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CASE REPORT

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Bilateral facial nerve palsy: a rare post-dengue fever complication

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Abstract

Background: An adolescent with recent dengue infection was presented with sudden onset of bilateral facial nerve palsy. It was a rare presentation and posed as a diagnostic challenge to all physicians.

Case presentation: A 13-year-old boy, presented with sudden onset of bilateral facial weakness. His chief complaints were noted drooping of the mouth, drooling of saliva and inability to close both eyelids. No weakness of all four limbs, ear discharges, earache or parotid gland enlargement. The only relevant significant history was recent dengue fever evident by positive dengue immunoglobulin M serology, 2 weeks prior to current presentation. During the dengue infestation, he was hospitalized for symptomatic treatment and was discharged home uneventfully. After exhausting all the available investigations and ruling out other commoner secondary causes, we finally attributed these presentations as bilateral Bell's palsy complicated by his recent dengue infection. The mainstay of treatment was corticosteroid and rehabilitation as the usual approach towards Bell's palsy. Our patient recovered uneventfully with no residual neurological deficit.

Conclusions: This is a rare encounter case of bilateral Bell's palsy following dengue infection.

Key Messages

Bilateral facial nerve palsy following dengue infection is indeed rare. This poses as a diagnostic challenge and dilemma initially. Yet, the mainstay of treatment remains straightforward and this case will hopefully set an example for all physicians, to consider the diagnosis of bilateral facial nerve palsy, secondary to dengue infection.

Keywords: Bilateral facial nerve palsy, Bilateral Bell's palsy, Dengue infection

Background

Bell's palsy, also known as idiopathic facial paralysis, is the most common cause of unilateral facial paralysis, accounting for approximately 70% of cases [1]. However, bilateral facial nerve palsy is exceedingly rare, representing less than 2% of all the facial palsy cases, and has an incidence of only 1 per 5,000,000 population [2, 3]. Unlike the unilateral presentation, it is seldom secondary to Bell's palsy. Bell's palsy accounts for only 23% of bilateral facial paralysis [1]. Hereby, we present a case of a young boy with bilateral Bell's palsy as the complication from a tropical infectious disease, dengue fever.

Case presentation

A 13-year-old previously healthy boy presented with sudden onset of bilateral facial weakness. He was noted with drooping of the mouth, drooling of saliva and inability to close both eyelids (Figs. 1, 2). There were no weakness of limbs, ear discharges, earache or parotid gland

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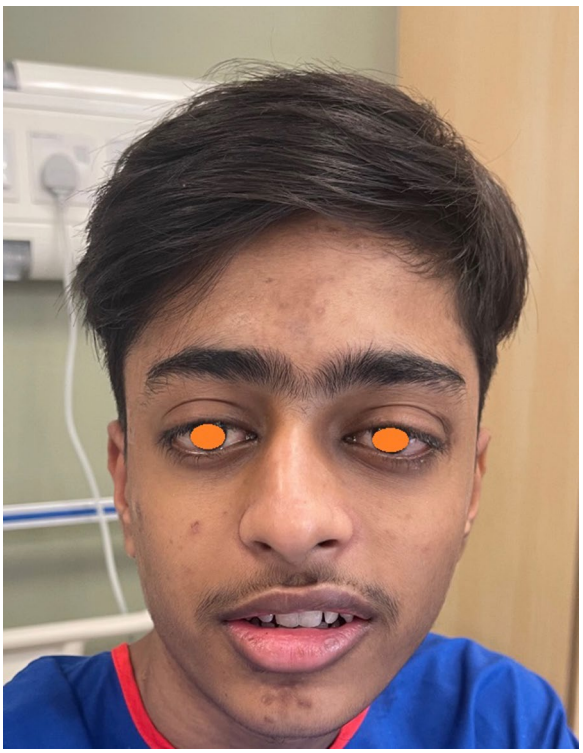

Fig. 1 Drooping of the mouth

Fig. 2 Inability to close both eyelids

enlargement. Neither history of trauma, traveling aboard, rashes or exposure to tick bites. The only relevant significant history was recent dengue fever evident by positive dengue immunoglobulin M serology, 2 weeks prior to current presentation. During the dengue infestation, he was hospitalized for symptomatic treatment and was discharged home uneventfully.

Examination revealed bilateral complete lower motor neuron type of facial nerve palsy. Elicited signs were bilaterally dropping of angle of mouth, loss of nasolabial fold, inability to close eyes completely and not able to raise his eye brows. Other cranial nerves were otherwise intact. Upper and lower limbs neurology were normal with normal reflexes. Further examination revealed no ear vesicles or parotid swelling, neither skin lesions which rules out possible secondary causes such as Herpes, Mumps or Lyme's diseases, respectively. Ophthalmology assessment showed exposure keratopathy of bilateral eyes with no ophthalmoplegia.

