

Innovations

Bell's palsy - a case report

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Abstract

Bell's palsy is a neuropathy involving the seventh cranial nerve also known as facial nerve. It is usually caused by traumatic, infective, inflammatory or compressive conditions of the nerve. Many cases are also with no identifiable etiologies and are classified as idiopathic. Acute inflammation and edema of the cranial nerve VII can lead to compression and ischemia. The most common cause of bell's palsy is herpes simplex virus but there are several reports of other viruses such as Epstein-Barr virus, human immunodeficiency virus and hepatitis B virus involved with similar presentation. We present a case of a seventeen-year-old female with bell's palsy.

Keywords : 1.Bell's palsy, 2.facial nerve disorder, 3.facial nerve paralysis, 4.seventh cranial nerve.

Introduction

Bell's palsy is a neuropathy involving the seventh cranial nerve, also referred to as the facial nerve. It had been first described by Dr. Charles Bell in 1821^[1]. It is usually caused by traumatic, infective, inflammatory or compressive conditions on the nerve. Many cases with no identifiable etiologies exist and are classified as

idiopathic. Bell's palsy is usually unilateral and can be complete or partial^[2]. Each side can be affected equally. Acute inflammation and edema of the cranial nerve seven can lead to the compression and eventual ischemia. The most common site is in the labyrinth segment^[3]. The most common viral cause of bell's palsy is herpes simplex virus (hsv) but there are several reports of other viruses such as epstein-barrvirus^[4], human immunodeficiency virus^[5] and the hepatitis b virus^[6] involved with similar presentation. It is the most common acute mono-neuropathy, or disorder affecting a single nerve, and is the most common diagnosis associated with facial nerve weakness/paralysis. Bell's palsy is a rapid unilateral facial nerve paresis (weakness) or paralysis (complete loss of movement) of unknown cause. The condition leads to the partial or complete inability to voluntarily move facial muscles on the affected side of the face^[1]. Although typically self-limited, the facial paresis/paralysis that occurs in bell's palsy may cause significant temporary oral incompetence and an inability to close the eyelid, leading to potential eye injury. Additional long term poor outcomes do occur and can be devastating to the patient^[7]. Treatments are generally designed to improve facial function and facilitate recovery. We present a case of a seventeen-year-old female with bell's palsy.

Case presentation

A seventeen-year-old female patient reported to our dental op with chief complaints of pain on her right side of face for the past 4 days. Pain is present continuously and associated with burning pain along with watery eyes in her right eye. Patient has difficulty during closing mouth, deviation of mouth to right side while speaking and smiling. On inspection, the patient has difficulty in closing the right eye, raising eyebrows of right eye, deviation from mouth to opposite side while smiling, inability to blow out air.

Pre-op



Figure 1: - the pictures represent a) inability to close her eyes, b) deviation of mouth to right side, c) inability to blow out air, d) inability to raise her eyebrows.

The patient had a history of fever for the last four days but not reported with nausea, vomiting or other systemic symptoms. Facial asymmetry with complete lower motor neuron type right facial nerve paralysis was observed involving the right eyes and eyebrows as seen in figure 1. No active hsv or herpes zoster lesions were found in the oral mucosa. No lymphadenopathy was observed. We diagnosed it as right hemifacial bell's palsy of viral origin and was started on course of acyclovir, prednisolone, vitamin b complex. She was scheduled for a follow-up after two weeks and significant recovery was seen.



Figure 2: - the pictures represent a) ability to close her eyes to some extent, b) deviation of mouth to right side, c) inability to blow out air, d) ability to raise her eyebrows to some extent.

Post op



Figure 3: - the pictures represent a) ability to close her eyes, b) no deviation of mouth to right side, c) ability to blow out air, d) ability to raise her eyebrows

