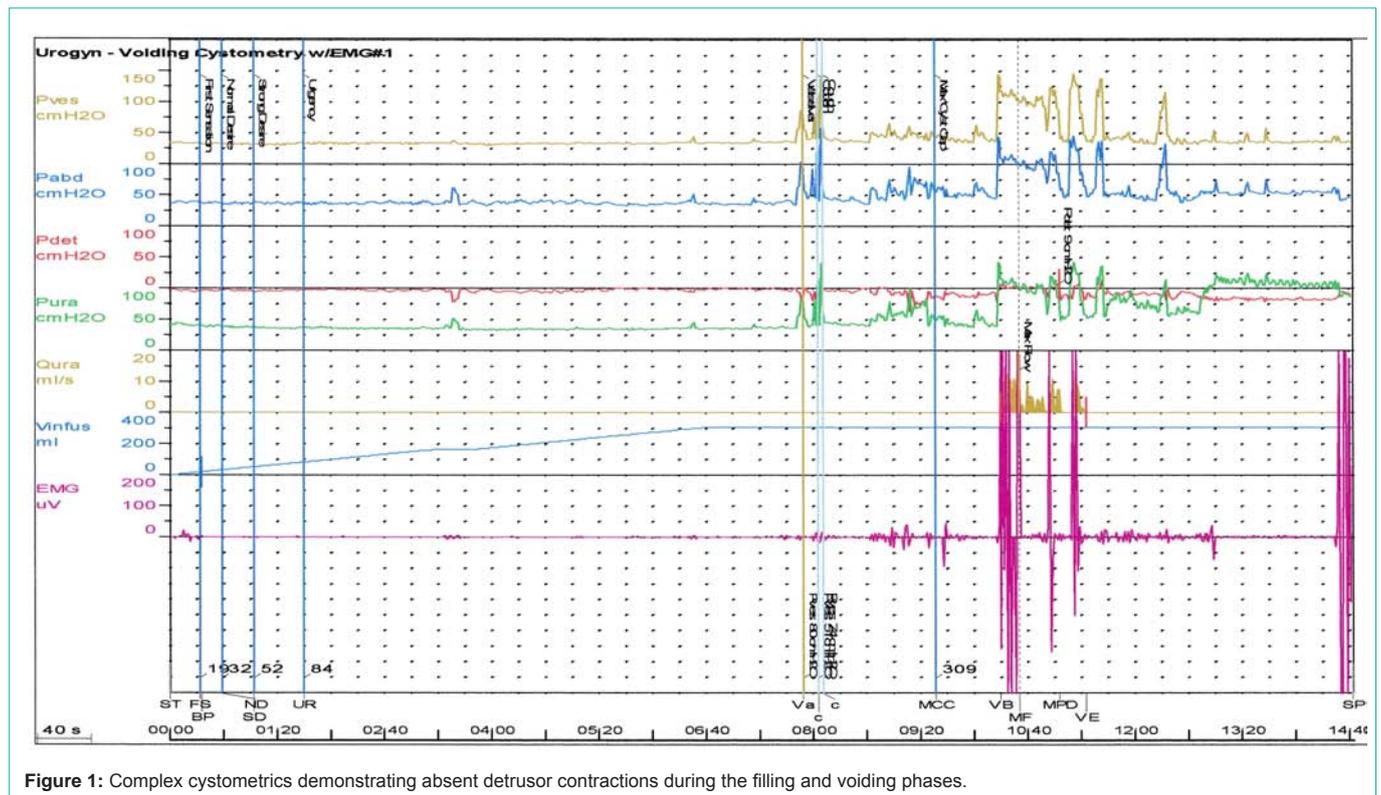


Figure 1: Complex cystometrics demonstrating absent detrusor contractions during the filling and voiding phases.

the urinary tract infection was treated, complex cystometrics were performed and demonstrated absent detrusor contractions during the filling and voiding phases (Figure 1), pointing to areflexia as the cause of her urinary retention. At this appointment, however, she was able to void via a Valsalva maneuver so the Foley catheter was not replaced. Her symptoms continued to improve following her initial course of valacyclovir and were completely resolved within four weeks of her initial presentation.

