CLINICAL VIGNETTE

Aseptic Meningitis: A Potentially Under-Reported Complication of Herpes Zoster Infection

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Case Report

A 40-year-old male presented to the urgent care with a new rash on the left side of his chest and the left side of his back for one day. He did not feel pain at the site of his rash and his daughter was the one who noticed it. On exam he has a mild rash on left side of chest and back, thought to be pityriasis rosea and went home. Two days later the patient presented to the emergency department with fevers and headaches. He was taking Tylenol for the headaches with no improvement. His rash had also worsened. The ED noted erythematous maculopapular rash in a dermatomal distribution over the left flank with no vesicles. He was given Ketorolac and Metoclopramid in the Emergency Room which helped alleviate his headache symptoms and he was discharged home with oral valacyclovir. Despite starting valacyclovir, his headaches worsened the next day. He returned to urgent care and started on Oxycodone/acetaminophen, Gabapentin, and ondansetron prescription for pain. His pain worsened and was described as "the worst headache of his life" prompting return to the emergency department.

In the ED, his physical exam was essentially normal except for a dermatomal vesicular rash on the left side of torso and left back. His neurologic exam was normal. CT scan of the brain was normal. A lumbar puncture was performed with Cerebrospinal Fluid (CSF) appearing clear and colorless with 2 red blood cells, 79 white blood cells, 83 lymphocytes, 16 monocytes and 1 eosinophil. CSF glucose was 44 and CSF protein elevated at 180. Serum white blood cell count was 5.25, hemoglobin 14, and platelet count low at 125. HIV testing was negative. CSF testing for varicella zoster PCR was positive.

The patient was treated with fentanyl which helped alleviate his symptoms. Infectious Disease advised to take valacyclovir 1000 mg three times daily for 10 days total and he was discharged home.

Discussion

Varicella zoster virus is typically acquired as chickenpox (varicella), which then lies dormant in the cranial nerve neurons, dorsal root and autonomic ganglion and can reactivate as shingles (zoster) later in life.[1] Varicella zoster virus is known to cause neurological complications, especially in the elderly and immunocompromised patients.[2] Some of the neurological complications in the peripheral nervous system include:

1) radiculoneuropathy (disease of the spinal nerves and nerve roots)
2) Ramsay Hunt syndrome (a syndrome where patients often have facial paralysis, ear pain, vesicles in the ear and/or ear canal, tinnitus, vertigo, taste abnormality, among other symptoms as a result of varicella zoster virus affecting eighth, ninth, and tenth cranial nerves)
3) ophthalmoplegia due to effect on third cranial nerve (paralysis of eye muscles)
4) optic neuritis (vision loss due to inflammatory and demyelinating process)
5) postherpetic neuralgia (nerve pain as a consequence of varicella zoster infection)[2]

Neurological complications in the Central Nervous System include myelitis, encephalitis, and aseptic meningitis.[2]

Aseptic meningitis is an uncommon complication of varicella zoster infection, although the incidence may be under reported due to lack of routine testing for varicella zoster in cases of aseptic meningitis. According to a Finland study, out of the 144 patients with aseptic meningitis, an etiology was identified in 95. Of those, 8% were attributed to varicella zoster virus.[3] A retrospective study identified skin rash with craniocervical distribution and male gender as two risk factors that were associated with higher risk for aseptic meningitis in herpes zoster patients.[4]

Although reactivation of zoster is not commonly associated with clinical aseptic meningitis, several studies have suggested that about 40-50% of patients with cutaneous herpes zoster infection have cerebrospinal fluid pleocytosis which suggests meningeal irritation.[5] It has also been shown that aseptic meningitis is known to occur in immunocompetent patient populations.[3] Aseptic meningitis often has clinical features that resemble bacterial meningitis including headache, fever, neck stiffness, altered mental status and photophobia. Lumbar puncture usually shows a high cerebrospinal fluid lymphocytic predominant pleocytosis and relatively elevated protein.[6] Sometimes neurological symptoms from meningeal involvement of varicella zoster virus may precede a dermatomal rash, which may or may not be painful.[7,8] The diagnosis can be established by cerebrospinal fluid PCR. Standard treatment regimen for zoster meningitis has not been studied in a controlled fashion but it usually consists of intravenous

acyclovir followed by oral antiviral therapies such as acyclovir, valacyclovir, or famciclovir for a total duration of 10 to 14 days.[7-9] There is no clear role for corticosteroids in patients with acute uncomplicated zoster with regards to reducing incidence of postherpetic neuralgia and improving quality of life. However, corticosteroids can be considered in combination with antiviral therapy when there is CNS involvement or cranial polyneuritis with facial paralysis in patients without contra-indications to corticosteroids.

Conclusion

We presented a case of a young 40 year old immunocompetent male with varicella zoster meningitis, who did not have the typical shingles rash at the time of neurological symptoms. Aseptic meningitis may be an under-reported complication of varicella zoster infection, and neurological symptoms may precede or follow a dermatomal rash, which may not necessarily be painful. Therefore, it is important to consider varicella zoster virus in the work up of aseptic meningitis, even in the absence of rash, so that timely treatment with antiviral can be initiated if needed.

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