Discussion

The term bell's palsy is used to describe an acute-onset, idiopathic facial paralysis resulting from a dysfunction anywhere along the peripheral part of the facial nerve from the level of the pons distally^[7]. The signs of bell's palsy include widening of the palpebral fissure, flattening of the nasolabial fold, and drooping of one corner of the mouth when smiling^[3]. These signs occur on the same side of the face as the lesion. There may be an inability to wrinkle half of the forehead, to close one eye completely, and to purse the lips ^[8]. In bell's palsy condition, the eye cannot be closed without a simultaneous movement of the eyeball upwards and outward. The symptoms of bell's palsy include pain and numbness on the affected side of the face, especially in the temple, mastoid area, and along the angle of the mandible ^[5]. The mouth may be dry due to decreased salivary secretion and there may be loss of taste on the anterior two-third of the tongue as well as hyperacusis on the affected side. The most important treatment measure is supportive care for the eye ^[9]. Daytime artificial tears and a night time eye patch are recommended to prevent corneal abrasion^[10]. For

persons with persistent paralysis of the facial nerve, treatment modalities such as steroid therapy and surgical nerve decompression have been prescribed. This patient's response to acyclovir confirms the diagnosis of viral bell's palsy. There are multiple pathologies such as ramsay hunt syndrome, tumors, that were included in the differential diagnosis and ruled out eventually. Since most physicians rely on the clinical signs and symptoms for diagnosis and are ruled out eventually. Lyme disease usually presents with flu-like symptoms, "bull's-eye" rash of erythema migrans and a lyme antibody titre can rule out the disease. More invasive approaches such as lumbar puncture are usually avoided but should be considered for severe cases. The treating physician relied more on the clinical signs and symptoms to make her diagnosis and treat the patient.^[11]

While a viral etiology is suspected, the exact mechanism of bell's palsy is currently unknown. Facial paralysis is the result from facial nerve inflammation and edema. As the facial nerve travels in a narrow canal within the temporal bone, swelling may lead to nerve compression and result in temporary or permanent nerve damage^[12]. The facial nerve carries nerve impulses to muscles of the face and also to the lacrimal glands, salivary glands, stapedius muscle, taste fibers from the anterior tongue, and general sensory fibers from the tympanic membrane and posterior ear canal. Accordingly, patients with bell's palsy may experience dryness of the eye or mouth, taste disturbance or loss, hyperacusis, and sagging of the eyelid or corner of the mouth. Ipsilateral pain around the ear or face is not an infrequent presenting symptom. Numerous diagnostic tests have been used to evaluate patients with acute facial paresis/paralysis for identifiable causes or aid in predicting long-term outcomes^[13]. Many tests were considered in the development of this guideline, including the following: imaging: computed tomography (ct) or magnetic resonance imaging (mri) to identify infection, inflammation, tumor, fractures, or other potential causes for facial nerve involvement electrodiagnostic testing to stimulate the facial nerve to assess the level of facial nerve insult serologic studies to test for infectious causes^[14]. Hearing testing to determine if the cochlear nerve or inner ear has been affected vestibular testing to determine if the vestibular nerve is involved schirmer tear testing to measure the eye's ability to produce tears .most patients with bell's palsy show some recovery without intervention within 2 to 3 weeks after onset of symptoms and completely recover within 3 to 4 months^[13]. Moreover, even without treatment, facial function is completely restored in approximately 70% of bell's palsy patients with complete paralysis within 6 months and as high as 94% of patients with incomplete paralysis; accordingly, as many as 30% of patients do not recover completely. Given the effect of facial paralysis on patient appearance, quality of life, and psychological well-being, treatment is often initiated in an attempt to decrease the likelihood of incomplete recovery. Corticosteroids and antiviral medications are the most commonly used medical therapies. New trials have explored the benefit of these medications. The benefit of surgical decompression of the facial nerve remains relatively controversial.

Acyclovir is an antiviral that helped treat the cause of bell's palsy in our patient. She was also administered prednisolone which helped decrease the inflammation and artificial tears to keep the eyes moist and prevent keratitis.^[15]we also advised the parents to avoid exposure to any toxic fumes or dust during his recovery phase. While this patient recovered, physicians should also educate parents of warning signs. There are several documented cases where patients have lasting facial weakness and those with persistent clinical signs without improvement should undergo further investigation. While there are many conflicting opinions over the use of prednisolone along with acyclovir, the patient showed a good response to the combined therapy. Since children are vulnerable to the side effects of prednisolone, the dose should be minimal and properly tapered off.^[8]

Conclusion

We report a case of bell's palsy seen in a seventeen-year-old female who responded well with a combined therapy of prednisolone and acyclovir. Diagnosis was made mostly based on clinical findings and proper tests were carried out to rule out the possible differential diagnosis of the symptoms. Proper follow-ups were scheduled to monitor the progress of the patient. The prognosis is good and complete healing with restoration of facial function takes place.

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