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Herpes- Zoster associated Trigeminal Neuritis with Rhombencephalitis: A Rare MRI Presentation

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ABSTRACT

Trigeminal neuralgia (TN) is characterized by episodic electric, shock-like facial pain. Though often idiopathic, herpes simplex virus type 1 (HSV-1) reactivation can rarely cause symptomatic TN. When the virus affects the brain, it can cause a rare and serious condition called rhombencephalitis. This condition involves inflammation of the rhombencephalon, which includes parts of the brainstem and cerebellum. We report a case of a 74-year-old man with rare MRI findings of both trigeminal neuritis with rhombencephalitis.

Keywords: Rhombencephalitis,Trigeminal neuralgia,gasserian ganglion,preganglionic segment

1. INTRODUCTION

Trigeminal neuritis is commonly caused by an inflammatory response to the herpes simplex virus, which typically resides in the gasserian ganglion of the trigeminal nerve. The virus can spread transaxonally between the ganglion and peripheral nerves in the oral cavity [1, 2]. It has been isolated from painful aphthous ulcers in the mouth and from typical cold sores at the lip margins. In some cases, herpes simplex virus type 1 can affect the brain through retrograde transmission from the gasserian ganglion, traveling along the preganglionic segment of the fifth nerve to the brainstem. This condition is known as rhombencephalitis [3].

2. CASE REPORT

A 74-year-old man presented to the outpatient department with a one-week history of heaviness affecting the right side of his face. This sensation began in the right lower jaw and gradually spread across the entire right side of his face. The patient reported a history of herpes zoster infection in his right upper limb one year prior. Upon examination, there was evidence of trigeminal nerve involvement, characterized by hyperesthesia in the V2 and V3 regions on the right side. However, the facial nerve function was normal bilaterally.

MRI brain contrast was done.
T2/FLAIR hyperintense signal noted near the root zone of right trigeminal nerve in pons [Figure 1, Figure 2].

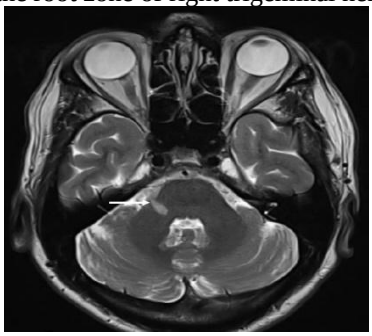

Figure 1: T2WI axial section showing hyperintense signal in root zone of right trigeminal nerve in pons (arrow).

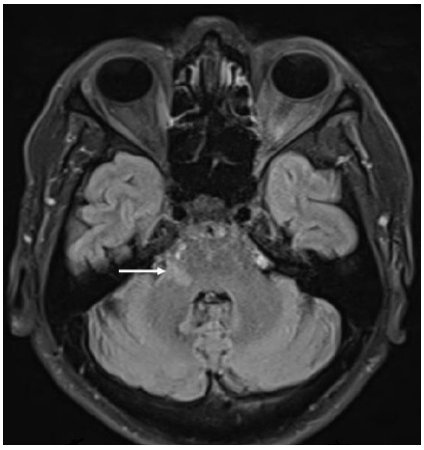

Figure 2: FLAIR axial section showing hyperintense signal in root zone of right trigeminal nerve in pons (arrow).

Contrast images showed enhancement in pontine segment and root zone of right trigeminal nerve in pons [Figure 3, Figure 4].

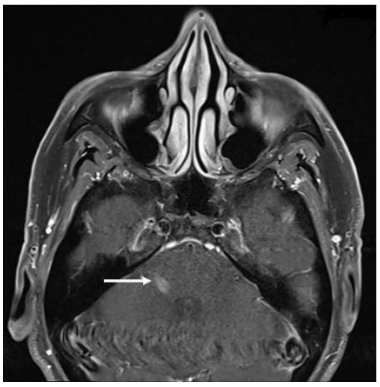

Figure 3: T1 fat saturated post contrast axial section showing enhancement in root zone of right trigeminal nerve in pons (arrow).

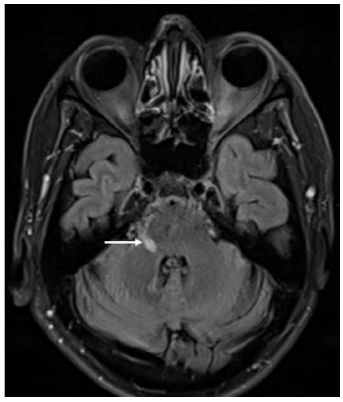

Figure 4: FLAIR post contrast axial section showing enhancement in root zone of right trigeminal nerve in pons (arrow).

Based on the clinical profile and MRI findings, a diagnosis of herpes zoster-associated trigeminal neuritis with rhombencephalitis was established.

