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| RESEARCH ARTICLE

Early Recovery of Grade IV Bell's Palsy Following a Single Dose of IV Corticosteroids in a Rare Case of Zoster Sine Herpete Meningitis

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| ABSTRACT

Bell's palsy is a unilateral facial paralysis often linked to viral reactivation, and corticosteroids are part of guideline directed therapy. We present a rare case of a 37-year-old immunocompetent man who developed an acute left sided facial paralysis (House-Brackmann grade IV) secondary to herpes zoster. Notably, this case underscores the rare occurrence of Bell's palsy following aseptic meningitis in the absence of cutaneous lesions, consistent with zoster sine herpete. Treatment incorporated emerging evidence of high-dose IV methylprednisolone showing superior recovery to grade I. Our patient saw complete resolution of facial paralysis symptoms in just over two weeks status post discharge. This case further highlights the potential benefit of early high-dose IV steroid therapy in moderately severe Bell's palsy.

| KEYWORDS

Bell's Palsy, Facial Paralysis, Intravenous Corticosteroids, Zoster Sine Herpete, House-Brackmann.

| ARTICLE INFORMATION

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1. Introduction

Zoster sine herpete (ZSH) is an atypical manifestation of the herpes zoster (HZ) family of viruses. After primary infection of the nervous system, including the cranial nerves, it can manifest or reactivate with sequala such as Bell's palsy, Ramsay Hunt syndrome, and even aseptic meningitis/ encephalitis.[1] The etymology of ZSH is derived from the presentation of shingles without the cutaneous skin lesions typically associated with a "singles rash". The progression of ZSH meningitis complicated by facial nerve paralysis in an immunocompetent host is quite rare, with very few cases seen in the literature.[2] This case explores a sequential occurrence of aseptic meningitis followed by delayed Bell's palsy and reinforces that HZ should remain in the differential diagnosis for facial paralysis even in the absence of cutaneous findings. Guideline directed treatment of Bell's palsy indicates the use of corticosteroids and antivirals. Steroids remain the preferred treatment for Bell's palsy and may be used alone or in combination with antivirals. Antiviral monotherapy, however, is not recommended as it has shown limited clinical benefit.[3,4] The recommended treatment consists of oral prednisone given at 60 mg daily for five days followed by a five-day taper.[3] However, emerging evidence suggests IV methylprednisolone may be a superior option in certain cases, as discussed further below.

2. Case Presentation

A 37-year-old male with no significant past medical history presented to the emergency department of a community hospital with a fever, acute onset severe headache ("20/10"), photophobia, phonophobia, neck stiffness, and nausea. Physical exam revealed nuchal rigidity. No other focal neurologic deficits were appreciated on exam. No cutaneous lesions around the head,

neck or trunk were observed. Urgent head CT was unremarkable, as was subsequent MRI study. Spinal tap and CSF analysis with polymerase chain reaction indicated varicella zoster virus positive specimens. He was admitted to medicine and given IV acyclovir at 10mg/kg q8h, fluids, and analgesics. He was discharged in stable condition with no neurological symptoms.

Four days status post his initial discharge, represented with symptoms suggestive of post viral irritation, including persistent mild to moderate headache, photophobia, neck stiffness, and fatigue. Notably, new onset neurologic findings were observed on examination, consistent with a left sided peripheral (lower motor neuron) facial nerve palsy. The facial paralysis was graded using the House-Brackmann scale and was consistent with grade IV paralysis (moderately severe).[5] No rash was observed on reexamination of the ear and face. He was readmitted and received a single high-dose bolus of IV methylprednisolone which has been shown to have superior one month recovery in patients with grade IV facial paralysis over oral steroids.[6] Supportive care included analgesics and eye protection measures. No significant adverse effects secondary to treatment were observed, and he was subsequently discharged after a three-day stay. On follow up, he reported complete resolution of paralytic symptoms in just over two weeks from discharge.

3. Discussion

A **single 500 mg dose of intravenous methylprednisolone** has been directly compared to the standard 10 day course of oral prednisolone, and in patients with grade IV Bell's palsy, it was associated with a higher rate of complete recovery to grade I at one month (OR = 0.73, favoring IV steroids).[6] IV steroid administration also had benefits regarding adherence with no risk of an incorrect outpatient taper of steroids. It should be noted that patients with grade II and III facial paralysis did not experience significant benefit from IV steroids when compared to oral steroids. Furthermore, the early advantage observed with IV methylprednisolone, particularly in grade IV paralysis, was no longer evident by three months, at which point recovery rates were similar regardless of intervention.[6] The observed benefit of IV corticosteroids may be attributed to their greater anti-inflammatory effect and enhanced bioavailability. The efficacy of steroid therapy may also be influenced by the severity of the initial nerve injury, with more severe cases potentially requiring more intensive anti-inflammatory intervention.[6]

While meningitis will often include a spinal tap as part of a comprehensive diagnostic workup, other manifestations of ZSH may be overlooked and even misdiagnosed. This could lead to delayed medical intervention and even progression to more concerning neurological complications such as stroke or central nervous system infections.[1] Even in cases similar to ours, the time course and sequence of events can differ. *Ashour et al.* presented a case in which paralytic symptoms seemed to be present before admission and serious meningeal symptoms occurred.[2]

4. Conclusion

This case highlighted the rare presentation of two neurological complications secondary to ZSH reactivation. Clinicians should be weary that ZSH will present without the classic "shingles rash" and will require prompt intervention to prevent irreversible complications. Additionally, our interventional outcomes are in line with emerging research that grade IV paralysis is best treated with a single dose of IV steroids. We suspect that Bell's palsy guidelines will incorporate IV methylprednisolone as an alternative for patients who may benefit from this treatment over oral prednisolone.

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