Bilateral Facial Nerve Palsy Following Trauma: A Rare Case Report

H Vivek1, Vaibhav Bhadbhade2, Paparaja Murthy3
1Junior Resident, Department of Surgery, Sri Devaraj Urs Medical College and Research Centre, Kolar, Karnataka, India, 2Junior Resident, Department of Orthopaedics, Sri Devaraj Urs Medical College and Research Centre, Kolar, India, 3Neurosurgeon, Department of Neuro-Surgery, Sri Devaraj Urs Medical College and Research Centre, Kolar, Karnataka, India

Bilateral facial paralysis occurs due to basilar skull fracture which involves temporal bone. It might be rare. Unlike unilateral facial palsy, it can be difficult to recognize because of a lack of facial asymmetry. Proper clinical history and thorough physical examination are needed for a diagnosis. To confirm high-resolution computed tomography scan and electrodagnostic tests should be done which will help to make the final diagnosis of bilateral facial nerve palsy. It will also help in the early detection of the case and intervention may be important for optimal functional recovery. We have reported a 28-year-old male who received a blow to the left side of his face due to road traffic accident.

Keywords: Bell’s phenomenon, Bilateral facial nerve palsy, Traumatic brain injury

INTRODUCTION

Bilateral facial palsy (BFP) is described as a facial paralysis involving both sides of the face occurring within 4 weeks of each other. BFP is an extremely rare clinical entity accounting for only 0.3-2% of all facial palsies.1 Trauma accounts for only a small percentage of BFP and is associated with skull base and temporal fractures.2 This case is particularly notable because of an unusual presentation of “BFP following traumatic brain injury” been reported.

CASE REPORT

A 28-year-old male received a blow to the left side of his face due to road traffic accident. Initially, he noticed drooping of the left side of his face. By the next day, he developed similar symptoms on the right side and was unable to close both his eyes. There had been no loss of consciousness and the patient later recalled landing awkwardly on the left side of his face. He also reported an altered sensation to taste without hyperacusis. On examination, the patient was alert, orientated, and obeying commands. There was a bilateral lower motor neuron type of the facial nerve distal to the stapedius muscle. Other cranial nerves and peripheral nerves were intact and systemic examination was unremarkable. Plain computed tomography (CT)-scan of brain revealed, bilateral temporal bone fracture with left temporal thin extradural hemorrhage, left temporoparietal contusions, and diffuse brain edema (Figures 1-4).

DISCUSSION

Unilateral facial nerve palsy (FNP), with an incidence of around 25/100,000 population, is a common neurologic disorder mimicking a stroke. It often leads to emergency department visits. Bell’s palsy, also known as idiopathic facial paralysis, is the most common cause of unilateral facial paralysis, accounting for approximately 70% of these cases.1 Bilateral FNP is exceedingly rare, representing less than 2% of all the facial palsy cases, and has an incidence of 1/5,000,000 population. Bell’s palsy accounts for only 23% of bilateral facial paralysis.2

Idiopathic bell palsy is a common cause, but other reasons—such as Guillain-Barre syndrome, multiple idiopathic cranial neuropathies, Lyme disease, sarcoidosis, meningitis (neoplastic or infectious), brain stem encephalitis, benign intracranial hypertension, leukemia, Melkersson-Rosenthal syndrome (a rare neurological disorder characterized by facial palsy, granulomatous cheilitis, and fissured tongue), diabetes mellitus, human immunodeficiency virus infection, syphilis, infectious mononucleosis, malformations as Mobius syndrome, vasculitis, or bilateral neurofibromas...
must be considered and ruled out by diagnostic testing or clinical presentation.2–4

Bell’s phenomenon (Figure 4) (also known as the palpebral oculogyric reflex)5 is a medical sign that allows observers to notice an upward and outward movement of the eye, when an attempt is made to close the eyes. The upward movement of the eye is present in the majority of the population and is a defensive mechanism. The phenomenon is named after the Scottish anatomist, surgeon, and physiologist Charles Bell.6 Bell’s phenomenon is a normal defense reflex present in about 75% of the population, resulting in elevation of the globes when blinking or when threatened (e.g., when an attempt is made to touch a patient’s cornea). It becomes noticeable only when the orbicularis oculi muscle becomes weak as in, BFP. It is, however, present behind forcibly closed eyelids in most healthy people and should not be regarded as a pathognomonic sign.

Trauma accounts for only a small percentage of cases of BFP and is associated with skull base and temporal fractures.7 However, the diagnosis of traumatic BFP should essentially follow the same principles as that of unilateral facial palsy. A detailed history and careful examination are imperative. The time of onset of facial paralysis is important in determining the type and site of the lesion. Any hearing loss, dizziness, cerebrospinal fluid otorrhea or rhinorrhea, and temporomandibular joint dysfunction are significant. Assessment of the facial nerve should be complemented by testing hearing, the stapedius reflex, taste, and Schirmer’s tear test.

In the context of trauma, laboratory tests are of little value. Similarly, plain skull X-rays offer little information and where there is suspicion of a fracture further imaging is mandatory. High-resolution CT is the investigation of choice because it provides accurate localization of fractures and post-traumatic state of the middle ear and facial nerve canal.8 Magnetic resonance imaging (MRI) of the brain is not routinely performed for facial paralysis. However, gadolinium enhanced MRI is accurate in predicting the site of facial nerve injury.9 Electromyography should be a part of the full clinical assessment and is a reliable prognostic indicator. However, assessment of the facial nerve in BFP may be difficult because in a unilateral facial palsy the extent of nerve degeneration is determined by comparing the paralyzed side with the normal side.
The majority of studies performed are for idiopathic or unilateral facial palsies and these suggest steroids are beneficial. Our patient with BFP was managed using this approach but was unable to close his eyes, and eye care is essential to prevent keratitis, corneal breakdown, and blindness. The treatments include administration of artificial tears. Surgery is only required when there is penetrating trauma to the temporal bone or transection of the facial nerve. Surgical decompression of the facial nerve after blunt trauma is controversial as the majority of these cases resolve spontaneously.9,10

CONCLUSION

This case is particularly notable because of an unusual presentation of delayed BFP following trauma in a 45-year-old patient. To our knowledge, the present case represents one of the very extremely rare cases of delayed BFP following trauma.

REFERENCES