

Severe Cervical Myelitis due to Chickenpox in an Immunocompetent Young Adult: A Rare Case Report

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Abstract: *Varicella-zoster viruses complications involving the CNS are estimated to occur rarely, estimated approximately 0.01-0.3%, especially in immune competent person. Transverse myelitis after Varicella-zoster virus in most patients is characterized by an abrupt onset of progressive weakness with sensory disturbance. We describe the case of 24 year-old male who experienced cervical transverse myelitis after chickenpox with inability to walk and with urinary retention with complete sensory loss. Despite the initial rapid neurological deterioration, the symptoms dramatically improved after acyclovir and steroid administration with rehabilitation. We therefore propose that early medical intervention is necessary for better and earlier recovery.*

Keywords: Transverse myelitis, Varicella zoster virus, Immunocompetent, Antiviral treatment.

1. Introduction

Varicella zoster virus (VZV) is a human neurotropic alpha herpes virus infection, which causes chickenpox and herpes zoster (HZ), is a common disease in the aged and immunocompromised populations. Myelitis is an uncommon complication of VZV infection, and it is even rarer in immunocompetent patients. We describe herein a 24-year-old male who was immunocompetent, but who had HZ that progressed to cervical myelitis.

2. Case Report

A 24 year-old boy was admitted to our hospital with history of fever since 7 day, urinary retention since 5 day, B/L Lower limb weakness since 2 day and diffuse crusted lesions through his body which was diagnosed chickenpox. His vital signs were normal. The patient had never had contact with chickenpox or herpes zoster patients in past. Also he had no history of vaccination. Patient was consciousness, cooperation, orientation and all cranial nerves were normal.

Lower extremity weakness of both sides (power 0/5 symmetrically) and patient also developed upper limb weakness after 4 day of initial presentation with power 3/5. Tone initially hypotonic in lower limb f/l upper limb involvement (as weakness started). DTR are absent in lower limb and brisk in upper limb. Furthermore, the sense of pain and temperature below C 4 dermatomes decreased.

Magnetic resonance imaging (MRI) indicated increase signal of cervical and proximal dorsal spinal cord. (Fig A & B)



Figure A

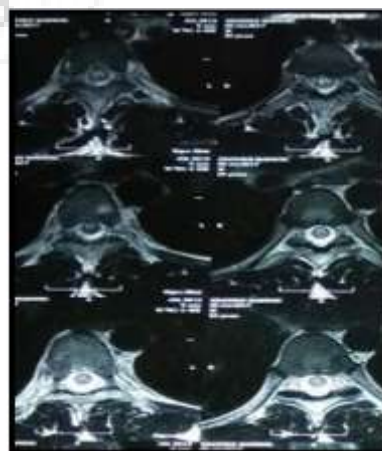


Figure B

The results of blood tests were as follows:

Complete blood count was normal. Kidney and liver function tests were normal. Screening tests by ELISA for HIV-

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negative. CSF analysis was unremarkable with normal ADA. Patient was administered with T. acyclovir and methylprednisolone and intensive physiotherapy was also initiated.

Gradual improvement was observed 9 days after the onset of neurological deficits (day 4 of acyclovir administration). Most of the neurological function improved within 4 weeks except that fine movement impairment hand. The sequence of neurological recovery was: sensory function of the lower limb followed by bowel-bladder and finally, sensory function of the upper limbs.

3. Discussion

VZV myelitis is an unusual inflammatory disease that involves any part of the spinal cord. It may occur during or after rash eruption [1]. Cerebellar ataxia, meningitis and encephalitis are much more common than isolated myelitis [2]. Varicella zoster infection is not a common cause of transverse myelitis in immunocompetent patients [3]. The pathogenesis of VZV myelitis has been thought as a direct viral invasion, because the virus was isolated from the spinal cord of patients [4]. Some researchers suggest allergic and vascular mechanisms after both primary varicella infection and herpes zoster [3]. The frequency of myelitis during or after varicella or zoster infection is 0.3%. And most patients are immunocompromised [5]. The timing of development of myelopathy in relation to the onset of the vesicles varied from 0 days to several months. After administration of acyclovir, the interval prior to symptom improvement ranged from 3 to 9 days. Duration of Complete recovery varies from 10 days to 6 months [6].

Imaging studies are useful for the diagnosis of VZV myelitis. MRI of VZV myelitis is likely to show T2-hyperintensity in the spinal cord [7]. There were areas of hyperintensity with various extents of edema in the T2-weighted images in our case. VZV myelitis often presents as multiple lesions that are not restricted to 1 level or adjacent levels; lesions that span several segments of the spinal cord have been reported [8-10].

Second, detection of VZV antibodies in the CSF is a pathognomonic laboratory finding for the diagnosis of myelitis. Gilden et al [12] reported that polymerase chain reaction for VZV DNA and antibody in the CSF is always positive in VZV-associated myelitis. However, VZV antibody might be negative in some cases, even with the high sensitivity of the test. In Rosenfeld et al case report, the patient had significant clinical presentation of VZV myelitis, but PCR for VZV DNA and antibody, viral isolation, and viral culture were all negative [11].

We suggest that the key to VZV myelitis diagnosis is clinical manifestations, which are most commonly the typical vesicular eruptions, followed by neurological deterioration (including asymmetrical neurological findings, sensory and motor dysfunction). Currently, there is no standard treatment for VZV myelitis. Most researchers have suggested acyclovir

and steroids; however Standard recommendation of optimal dosage remains controversial [12].

In the literature review of VZV myelitis in immunocompetent patients, the longer the interval between onset of myelopathy and administration of acyclovir/corticosteroids, the slower the observed improvement, and the longer the recovery time. So, early medical intervention might be the most important prognostic factor.

4. Conclusion

Finally, we conclude that myelitis in immunocompetent patient following varicella infection will have better outcome with early medical intervention.

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