

## HERPES ZOSTER MYELITIS, WITH OCCURRENCE OF UNUSUAL NEUROLOGIC SYMPTOMS IN HERPES ZOSTER INFECTION: SUCCESSFUL TREATMENT OF THREE CASES

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### ABSTRACT

*Herpes zoster infection can cause a variety of neurologic complications. One of its serious complications is myelitis, which is focal inflammation of the spinal cord, resulting in sensory and motor deficits in the corresponding region of the body. This condition is not easy to diagnose and can cause fatal complications if treatment is delayed. We report the successful treatment for three patients with myelitis of the cervical and sacral spine during acute herpes zoster infection with antiviral agents, continuous epidural block, and steroid pulse therapy.*

**Keywords:** antiviral agents, epidural block, herpes zoster, steroid, transverse myelitis.

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### Introduction

Herpes zoster (HZ) sometimes causes various complications, including post-herpetic neuralgia, myelitis and encephalitis. Transverse myelitis is a rare but fatal manifestation that causes sensory and motor deficits in the corresponding region. The incidence of transverse myelitis during or after HZ infection is reported to be 0.3%<sup>(1)</sup>. Here, we report three cases of Varicella zoster virus (VZV) myelitis successfully treated with antiviral agents, continuous epidural block, and steroid pulse therapy. Three case series was approved by our institutional review board (IRB No: KC16ZISE0126). Written informed consents were obtained from the patients before initiation of the study.

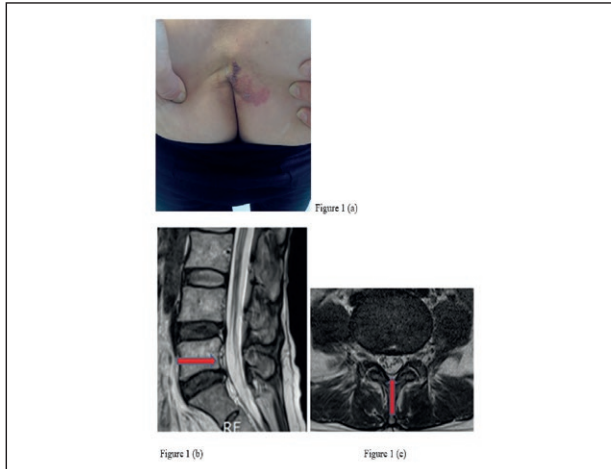
### Case reports

#### Case 1

A 56-year-old female visited our pain center complaining of severe right buttock pain [Visual analog scale (VAS) 7]. All vesicles were observed within the right S3, 4 dermatomes that had appeared four days prior (Figure 1 (a)). She was prescribed with famciclovir and caudal block was performed. Because of the persistent pain, a continuous epidural catheter was inserted at the S3 level. After confirming a decrease in pain, the catheter was removed. However, after two days, she complained of urinary/fecal incontinence and weakness in her right lower limb. Lumbar MRI revealed diffuse leptomeningeal and dural enhancement, with clumping of

the cauda equina, representing arachnoiditis (Figure 1 (b), (c)). The laboratory result was positive for serum VZV IgM/IgG and negative for cerebrospinal fluid (CSF) VZV DNA by polymerase chain reaction (PCR). She was treated with steroid pulse therapy, iv acyclovir, and nerve block.

After three month, symptoms were improved to the pre-illness level.



**Figure 1:** (a) Painful, erythematous vesicles on the right buttock. (b) Sagittal MRI and (c) axial MRI, showing diffuse leptomenigeal and dural enhancement, with clumping of the cauda equina. The red arrows indicate arachnoiditis.

