

Case Report

Herpes Zoster-Induced Acute Urinary Retention: Two Cases and Literature Review

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ABSTRACT

We report two uncommon cases of acute urinary retention in Chinese patients caused by reactivation of sacral herpes zoster and requiring bladder drainage. Indwelling urinary catheterization, antiviral medication (ganciclovir), and physiotherapy with infrared light (830 nm) led to successful recovery of the micturition reflex in both cases.

KEYWORDS: *Acute urinary retention, erythematous rash, herpes zoster*

INTRODUCTION

Herpes zoster refers to the reactivation of dormant varicella-zoster virus (VZV) infection in sensory ganglia.^[1,2] Elderly people or immunocompromised patients are more commonly affected. Voiding dysfunction caused by herpes zoster is rather uncommon^[3,4] and was first described by Davidsah in 1890.^[5] Here, we report our experience with two cases from China who presented with acute urinary retention due to reactivation of herpes zoster.

CASE REPORTS

Case 1

A 67-year-old woman visited her general practitioner with complaints of multiple coalescing erythematous vesicles over the right vulva and buttock, pain on the right vulvar area and buttock, and difficulty in voiding urine for 1 week. She was diagnosed as a case of herpes zoster reactivation and treatment commenced with oral methylcobalamin, acyclovir (dosage unknown), and catheterization for 3 days. Despite this, her pain persisted and there was progressive worsening of urinary stream after removal of urinary catheter. The possibility of drug-induced urinary retention, diabetes, and HIV infection was excluded.

She then reported to our department, and physical examination revealed a distended bladder. There were multiple coalescing erythematous vesicles on the right vulvar area and buttock [Figure 1]. The patient was hospitalized; her complete blood cell counts and

biochemical blood analyses were normal except for increased erythrocyte sedimentation rate (55 mm/h). Urine analysis revealed no active sediment and urine culture showed no bacterial growth. Urodynamic study showed weakness of detrusor muscle and urinary retention [Table 1]. Cystoscopic findings were normal and no signs of mucosal inflammation were found in the urethra and bladder.

The patient was treated with indwelling urinary catheter, oral ganciclovir (1000 mg, three times a day), methylcobalamin (0.5 mg, three times a day), and



Figure 1: Multiple coalescing erythematous vesicles over the right vulva and buttock

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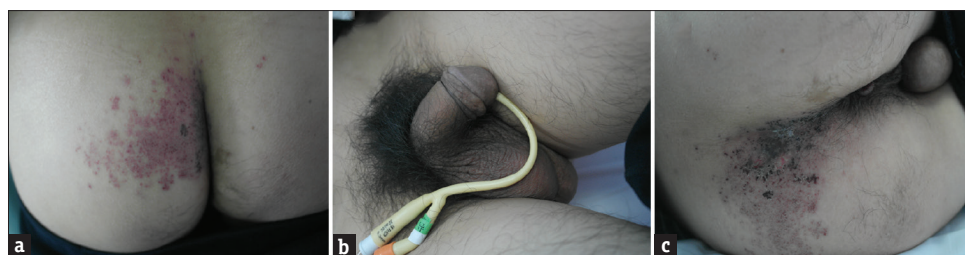


Figure 2: (a) Erythematous vesicles were observed on the left buttock. (b) Indwelling urinary catheterization treatment. (c) Vesicles on the left buttock were resolved significantly after the 7-day treatment

Table 1: Results of urodynamic study in two cases

Voiding phase results	Case 1	Case 2
Extra infused volume (mL)	1	1
Total bladder capacity (mL)	616	469
Peak flow rate (mL/s)	-	-
Time to peak flow (s)	0	0
Pdet at peak flow (cm H ₂ O)	-	6
Voided volume (mL)	0	0
Flow time (s)	-	-
Voiding time (s)	-	-
Delay time (s)	121	170
Average flow rate (mL/s)	-	-
Computed residual urine (mL)	616	469
Miction index	-	-
Opening pressure Pdet (cm H ₂ O)	-	6

-=Undetected: Pdet=Pressure of detrusor

infrared light physiotherapy (830 nm). The vesicles and pain on the right buttock resolved significantly by the 7th day. After removal of catheter, the patient urinated spontaneously. She was discharged on the following day, and the medications were continued up to the 15th day. No recurrence of herpes zoster and urinary retention occurred at 1-month follow-up.