Blood tests for full blood counts, urea and electrolytes and the vasculitis screening were within normal limits. Infective screening and inflammatory marker were unremarkable. Despite the lack of cerebrospinal fluid (CSF) for Guillain–Barre Syndrome screening, his serum ganglioside autoimmune profile was all negative. Chest radiograph was clear. Magnetic resonance imaging of the brain showed normal enhancing of bilateral facial nerves.

Nerve conduction study (NCS) of facial nerve showed normal latency, however the amplitude was reduced. His NCS of the both upper and lower limbs were within normal range. Hence, the presumptive diagnosis of bilateral simultaneous idiopathic facial nerve palsy was made, with recent dengue infection as the probable causative factor.

He was treated with oral prednisolone with dosage of 1 mg/kg for 10 days and oral acyclovir 400 mg 5 times per day for 10 days. Eye care advise with eye shield and artificial tear drops were provided. Reassessment in 2 weeks shown complete resolution of the facial nerve palsy with significant improvement of facial nerve amplitude.

Bilateral facial nerve palsy is a rare condition and hence present a diagnostic challenge. The aetiology of bilateral facial nerve palsy can be due to Guillain–Barre syndrome (GBS), Lyme disease, sarcoidosis, meningitis, brain stem encephalitis, multiple idiopathic cranial neuropathies, benign intracranial hypertension, leukaemia, diabetes mellitus, human immunodeficiency virus (HIV) infection, syphilis, infectious mononucleosis, vasculitis, Melkersson–Rosenthal syndrome or bilateral neurofibromas [4]. Yet, dengue infection, leading to bilateral facial nerve palsy was not commonly reported. To our best knowledge, there is one similar case which was reported before [5].

Dengue infection is a tropical mosquito-borne disease causing wide spectrum of clinical presentation, ranging from asymptomatic subclinical state to the most severe form of dengue fever with plasma leakage, bleeding manifestations, and multisystem failure. There are also increasing number of dengue fever with uncommon manifestations such as central nervous system manifestation [6]. They include encephalopathy, encephalitis, post-infectious immune-mediated acute disseminated encephalomyelitis ADEM, Guillain–Barre syndrome (GBS), transverse myelitis, meningitis, polyradiculitis and stroke, both ischaemic and haemorrhagic [7, 8], whereas unilateral Bell's palsy were reported before, but rare.

Knowing GBS being the most common cause of bilateral facial nerve palsy, our initial workup was directed towards it. The investigations done included nerve conduction study, MRI brain, anti-glycoside antibody. Lumbar puncture for CSF study was proposed, yet not consented by the family. The presence of albuminocytologic dissociation in CSF study will give more clue towards the diagnosis. We finally attributed the facial nerve palsy as idiopathic after thorough workup ruling out GBS and other causes. Yet, keeping in mind dengue as the probable culprit.

Treatment modalities of facial nerve palsy depend on the underlying aetiology. For Bell's palsy, it can be treated pharmacologically and rehabilitation. Corticosteroids plus antivirals were the most effective treatment for Bell's palsy with evidence of good recovery [9]; whereas, facial rehabilitation had limited evidence of effectiveness [10].

In our best knowledge, this is a rare presentation with bilateral Bell's palsy following dengue infection. This was attributed to the thorough investigation ruling out potential causes of facial nerve palsy as mentioned. Also, the history of recent Dengue infection posed a significant aetiology to the unusual presentation. We approached this case in the manner similarly to treating Bell's palsy and it was indeed a successful example to all readers.

Conclusions

Manifestation of bilateral Bell's palsy in a post-dengue fever complication is extremely rare. Thorough investigations are needed to exclude all secondary causes of bilateral cranial nerve seventh palsy. Treatment for bilateral Bell's palsy is similar to the standard medical therapy used to treat idiopathic Bell's palsy.

Abbreviations

CSF: Cerebrospinal fluid; NCS: Nerve conduction study; GBS: Guillain–Barre syndrome; HIV: Human immunodeficiency virus; ADEM: Acute disseminated encephalomyelitis; MRI: Magnetic resonance imaging.

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Authors' information

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Author contributions

AHK, WCL and JB were involved in the literature search as well as obtaining consent. AM and NKK were involved in the layout and writing of manuscript as well as obtaining clinical information. NKK was involved in the acquisition of the radiographical images. FKH, WA, LA and HB were involved in critical analysis of the manuscript as well as formatting and editing the manuscript. All authors read and approved the final manuscript.

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Availability of data and materials

The datasets supporting the conclusions of this article are included within the article.

Declarations

Ethics approval and consent to participate

The authors' institution does not require ethical approval for publication of a single case report. Written informed consent was obtained from the patient's next of kin.

Consent for publication

Written informed consent was obtained from the patient for publication of this case report and any accompanying images. A copy of the written consent is available for review by the Editor of this journal.

Competing interests

The authors declare that they have no competing interest.

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