CASE REPORT

Bell's palsy: Two case reports and review of literature
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Abstract

Bell’s palsy is a peripheral seventh cranial nerve neuropathy, usually resulting from infective, inflammatory, post-local anesthetic complication, or trauma. It is the most common cause of unilateral paralysis of the face. The onset may be sudden or delayed. This paper presents two cases of Bell’s palsy which were diagnosed in our department along with their review of the literature. Here, we emphasize the significance of the identification of Bell’s palsy and referral to the medical hospital for additional diagnostic services.

Keywords:
Bell’s palsy, neuropathy, post local anesthetic complication, trauma

Introduction

Facial nerve paralysis is a debilitating condition. Facial nerve disorders are often devastating due to the facial disfiguration and the subsequent physical limitations and difficulties associated with eating and facial expression (mask-like face) secondary to the disorder. Facial nerve paralysis can be unilateral or bilateral.[1]

Based on the time elapsed from the moment of the injection to the onset of the symptoms, it could be either immediate or delayed. The paralysis occurring within minutes of injecting local anesthetic with a recovery period of 3 h or less is immediate type. However, in the delayed type, the symptoms appear within several hours usually 72 h to several days, while recovery takes 24 h to several months. Typically, sudden onset and reaches peak within 48 h. The patients often suspect they have had a stroke or have a tumor and that the disfigurement will persist forever. Bell’s palsy patient visit the emergency ward before going to any other physician, and it takes several hours to become obvious as most of the cases are likely to begin during sleep, hence, observed in the morning.

The forehead is mostly involved, followed by lower third of the face. The patient finds it difficult to close the eye completely and smile. Salivation is either increased or decreased in some cases. A central cause is suspected, if there is paralysis involving, only the lower half of the face. Diplopia is oftenly observed intracranial stroke or supranuclear lesion cases. In delayed cases, weakness of the facial muscle on the opposite side, traumatic injury, or infection is suspected.[2] Progression to facial palsy takes upto 7 to 10 days. The differential diagnosis given is Guillain-Barré syndrome, Lyme disease, meningitis, otitis media, Ramsay Hunt syndrome, and sarcoidosis.

Case 1

A male patient aged 18 years reported to the outpatient departments (OPD) of oral medicine and radiology complaining of difficulty in closing the right eye and dragging of the mouth to the left side on making an effort to smile for 1 month [Figure 1]. The patient gave a history of root canal treatment under local anesthetic administration 24 h before the onset of the symptoms [Figure 2]. Shifting of the mandible to the right side was observed on opening the mouth. Watering of the right eye was seen. When the patient was asked to close his eyelids, the right eyeball rolled up and was unable to close the right eye completely. On making an effort to smile, the left corner of the mouth is dragged up, on frowning wrinkles were not formed on the right half of the forehead, and also the obliteration of nasolabial fold was seen [Figure 3 and 4]. Diagnosed as a case of Bell’s palsy was made and neurological consultation was advised.

Case 2

A female patient aged 45 years reported to the OPD of oral medicine and radiology complaining of mouth shift toward the right side from last 20 days. The patient got injured during the
physical assault 1 month back and was having earache for 8 days. Later on, after taking ayurvedic medications, she was absolutely fine for few days but suddenly 20 days back after exposure to cold and she had difficulty in opening the mouth while having food, drooping of the corner of the mouth, drooling of saliva, and slurring of speech. Medical history revealed that the patient was hypertensive for 4 years and took medication for the same.

General physical examination revealed that she was moderately built, well oriented, and on clinical examination, there was obvious facial asymmetry, on frowning wrinkles not formed on the left side, involuntary blinking of the right eye. The patient was unable to close her eye voluntarily, and eyeball was rolling upward while closing and also had redness of the sclera of the left eye since the onset of the palsy [Figure 5]. On smiling, there was decreased activity of the muscles on the left side, and there was deviation of angle of the mouth [Figure 6]. She had no change in taste sensation or paresthesia, no xerostomia, no dry eyes or tearing on salivation, and no excessive facial sweating or sweating on salivation, but drooling of saliva was present because of which fissuring of the corner of the mouth was observed suggesting angular cheilitis. Patient’s hearing and speech were normal. Diagnosed as a case of Bell’s palsy was made and neurological consultation was advised.

