

# An unusual case of facial nerve palsy due to minor face trauma: A rare case report

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## Abstract

There can be various causes of facial palsy, and sometimes the cause remains unidentified (Bell's palsy). Among the various causes of facial palsy, trauma is a major one. Depending on the severity of paralysis, traumatic facial palsy can be medically managed using corticosteroid and eye care or with surgical decompression. In selective cases with incomplete facial palsy, radio-imaging studies may not always be required. We present the case of a 13-year-old boy who presented to the primary-level hospital with a complaint of facial palsy following minor trauma to the face (slapped over the face by a friend). His Sunnybrook Score was 63/100. We managed him with prednisolone (1 mg/kg/day) for 2 weeks and then tapered, and with eye care with artificial tears for 6 weeks. There was a complete resolution of symptoms in 6 weeks. Incomplete facial paralysis due to trauma to the face can be managed medically with corticosteroids and proper eye care with artificial tears.

## Keywords

Trauma, facial palsy, Bell's palsy, case report

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## Background

Bell's palsy is an acute-onset lower motor type of facial neuropathy with unknown etiology.<sup>1–4</sup> It is a common cause of facial paralysis worldwide. Facial muscle weakness is rare in itself with an annual incidence of 30 per 100,000 population.<sup>5</sup> Facial muscle weakness can be complete (paralysis) or partial (paresis). Most of the time, the cause of this facial weakness is unknown. Common proposed causes of Bell's palsy are viral infection, ischemia, and autoimmune reaction.<sup>2,3</sup> The presence of herpes simplex virus-1 (HSV-1) in the intra-temporal facial nerve endoneurial fluid proved the reactivation of HSV-1 around geniculate ganglion as a cause of Bell's palsy.<sup>3</sup>

The team of Baugh et al. worked out to make a clinical guideline on Bell's palsy.<sup>1</sup> They suggested that Bell's palsy is sudden in onset (<72 h) without a known cause. It is a diagnosis of exclusion. It rarely occurs on both sides. Some conditions such as stroke, brain tumors, tumors of the parotid gland or infratemporal fossa, cancer involving the facial nerve, and systemic and infectious diseases, including zoster, sarcoidosis, and Lyme disease, can cause facial paralysis. It is a self-limiting condition. It can affect any gender and is more common among those aged 15–45 years and in those with immunocompromised states, diabetes, respiratory ailments, or pregnancy.<sup>1</sup>

Facial nerve palsy can occur after traumatic facial and head injuries. Facial nerve palsy following trauma can be immediate or delayed.<sup>6–8</sup> Manifestation can be partial or complete. Onset is acute, that is, within 72 h of insult, and affects muscles of the upper and lower face. There can be pain over the neck, mastoid, or ear; altered taste sensation; hearing loss; or altered facial sensation.

In this article, a case of facial nerve paralysis following minor trauma over the face is discussed, which includes the clinical presentation of patients and management of the case. We used the guideline given by the team of Baugh et al for defining facial nerve palsy.<sup>1</sup> Sunnybrook's facial grading system was used for assessing the severity.<sup>9</sup>

## Case report

A 13-year-old boy from Terhathum District presented to the out-patient department of our hospital with complaints of not able to close the right eye, increased lacrimation, mouth

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**Figure 1.** Facial deviation to left side.



**Figure 2.** Loss of forehead crease of the right side.

deviation, and swelling of the right side of the face for 2 days.

He was fine before 2 days when he was slapped and punched over the face during a quarrel with a friend. However, he could not recall a particular site of insult. Following the trauma, he noticed that he was unable to close the right eye completely. There was increased tear production from the right eye. He also noticed deviation of the face to the left side. There was swelling on the right side of the



**Figure 3.** Air leak during the blowing of cheek from the right side.

face too. During the first visit, the patient did not reveal a history of trauma; later, only the parents reported the history of trauma.

There was no fever, loss of consciousness, limb weakness, cough, and ear discharge. He did not complain of decreased hearing or ear pain in the past. There was no difficulty in swallowing or aspiration. He denied a history of any recent viral infection, namely, mumps, measles, or herpes zoster. He did not have any other comorbidities. A history was taken from his mother and she denied of any known illness in other family members. The patient was not taking any medicines in the recent past and did not have any allergies to drugs or other substances.

On examination, he was 41 kg. His vital signs were within the normal range. The patient was sitting comfortably in the chair. The angle of the mouth had deviated to the left side (Figure 1). There was an absent forehead crease on the right side of the face (Figure 2). He could not close the mouth completely and therefore could not blow the cheek (Figure 3) and snarl. He was not able to close the right eye completely (Figure 4). On the otoscope examination, the right tympanic membrane had bulged and was erythematous. His clinical hearing assessment showed the sensorineural type of hearing loss with normal Rinne test in both ears and sound better heard in the left ear during the Weber test. Sensory, motor, and reflexes were normal. Other systemic findings were unremarkable. His Sunnybrook Score was 63 (resting symmetry=15; symmetry of voluntary movement=48; no synkinesis)

We counseled the patient for further evaluation in a higher center with a non-contrast computed tomography (CT) of the head as it was not available in our center. However, because of the long distance to travel and associated cost, the patient party opted to get treatment in our center only, on an empirical