Case 2

A 42-year-old man visited his general practitioner with chief complaints of multiple coalescing erythematous vesicles over left buttock and pain on the left buttock with voiding difficulty since 7 days ago. He was diagnosed as a case of herpes zoster reactivation and treated with oral methylcobalamin (0.5mg, 3/d) and acyclovir (0.2g, 5/d) (dosage unknown) and was catheterized for 3 days. Despite alleviation in the pain, the patient was unable to pass urine spontaneously after removal of urinary catheter. When he presented to our department, progressive worsening of erythematous vesicles was observed on the left buttock [Figure 2a]. Complete blood cell count and biochemical blood analyses were normal. Urine analysis revealed slightly increased epithelial cells, red blood cells, and white blood cells. Urine culture was negative, and the cystoscopic findings were normal. Urodynamic evaluation showed weakness of detrusor muscle and urinary retention [Table 1].

The patient was treated with an indwelling urinary catheter [Figure 2b], oral ganciclovir (1000 mg, three times a day), methylcobalamin (0.5 mg, three times a day), and infrared light physiotherapy. The vesicles and pain on the left buttock resolved significantly by the 7th day [Figure 2c]. Removal of catheter after 1 week revealed poor urinary stream; the in-dwelling catheter was retained for a further 1 week, after which the patient urinated spontaneously. At 1-month follow-up, no recurrence of herpes zoster or urinary retention was reported.

DISCUSSION

Here, we report two cases of acute urinary retention secondary to herpes zoster infection of the sacral nerve roots. Urinary retention due to herpes zoster infection is very uncommon. It usually occurs in the elderly population or in patients with compromised immune systems.^[6-8] However, cases occurring in immunocompetent patients in their 20s have been reported in literature.^[9] A neuropathic bladder developed because of the interruption of the micturition reflex in both cases.^[10] In the second case, a middle-aged man, the symptoms were worse than those in the first case, an elderly woman. There were no signs of mucosal inflammation on cystoscopy, both in the bladder and urethra. A combination of treatments including indwelling urinary catheterization, antiviral medication (ganciclovir), and physiotherapy with infrared light (830 nm) resulted successful recovery of the micturition reflex in both cases.

Previous literatures suggested that men are more commonly affected by herpes zoster with bladder involvement than women.^[9,11-14] In our second case, the symptoms in a middle-aged man were worse than that in the first case, an elderly woman. A trial removal of catheter in a male patient was unsuccessful after a 1-week treatment of ganciclovir. Since men have a longer urethra than women, urethral stricture is also more common in men than in women.^[15] Urinary retention is more common for men in their late decades, which is often caused by prostate enlargement due to

benign prostatic hyperplasia. This could explain the findings in our cases that the interruption of micturition reflex by herpes zoster infection may need a longer time to recover in the middle-aged male than elderly female patients.

The possible explanation of urinary retention in both cases is that the peripheral nerves affected by herpes zoster are the sensory nerves that innervate the skin of the sacral region (S2–S4), the bladder, and the distal of the colon, and the parasympathetic motor neurons that innervate the same viscera. Although not clear, the innervation of urethral sensation is mainly thought to be innervated by the pudendal nerve (S2–S4), which explains the dysuria that both patients experienced. There might be involvement of T12 and L1 in the second case based on the sites of herpes zoster vesicles though only urinary retention but not incontinence was observed. Ghatak and Zimmerman reported that hemorrhage, necrosis, and inflammation affected spinal ganglia of patients with zoster.^[16] Jakubovicz *et al.* also reported a case of herpes zoster-induced peripheral neuritis was responsible for urinary retention and constipation.^[17] Herpetic lesions may affect bladder epithelium and cause local inflammation and organ dysfunction. The common symptoms include dysuria, urinary frequency, and laboratory evidences of cystitis. However, the negative cystoscopic findings excluded cystitis in our cases.

In addition to bladder catheterization, treatment with antiviral agents that inhibit DNA polymerase (acyclovir or ganciclovir) should be started within the first 72 h of onset of the vesicles.^[18] It can decrease the duration of the vesicle, severity of pain, and occurrence of postherpetic neuralgia.^[19] In our cases, acyclovir was used at the onset of the rash for 3 days, but progressive worsening of erythematous vesicles was observed. Then, ganciclovir was used for 7 days to which the patients responded. No recurrence of herpes zoster and urinary retention occurred within 1 month. Our experience with these two cases suggested that ganciclovir may have a higher efficacy for the VZV subtype in the Chinese population than acyclovir. However, the short course of treatment with acyclovir in our cases may have led to suboptimal clinical results. Furthermore, we found that infrared light physiotherapy may facilitate the recovery of micturition reflex and shorten the duration of urinary catheterization.

CONCLUSION

Once herpes zoster is found in the buttocks and genital area, the possibility of the occurrence of acute urinary retention is high in middle-aged and the elderly patients. Treatment with antiviral

medications (ganciclovir) and bladder drainage should be applied at the onset of the rash. In middle-aged Chinese patients, physiotherapy may aid the recovery of the micturition reflex.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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