Acute urinary retention due to HSV-1: a case report

Ritenzione urinaria acuta da HSV-1: descrizione di un caso

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INTRODUCTION

Worldwide 60-95% of the population is infected by one or more viruses of the herpes viridae family. At present eight human members of this family are known: Herpes simplex virus type 1 and 2 (HSV-1 and HSV-2), Varicella-zoster virus (VZV), human Cytomegalovirus (CMV), Epstein-Barr virus (EBV), and recently-identified human herpes viruses (HHV) types 6, 7 and 8. HSV and VZV have the typical ability to invade and replicate in the host nervous system, establishing a site of latent infection. During primary infection, the virus is transported via sensory ganglia to establish a chronic latent infection (most commonly in the trigeminal, cervical or lumbosacral ganglia). Periodically, viruses may reactivate from their latent state, and viral particles then travel along sensory neurons to the skin and other mucosal sites causing recurrent disease episodes [1, 2]. Generally, HSV-1 causes herpetic stomatitis, orolabial herpes, keratitis and sporadic encephalitis. It is also responsible for a proportion of genital herpes (10-30%). Complications to the peripheral nervous system and particularly to urinary tract nervous routes due to VZV and HSV-2 are well known [3-5]. However, an analogous condition has not yet been clearly ascribed to HSV-1 infection.

CASE REPORT

A 32-year-old Caucasian woman had complained of persistent fever and lumbar pain for six months. The patient’s clinical history was lacking in notable previous clinical and epidemiological data. Upon admission, left Giordano’ sign was positive. Fever was partially sensitive to paracetamol and antibiotic treatments. The pain, enriched of abdominal hyperalgesia and irradiating to the legs, failed to react to anti-inflammatory infusions. Three days later, the patient developed mild micturition pain and dysuria. Urinalysis showed microscopic haematuria although blood cultures, urine cultural exams, urinary citology evaluation, gynaecologic examination, abdominal echography and CT with contrast were negative. There was no abnormality in blood chemistry. After two weeks, intermittent catheterisation was needed for a complete acute urinary retention. Urologic examination and urodynamic studies diagnosed a neurologic bladder with an absent filling sensation. Cystoscopy revealed the presence of reddened and isolated small mucosal areas in the posterior and lateral bladder walls. Aesthesiologic evaluation demonstrated a district hyperalgesia. Neurological examination, and electromyography (EMG) of external urethral and anal sphincters were normal, as was the sensorial evocated potential (SEP) of legs and magnetic resonance imaging of the brain and the spinal cord. Spinal puncture was performed and cerebrospinal fluid (CSF) examination showed no abnormality but the search for herpes viruses in plasma and CSF by PCR assay were positive for HSV-1 herpes viruses in plasma. Serum viral titles showed that IgM and IgG HSV-1 antibodies were respectively negative and positive. IgM and IgG HSV-2 and VZV antibodies were negative. During the third week from admission the patient complained of conjunctival injection and edema at the left eye due to a kerato-uveitis with corneal absorption; the fundus oculi was undamaged. Systemic treatment with aciclovir 500 mg three times daily for 20 days associated with eye topical medication was then started. Two weeks after the introduction of therapy,
HSV-1 serum PCR became negative and fever disappeared. Three weeks after its appearance oliguria resolved. Kerato-uveitis improved and healed in a month. At present the patient has no fever and has not presented micturitional dysfunctions.

**DISCUSSION**

HSV-1 generally causes infections such as herpetic stomatitis, orolabial herpes and keratitis which remain the main cause of visual morbidity. HSV-1 is also responsible for a proportion of genital herpes (10-30%) and is the chief cause of sporadic encephalitis and myelitis [2, 6].

Acute urinary retention is a urological emergency symptom. When it occurs several neurological and gynaecological disorders must be considered. In the absence of urological disease there are considerable difficulties in understanding its pathogenesis. Unusually, benign inflammatory nervous diseases also cause acute urinary retention that can be divided into CNS disorders such as the meningitis-retention syndrome (MRS), a combination of aseptic meningitis and acute urinary retention, and PNS disorders such as sacral herpes [3]. The rate of occurrence of urinary retention caused by herpes zoster is estimated to be 35%, while the urinary retention associated with anogenital herpes simplex due to HSV-2 is very rare [7]. Usually, urinary retention is acute and appears with skin rash simultaneously, or up to a week later. However, sacral herpes can present as sensory symptoms alone, without typical skin rashes. Urodynamical studies in acute-stage cases have revealed detrusor areflexia. This condition is due to motory and sensorial neuropathy and tends to return to normal. However, an analogous condition has not yet been clearly ascribed to HSV-1 infection [8].

Our clinical case is unusual. The patient had never had any herpetic clinical manifestations. Diagnosis was made by positive results for HSV-1-DNA by PCR in plasma and CSF and by excluding other causes producing neuropathic pain and voiding dysfunctions. Neurologic damage of the CNS and/or PNS due to HSV-1 seems to be the most likely reason. As it has been proposed for urinary retention in the course of anogenital herpes simplex and sacral herpes zoster, this may be considered to be caused by localized lumbosacral meningomyelitis with involvement of mainly sacral nerve roots or infectious neuritis involving pelvic nerves.

Cystoscopic verification of local inflammatory changes on the bladder mucosa during urinary retention associated to VZV and HSV-2 infections has not been widely studied [8]. Moreover, the most common type of bladder disorders associated with herpes zoster infection is an ipsilateral herpetic hemicystitis. Classically, herpetic hemicystitis may present with dysuria, urinary frequency or retention, pyuria and haematuria. Cystoscopic findings may confirm its presence, showing a grouping of vesicles in the urethral and bladder mucosa [3, 9]. Our patient presented dysuria, microscopic haematuria and transient urinary retention. Cystoscopic examination showed the presence of redened and isolated small mucosal areas in the posterior and lateral bladder walls. This result points to HSV-1 localization on bladder mucosa. Our patient probably had both cystitis- and neuritis-associated voiding dysfunction [8, 9].

In the literature EMG of external urethral and anal sphincters has been reported within normal limits in most cases of micturition disturbance due to VZV and HSV-2 sacral infection, and this was also confirmed in our patient.

In conclusion, we advise treating HSV-1 infection during acute urinary retention because according to our experience the course of the disease is benign and self-remitting.

**Key words**: HSV-1, bladder, urinary retention.

**Summary**

Complications in urinary tract nervous routes due to herpes viruses as VZV and HSV-2 are well known. Acute urinary retention and chronic neuropathic pain are not rare when sacral dermatomes are involved by these viruses. However, an analogous condition has not yet been clearly ascribed to HSV-1 infection.

We present a 32-year-old immunocompetent patient with fever, lumbar pain and acute urinary retention who had never had herpetic clinical mani-
References