**Figure 4.** Ptosis in the right eye.



**Figure 5.** Facial deviation was resolved.

basis. Therefore, we made a provisional diagnosis of right-sided traumatic facial nerve palsy with sensorineural hearing loss with right-sided otitis media with effusion. We treated him with oral prednisolone (1 mg/kg/day, that is, 40 mg q24h for 2 weeks, followed by 30 mg q24h for 2 weeks, 20 mg q24h for 2 weeks, 10 mg q24h for 2 weeks, and 5 mg q24h for 2 weeks and stopped), cefpodoxime 100 mg q12h for 7 days, cetirizine 10 mg q24h for 28 days, and carboxymethyl cellulose eyedrop in right eye q6h for 6 weeks. As the patient did not give a history of trauma in the first visit oral, acyclovir 400 mg q6h was given, which we stopped once the patient



**Figure 6.** Normal forehead crease in follow-up.



**Figure 7.** Normal blowing of cheek in follow-up.

disclosed the incident. The patient was followed up weekly. His symptoms completely resolved after 6 weeks of the incident (Figures 5–8). After complete resolution of symptoms, we followed him at the third month from the incident during which time he had no symptoms.

## Discussion

Traumatic facial nerve palsy causes a functional and cosmetic problem for the patient. Trivial to severe injury in the face can cause facial nerve palsy. In our case, simple fisting in the face led to paralysis of facial muscles. The diagnosis of Bell's palsy depends on the clinical features and radio-imaging of the head. A radio-imaging study of the head can



**Figure 8.** Normal closure of eyelids in follow-up.

reveal the fracture in the base or temporal bone of the skull where the facial nerve traverses. As radio-imaging of the skull is not available at our center and the patient party could not afford to visit other centers, we planned to manage the patient on clinical grounds.

We managed the case with an oral corticosteroid and eye lubricants. Minor facial nerve injury recovers spontaneously. The varicella zoster infection needs acyclovir and steroid, and Lyme disease can be treated with doxycycline or ceftriaxone. Surgical decompression is needed if the cause is malignancy like schwannoma of the facial nerve.<sup>10</sup>

During the first and third trimesters of pregnancy, there is an increased risk of herpes reactivation due to an increased level of cortisol. There can be perineural edema due to increased fluid levels. Corticosteroids, mainly prednisolone and methylprednisolone (as these do not cross the placental barrier), can be used, but precaution should be taken to avoid side effects of this drug.<sup>11</sup> In all age groups with Bell's palsy, acyclovir, corticosteroid, and artificial tear for eye care are key elements of management.<sup>1,2,4,10,12</sup> In Bell's palsy, a clinical guideline does not recommend surgical decompression, physical therapy, and acupuncture.<sup>1</sup>

In the management of the case, we used 1 mg/kg/day dose of prednisone. Various pieces of the literature suggest using 1–2 mg/kg of prednisolone for 5–10 days and then tapering the dose in the management of facial palsy of various causes, including Bell's palsy.<sup>13</sup> In Bell's palsy, acyclovir is used as an adjuvant drug in the dose of 1.6–3 g per day for 5–7 days.<sup>13</sup> However, a study done by K.J. Nam et al in patients with lower motor facial nerve palsy of various causes, namely, Bell's palsy, Ramsay Hunt syndrome, or traumatic facial palsy, showed no significant difference in outcome among the high dose (methylprednisolone equivalence of 634.7 mg for 12 days), moderate dose (methylprednisolone of 496 mg for 12 days), and low dose (methylprednisolone of 344 mg for 10 days)<sup>14</sup> of steroid. A study done by Lee et al.<sup>8</sup> suggests

using steroid within 24 h of the onset of facial palsy following trauma and should continue for more than 14 days. If there is no clinical improvement in 4 months or there is a recurrence of the symptoms, then comprehensive evaluation is required to rule out malignancy, autoimmune causes, congenital vascular disorders, and other systemic causes.<sup>13–15</sup>

A facial palsy following a head injury can sometimes manifest later in the course. These cases had poor outcomes when left for the natural course of recovery. So early decompression surgery would result in faster recovery of facial palsy.<sup>6</sup> Early detection of these facial nerve denervation can be done by electro-diagnostic study.<sup>7</sup> A certain group of patients may benefit from surgical decompression, such as patients with complete paralysis (House-Brackmann 6/6) presented within 14 days of symptom onset, greater than 90% degeneration on electroneurography testing, and absence of electromyography activity.<sup>16</sup> For chronic cases of facial palsy, physical therapy can help.<sup>1,2,10,13</sup>

This case was diagnosed based on clinical findings. Neuro-imaging studies were not done due to the low economic condition of the patient to travel to other centers and lack of facility at our hospital. However, the outcome of the patient was good. Many a time, good clinical judgment can be enough to treat patients with incomplete facial palsy. This does not mean that we can generalize it and treat patients with facial palsy without radio-imaging studies.

## Conclusion

Even minor trauma to the face can lead to facial palsy. Facial nerve paralysis due to trauma can be managed with oral steroids and eye care lubricants (artificial tears) only if complete paralysis is not present. Eyecare is recommended during nighttime and in contact with the sun. Close follow-up is required during conservative management.

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## Availability of data and materials

All the available data and materials are included in the manuscript.

## Declaration of conflicting interests

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## Ethical approval

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## Informed consent

Written informed consent was obtained from the patient's mother 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.

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