3. DISCUSSION

Herpes zoster, commonly known as shingles, is typically characterized by a painful, vesicular rash along the distribution of a single cranial nerve or dermatome. While most cases are confined to the skin and underlying nerves, herpes zoster can occasionally lead to more severe complications, including herpes trigeminal neuritis and, even more rarely, rhombencephalitis. Herpes trigeminal neuritis is a condition in which the varicella-zoster virus reactivates and affects the trigeminal nerve, leading to pain, hyperesthesia, and occasionally rash in the distribution of the trigeminal nerve. This condition can be particularly challenging because the symptoms—such as facial pain and sensory abnormalities—can significantly impact the patient's quality of life. The involvement of the trigeminal nerve in this case, as evidenced by

hyperesthesia in the V2 and V3 distributions, aligns with this diagnosis. The history of herpes zoster affecting another part of the body may suggest a predisposition to neural complications in this patient [4].

Rhombencephalitis, a rare but severe complication of herpes zoster, involves inflammation of the rhombencephalon, including the brainstem and cerebellum. This condition can result from the direct viral invasion of the central nervous system or from a post-viral inflammatory response. The clinical manifestations of rhombencephalitis can be diverse and may include symptoms such as ataxia, vertigo, cranial nerve deficits, and altered consciousness [5,6].

In the presented case, the patient's history of herpes zoster and the specific involvement of the trigeminal nerve raise the concern for a possible central nervous system complication. The absence of facial nerve involvement and the localized nature of the trigeminal symptoms might suggest a more isolated neural involvement rather than widespread central nervous system infection. However, the possibility of rhombencephalitis should be considered, especially if the patient develops additional neurological signs or if imaging studies reveal abnormalities in the brainstem or cerebellum.

Accurate diagnosis of herpes trigeminal neuritis and potential rhombencephalitis involves a combination of clinical evaluation, imaging studies (such as MRI of the brain), and, when necessary, cerebrospinal fluid analysis. In cases where rhombencephalitis is suspected, prompt neuroimaging and possible lumbar puncture are critical to assess for inflammation or infection [7,8].

Treatment typically includes antiviral medications, such as acyclovir, which can help control the viral replication and mitigate the severity of the symptoms. Corticosteroids may be used to reduce inflammation and alleviate neurological symptoms [9]. Pain management and supportive care are also essential components of treatment to address the discomfort and functional impairments associated with trigeminal neuritis [10].

4. CONCLUSION

The prognosis of herpes trigeminal neuritis is generally favorable with appropriate antiviral and supportive treatment. However, the presence of rhombencephalitis can complicate the clinical picture and may result in a more guarded prognosis. Long-term outcomes depend on the severity of the central nervous system involvement and the timeliness of intervention.

In summary, while herpes zoster primarily affects the skin and peripheral nerves, its complications can extend to the central nervous system, as seen in herpes trigeminal neuritis and potentially rhombencephalitis. Awareness of these rare complications is crucial for early diagnosis and management, which can significantly impact patient outcomes

REFERENCES

[1] Croen KD, Ostrove JM, Dragovic LJ, Smialek JE, Straus SE. Latent herpes simplex virus in human trigeminal ganglia. New England Journal of Medicine. 1987 Dec 3;317(23):1427-32.

[2] Vafai A, Murray RS, Wellish M, Devlin M, Gilden DH. Expression of varicella-zoster virus and herpes simplex virus in normal human trigeminal ganglia. Proceedings of the National Academy of Sciences. 1988 Apr;85(7):2362-6.

[3] Bickerstaff ER. Brain-stem encephalitis. British Medical Journal. 1957 Jun 6;1(5032):1384.

[4] Oxman MN, Levin MJ, Johnson GR, Schmader KE, Straus SE, Gelb LD, Arbeit RD, Simberkoff MS, Gershon AA, Davis LE, Weinberg A. A vaccine to prevent herpes zoster and postherpetic neuralgia in older adults. New England Journal of Medicine. 2005 Jun 2;352(22):2271-84.

[5] Weller TH. Varicella and herpes zoster. Changing concepts of the natural history, control, and importance of a not-so-benign virus. The New England journal of medicine. 1983 Dec 1;309(23):1434-40.

[6] Yawn BP, Wollan PC, Kurland MJ, Sauver JL, Saddier P. Herpes zoster recurrences more frequent than previously reported. InMayo Clinic Proceedings 2011 Feb 1 (Vol. 86, No. 2, pp. 88-93). Elsevier.

[7] Cohen JI. Rodent models of varicella-zoster virus neurotropism. Varicella-zoster Virus. 2010 Mar 12:277-89.

[8] Dworkin RH, Johnson RW, Breuer J, Gnann JW, Levin MJ, Backonja M, Betts RF, Gershon AA, Haanpää ML, McKendrick MW, Nurmikko TJ. Recommendations for the management of herpes zoster. Clinical infectious diseases. 2007 Jan 1;44(Supplement_1):S1-26.

[9] Leung J, Anderson TC, Dooling K, Xie F, Curtis JR. Recombinant zoster vaccine uptake and risk of flares among older adults with immune-mediated inflammatory diseases in the US. Arthritis & Rheumatology. 2022 Nov;74(11):1833-41.

[10] Backonja MM. High-concentration capsaicin for the treatment of post-herpetic neuralgia and other types of peripheral neuropathic pain. European Journal of Pain Supplements. 2010 Aug 1;4(2):170-4.