Case report

Persistent hiccups as a rare presentation of Ramsey Hunt syndrome in a renal transplant recipient

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Sri Lanka Journal of Neurology, 2021, **8**, 20-22

Key words: multiple cranial nerve palsy, hiccups, Ramsey Hunt syndrome, Varicella zoster virus, renal transplant recipient

Ramsay Hunt syndrome type 2, also known as RHS and herpes zoster oticus, is a disorder that is caused by the reactivation of varicella zoster virus in the geniculate ganglion, a nerve cell bundle of the facial nerve. RHS typically presents with inability to move many facial muscles, pain in the ear, taste loss on the front of the tongue, dry eyes and mouth, and a vesicular rash. However, the association of RHS with multiple cranial nerve involvement and persistent hiccups is less well reported.

Patient information

A 29-year-old male presented with right ear pain, tinnitus and sore throat followed by fever, unbearable hiccups, vomiting and difficulty swallowing over four days. He had undergone a related live donor renal transplant 15 years back and was on mycophenolate mofetil.

The patient was conscious and rational. There were erythematous vesicles in the right external ear (Figure 1) and the soft palate (Figure 2). Neurological examination revealed lower motor neuron type facial nerve palsy (Figure 3), sensory-neural type hearing loss, and palatal palsy with impaired palatal sensation on the right side. Hoarseness of voice and nasal regurgitation of liquids while swallowing was noted. Stroboscopy confirmed right-sided vocal cord palsy (Figure 4). He had horizontal nystagmus on the left side and a positive right head impulse test. The rest of the cranial nerves and optic fundal examination were normal. He did not have neck stiffness. Upper limb, lower limb, and cerebellar examination were normal. His blood pressure, pulse rate and respiratory rate were normal.

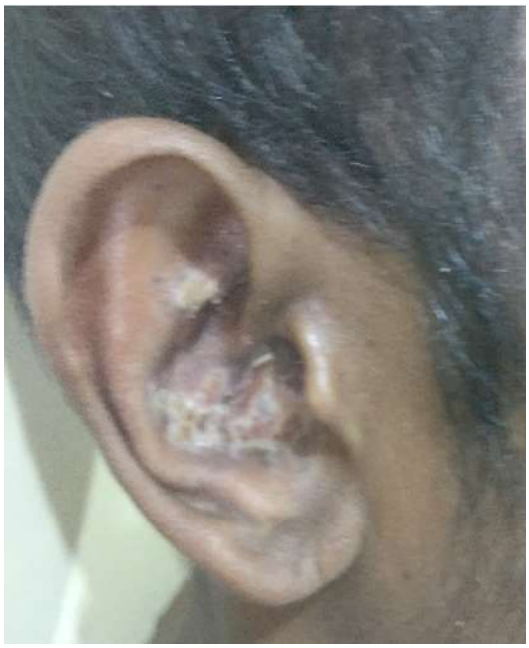

Figure 1. Vesicles in the right external ear.

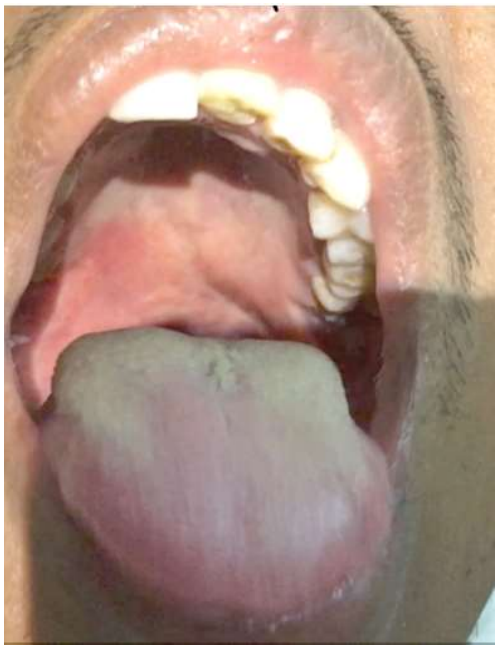

Figure 2. Right-sided palatal palsy and redness of the soft pallet.

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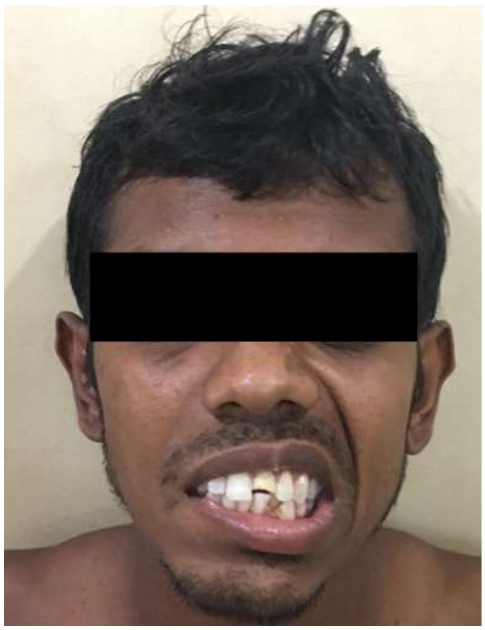

Figure 3. Right facial nerve palsy.