## Discussion

HSV-2 can lie dormant in up to 40% of the sacral dorsal root ganglia, and can spread axonally into the spinal cord causing meningitis, weakness and paresthesias of the lower limbs. In severe cases, ascending necrotizing myelitis has been reported [3,6]. Elsberg Syndrome describes a self-limiting syndrome of acute urinary retention in combination with variable other signs of spinal cord dysfunction following a viral infection. HSV-2 has been frequently implicated [4,5]. Sensory deficits in the sacral dermatomes often accompany the urinary retention, and rarely, a flaccid paresis of several leg muscles may also be noted in cases of Elsberg Syndrome [3].

There have been several reported cases of patients with a history of HSV meningitis having neurological symptoms during recurrent outbreaks. Aurelius et al. [6], reported in their study of 40 patients with a prior history of HSV meningitis that two patients developed urinary retention during the following year. Overall, 18 of their 40 patients experienced a recurrence of some type of neurologic symptoms in the year following their meningitis [6], suggesting that if the primary infection was complicated by meningitis, then neurologic involvement in recurrent infections may be relatively common.

There were several novel characteristics of our patient. While 34 of 40 consecutive patients with HSV meningitis were female suggesting female gender as a possible risk factor for HSV meningitis [6], it does not appear that any of these patients were pregnant. Our patient also had an asymptomatic primary HSV infection without a prior history of meningitis or other unexplained neurological symptoms that may have represented a primary infection.

Generally, the American College of Obstetrics and Gynecology (ACOG) recommends treating recurrent HSV infections in pregnancy with either acyclovir 400mg three times daily or 800mg twice daily for five days; alternative regimens valacyclovir 500mg twice daily for three days or 1g daily for five days. They recommend higher doses for primary infections [1]. We opted to treat our patient with the higher dose usually reserved for primary HSV infections, valacyclovir 1g twice daily for 10 days. We chose this regimen because it is known to be safe in pregnancy, and although her genital lesions had healed after several days, her urinary retention persisted and guidelines recommend continuing treatment if symptoms persist past 10 days. Our patient fully recovered within approximately four weeks, consistent with what has been reported previously for urinary retention caused by primary HSV infections [2,3,5].

Acute urinary retention during pregnancy (unrelated to anesthesia, and separate from postpartum urinary retention) is a relatively rare antepartum complication. The differential diagnosis for urinary retention in pregnancy can be broad, and many uncommon etiologies have been reported in the literature. Some of the more well-known causes include primary HSV infections, urinary tract infections, an incarcerated uterus [7,8], obstructive leiomyomas [9-11] and Fowler's Syndrome, a genetic condition resulting in painless urinary retention [12,13]. Individual cases of urinary retention have

also been reported in the literature associated with an anterior sacral meningocele [14], an ectopic pregnancy [15], a bladder hemangioma [16], submucosal vesical varicosities, and vulvar edema [17].

## Conclusions

We present a case where a recurrent HSV-2 outbreak (without a prior history of HSV meningitis) led to a sacral myeloradiculitis causing detrusor areflexia and subsequent urinary retention. This case indicates that although rare, recurrent HSV infection and Elsberg Syndrome should be considered in cases of acute urinary retention in pregnancy. Outpatient management with oral antiviral and bladder decompression with a urinary catheter appear to be appropriate if there are no other signs of meningitis or systemic infection.

## Disclaimer

LT Suzanne Jenkins and CDR Joy Greer are military service members. This work was prepared as part of their official duties. Title 17, USC, 105 provides that 'Copyright protection under this title is not available for any work of the United States Government.' Title 17, USC, 101 defines a U.S. Government work as a work prepared by a military service member or employee of the U.S. Government as part of that person's official duties. The views expressed in this article are those of the authors and do not necessarily reflect the official policy or position of the Department of the Navy, Department of Defense, nor the U.S. Government.

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