Discussion

Sir Charles Bell originally described Bell’s palsy in 1821. It is an idiopathic, self-limiting, and unilateral facial palsy. Although there are many theories, the exact cause is not known. Familial occurrence has been reported and reactivation of herpes zoster in the geniculate ganglion, nerve demyelination, nerve edema or ischemia, autoimmune damage to nerves, and vasospasm of vessels associated with nerves. The most striking feature is Bell’s phenomenon (Bell’s sign) which is characterized by the rolling of the eyeball upward while making an effort to close the eyelid which was observed in both of our patients, and when the patient
was asked to frown, his or her eyebrows, the side of the forehead with the palsy will remained flat and distortion was observed on smiling which are other peculiar features of Bell’s palsy.\[^4\]

Almost 67% of the cases the orbicularis oculi muscle is not functioning properly. The production of tears is decelerated. The early signs include inability to close the eye, drooping of mouth, eyebrows, and disappearance of the nasolabial fold. Corneal ulceration is rare. Delayed signs are overall muscle contraction of face and permanent disfiguring facial paralysis (rare).\[^5\]

Almost 50% of the affected patients may complain of pain in the posterior auricular region. In case of trauma, the patient experiences pain 2–3 days before facial palsy in about 25% cases. If he or she has experienced trauma, which may account for the pain and facial paralysis as happened in our second case, she gave a history of earache after the physical assault, and it continued for 8 days.

Almost 33% of patients hyperacusis in the ear on the same side of the paralysis are felt secondary to the stapedius muscle weakness.

While in only 33% taste alteration found, 80% of patients showed decreased sense of taste, but in both of our patient taste sensations were maintained. Complete recovery seen, when the taste sensation is recovered at the earliest.

About 77% of patient, in the endoneurial fluid, human simplex virus was found, as supported by the fact that antiviral treatment showed better results in Bell’s palsy patient, supporting the involvement of herpes simplex virus in its pathogenesis.\[^6\]

Oral examination includes taste and salivary dysfunction in many patients with Bell palsy. The affected side has decreased taste compared with the normal side.

If abnormality is suspected of neurological origin, further testing, such as magnetic resonance imaging of the brain, lumbar puncture, and EMG is advised.\[^7\] House and Brackmann categorized Bell’s palsy on a Scale of I to VI.

- Grade I is normal facial function
- Grade II is mild dysfunction, complete eye closure, and normal symmetry at rest
- Grade III is moderate dysfunction, complete eye closure, and noticeable asymmetry at rest
- Grade IV is moderately severe dysfunction, incomplete eye closure, and obvious asymmetry
- Grade V is severe dysfunction, incomplete eye closure, and only twitch of gross motor movement
- Grade VI is total paralysis.\[^8\]

In Grades I and II good outcome is expected, Grades III and IV represent moderate outcome and Grades V and VI describe poor results. Grade VI is defined as complete facial paralysis; all of the other grades are defined as incomplete. An incomplete facial paralysis denotes an anatomically and, to some degree, functionally intact nerve. The degree of facial nerve function should be noted in the chart at the patient’s initial visit.

### Management

Spontaneous improvement is generally seen within 6 months in most cases. It is believed that the treatment is more likely to be effective before 72 h and less effective after 7 days. The combination of acyclovir 400 mg 5 times/day and prednisolone 40–60 mg daily for a week is believed to be more effective than steroid alone. Supportive measures include: Protecting the cornea with an eyepad or surgical placement of gold weights in the upper lid. Artificial tear substitutes should be used. Bell’s Palsy can be treated with injections of botulinum toxin.\[^9\]

### Conclusion

By taking thorough history and clinical examination, the diagnosis of Bell’s palsy was made. The features unique of Bell’s palsy include unilateral facial palsy and the absence of signs and symptoms of ear infection and cerebrovascular disease. As dental practitioners, we should diagnose the case as soon as the patient reports and refer the patient for further evaluation to the concerned medical expertise.
References

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