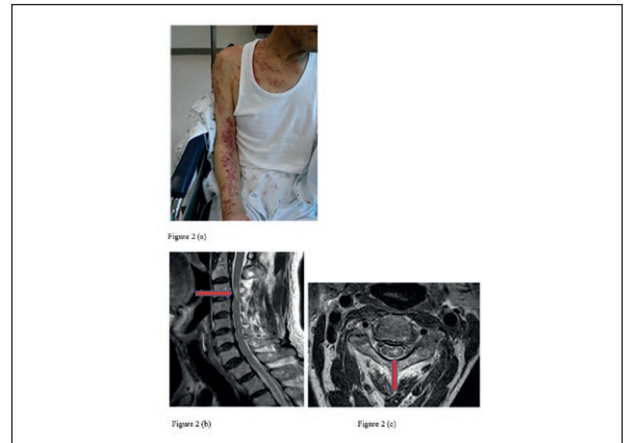
### Case 2

A 71-year-old male was admitted due to the painful erythematous vesicles covering from the right anterior neck to the right upper extremity (right C3-T2 dermatomes) (Figure 2 (a)). Although he was treated with iv acyclovir for five days, severe pain (VAS 8-9) was sustained. Delirium, motor weakness in the upper limbs were suddenly observed [Medical Research Council (MRC) grade 2]. C-spine MRI showed focal intramedullary high signal at the C3 level, suggestive of viral myelitis or compression myelopathy (Figure 2 (b), (c)). VZV IgM/IgG was positive for serum and negative for CSF. Steroid pulse therapy was initiated and continuous epidural block was performed at the C5-6 level. After eleven weeks of discharge, muscle strength was recovered (MRC grade 4), and he complained of only slight pain (VAS 1-2).

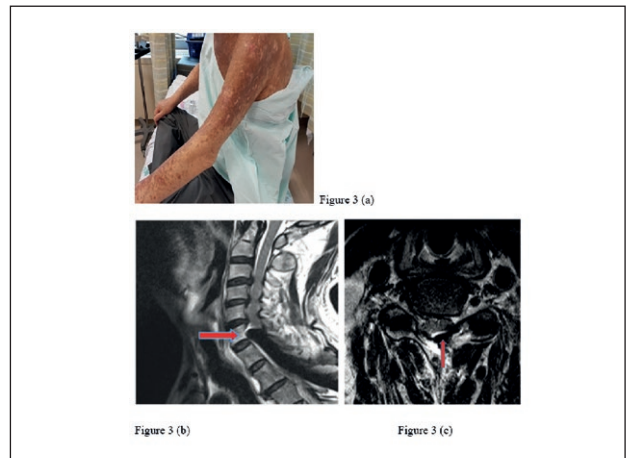
### Case 3

A 66-year-old male with severe left arm pain (VAS 9-10) was referred to our pain center (Figure 3 (a)). Before the visit, he already had prescribed valacyclovir for seven days. He still complained of pain and also had unusual muscle weakness

(MRC grade 1). Even after cervical epidural block (left C5-6 level), there was not any improvement. He was admitted and continuous epidural catheter was inserted and steroid pulse therapy was started. Unfortunately, the C spine MRI image was limited from C6 to D2 due to catheter artifacts (Figure 3 (b), (c)). The VZV PCR was negative after 9 days of valacyclovir. After three month of discharge, his motor weakness did not recur, but the pain decreased (VAS 2-3).



**Figure 2:** (a) Painful, erythematous patches with vesicles, extending from the right anterior neck to the right upper extremity. (b) Sagittal MRI and (c) axial MRI, showing focal intramedullary high signal at the C3-4 level; differential diagnoses included viral myelitis and compression myelopathy.



**Figure 3:** (a) Painful vesicles from the left shoulder to the forearm (b) Sagittal MRI and (c) axial MRI, showing focal intramedullary high signal at the C5-6 level; the differential diagnosis was viral myelitis, but analysis was limited due to the presence of metallic artifacts.

### Discussion

VZV myelitis is an unusual inflammation of the spinal cord that occurs during or following HZ<sup>(2)</sup>. Early diagnosis may be difficult. MRI T2-weighted

imaging shows the typical increased intramedullary signal intensity and swelling. The detection of VZV in CSF can also aid in the diagnosis. However, there have been many cases in which VZV has not been detected in CSF(3).

The optimal treatment has not yet been established. Some studies have reported that high doses of steroids and antiviral agents are helpful for recovery from myelitis. In cases in which continuous epidural block has been performed for acute HZ, the treatment duration and PHN frequency have been reported to be decreased<sup>(4,5)</sup>.

In patients with HZ, the possibility of myelitis should always be considered, because delay of the treatment can increase the risk of fatal neurologic complications.

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