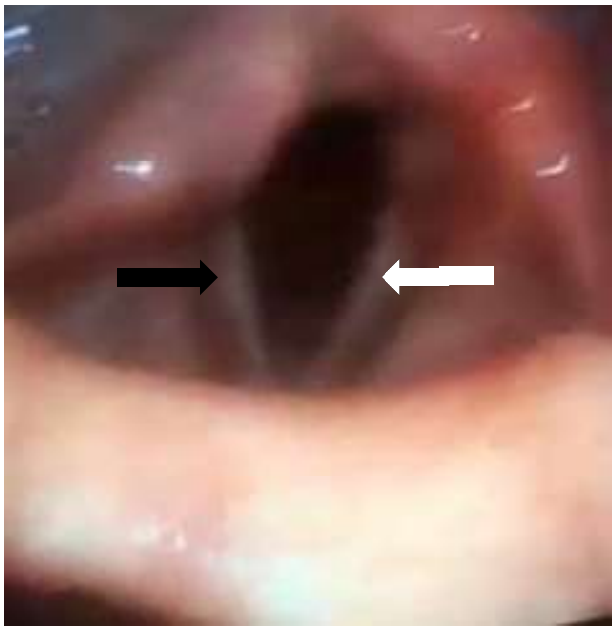

Figure 4. Stroboscopy view of normal left vocal cord (white arrow) and right vocal cord palsy (black arrow).

Diagnostic assessment

The full blood count revealed neutrophil leucocytosis. C-Reactive Protein (CRP) was 45 mg/dl. His baseline serum creatinine of 256 micromole/L increased to 270 micromol/L and remained stable. Serum electrolytes, calcium and transaminases were normal. The non-contrast MRI brain was normal.

Cerebrospinal fluid (CSF) analysis revealed an opening pressure of 12 cmH_2O, 40 lymphocytes, 40 mg/dl protein, and 76mg/dl sugar (random blood glucose was 113 mg/dl). CSF, right ear vesicle fluid, urine and blood bacterial cultures were sterile. CSF for myco-bacterium tuberculosis, cytomegalovirus, herpes simplex virus, cryptococcal antigen and Toxoplasma IgM antibodies were negative. The stool for Enterovirus and Adenoviral panel was negative. HIV-1/HIV-2 antibodies and VDRL were negative. Diaphragmatic ultrasound scan and chest X-ray were normal. Blister swab from the ear canal and the CSF was positive for Varicella Zoster Virus (VZV) DNA. Ramsay Hunt syndrome (RHS) involving multiple (VII, VIII, IX, X) cranial nerves was diagnosed.

He required a nasogastric tube to prevent aspiration, optimize nutrition and provide oral medications. He was started on a renal adjusted dose of intra-venous acyclovir along with an empirical broad-spectrum antibiotic (ceftriaxone and teicoplanin). Persistent hiccups were extremely troublesome and required symptomatic treatment with domperidone and metoclopramide for several days. He was treated with prochlorperazine for five days and betahistine for three months with regular vestibular rehabilitation physiotherapy. After confirming the right-sided partial sensory-neural hearing loss by an audiogram, intratympanic dexamethasone therapy was commenced. Empirical antibiotics were discontinued after negative culture reports. Intravenous acyclovir was continued for 21 days. Post-treatment CSF was negative for VZV DNA.

Follow-up and outcomes

The patient was discharged after the completion of the antiviral treatment. On discharge hiccups, ear and throat vesicles had resolved. Nasogastric tube feeding was continued for three months. Six cycles of intratympanic dexamethasone injections were given over three months. Facial weakness, tinnitus, hearing loss, swallowing and hoarseness improved to near normal in six months.

Discussion

Immunocompromised patients are more prone to infections with unusual organisms and atypical presentations of infections by common pathogens[1,2]. Varicella zoster virus is a human herpes virus causing chickenpox as the primary infection. VZV may remain dormant in cranial nerve ganglia, dorsal root ganglia and autonomic ganglia. In a susceptible situation, it may reactivate and cause herpes zoster (shingles). When this reactivation happens in cranial nerves especially in the

facial nerve, it is called RHS[3,4]. However, the association of RHS with multiple cranial nerve involvement and persistent hiccups is less well reported. This patient had multiple cranial nerve palsies, including cranial nerve VII, VIII, IX and X with herpes zoster oticus and vesicles in the palate with varicella zoster virus infection.

The most disabling symptom was the persistent hiccups. Hiccups are usually self-limiting. When hiccup lasts more than two days, it is called persistent hiccups. When it persists for two months, it is called intractable. The most likely pathophysiology is a modulation of reflex arc involving diaphragm, phrenic and vagus nerves, sympathetic pathways and brain stem. His non-contrast MRI scan of the brain did not show any brain stem pathology. An ultrasound scan of the diaphragm did not reveal any structural abnormality or paralysis. Chest x-ray was unremarkable for lung parenchymal pathology. Serum biochemistry for serum electrolytes, corrected serum calcium, transaminases were within normal range and his serum creatinine showed mild elevation from his baseline. RHS reported with persistent and intractable hiccups are mainly due to vagus nerve involvement. In some of these case reports, hiccups have resolved with the resolution of palatal vesicles which was also observed in this patient. This may support vagus nerve involvement for the persistent hiccups in this case[9-11].

Conclusion

RHS can present as multiple cranial nerve palsies. Persistent hiccups may be caused by vagus nerve involvement in RHS. This case highlights that prompt and optimum treatment can give a favourable outcome, especially in patients with multiple comorbidities such as renal impairment and immune suppression.

Informed consent – The patient has given verbal and written consent to publish his history and images as a case report.

References

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