



BELL'S PALSY - A CASE STUDY

Physiotherapy

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ABSTRACT

Bell's Palsy is an idiopathic condition that causes acute facial paralysis of the peripheral facial nerve in the absence of other neurological abnormalities. Case Presentation: A 52-year-old woman reported right-sided facial weakness and asymmetry. He was presented with slurred pronunciation during speech, lack of movement of right eyebrows, involuntary blinking of right eye, inability to chew the food, wrinkles on forehead, and inability to hold food and water in mouth. The patient received 3 weeks of therapy, including Electrical Stimulation facial muscle strengthening exercise and modified mime therapy. Management and outcomes: The patient receives electrical stimulation for 30 minutes and massage for 15 minutes and strengthening exercise for 3 weeks. Muscle strength was measured using MMT (Manual Muscle Testing) and prognosis was noted with SD curve. Conclusion: Through our research, we concluded that massage, Modified Mime Therapy and strengthening exercise can improve the functional ability of facial muscles.

KEYWORDS

Bell's palsy, Modified Mime therapy, Facial massage, Strengthening exercise, MMT, House-Bracman scale.

INTRODUCTION

Bell's palsy can be defined as unilateral paralysis of the facial muscles resulting from an intrinsic lesion of the facial nerve. In 1821, Sir Charles Bell described it the first time. Bell's palsy is an acute condition which occurs due to damage of facial nerve along its course at the level distal to Pons. It is an idiopathic facial condition. Facial nerve palsy results in weakness of facial muscles, atrophy, asymmetry of face and also disturbs the quality of life. A study showed that above age of 60 years occurrence of Bell's palsy was high in people having a history of diabetes and hypertension. Although Males and females are equally affected, the incidence in the females was higher during pregnancy. Bell's palsy occurs in every class of population affecting people of all the age groups but the most common age group affected is 15 - 50 years with equal sex predilection accounting 11 - 40 cases per 100,000. If facial palsy is not treated properly then it may result in variety of complications like motor synkinesis, dysarthria, contractures of facial muscles, and crocodile tear.

The causes can be compression of facial nerve along the nerve course, herpes infection, exposure to cold air, middle ear infections, traumatic injuries or post surgeries of dental and ear, nose or throat.

Current facial paralysis treatment consists of a combination of pharmacological therapy, facial neuromuscular re-entrainment physiotherapy or surgical intervention by dynamic and static facial reanimation techniques. This is a diagnosed case of right facial nerve palsy which was treated under physiotherapy department with proper rehabilitation protocol.

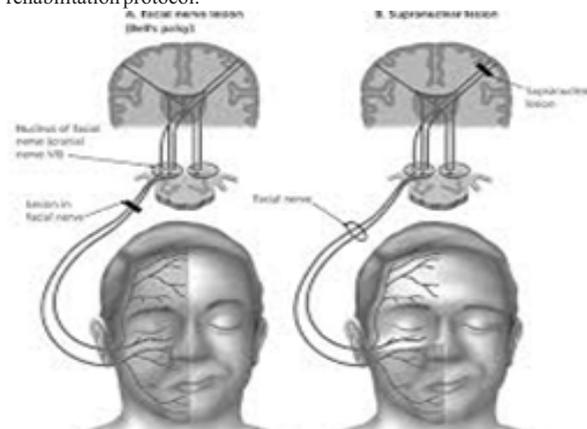


Figure 1:

CASE STUDY

A 52-year-old male with right hand dominance, gold merchant by occupation visited the Neurology department at Ramakrishna Hospital who was then referred for rehabilitation to physiotherapy department with complaints of slurred pronunciation during speech, lack of movement of right eyebrows, involuntary blinking of right eye, inability to chew the food, wrinkles on forehead, and inability to hold food and water in mouth. He had a history of prolonged exposure of cold winds.

At Neurological department several investigations were done like complete blood count, magnetic resonance imaging, and computed tomography scan with proper examination and was diagnosed as Bell's palsy of right facial nerve. All the vitals signs were normal. The laboratory investigations were in normal range with haemoglobin: 15.5 g / dL, renal function test (serum creatinine 0.9 mg / dL serum urea: 30 mg / L. The patient had no significant medical and surgical history. He is not a smoker, tobacco and alcoholism. The physician prescribed him oral steroids, course of antibiotics along with ophthalmic ointment to prevent corneal abrasions. Patient reported that his facial paralysis came on suddenly and was accompanied with pain in right ear.

The consent form was signed by the patient and examination was done in the sitting position. On inspection there was asymmetry of face, deviation of angle of mouth, inability to close the eye, and drooping of face on right side. On examination, the facial nerve was examined with several movements like blowing air in the mouth, smiling, nasal flaring, elevation of eyebrows, frowning of eyebrows.

The facial nerve provides the motor functions for the facial expression muscles (frontalis, orbicularis oculi, buccinators and orbicularis oris and stapedius, parasympathetic for the tear and submandibular glands and sensory feedback from the two thirds of a tongue's anterior movement. Patients with dry eyes, lowered corneal reflection, drooling, hyperacusis, impaired sensation, otalgia and speech joint disorders can also develop facial droops. This patient usually criticizes all the muscles on one side of the face for weakness or paralysis.

The face falls and the fleshy fold go away, the front falls, and the mouth's corner drops. When he attempted to close, his eyelids they wouldn't shut down and the lower eyelids would roll up (bell's phenomenon). Often due to lack of lubrication and excessive contact, the eye becomes irritated, the patient stated. Tear production decreases; however, due to the loss of control of the lid, tears can appear excessively to be tearing from the eye. Food and saliva will bathe and break from the corner on the affected side of the mouth. A

patient whose facial defects are rapidly onset. A history of paralysis initiation and development is significant because it starts slowly over more than two weeks. Medical history of peripheral nerve paralysis includes recent eruption, arthralgia, or fever. Physical research also involves an evaluation of cranial nerve activity and all facial muscles to determine front involvement. There was difficulty in performing movements. Other cranial nerves were intact. The strength duration curve of patient was taken to know the rate of denervation. The House Brackmann Scale score was 5 (severe dysfunction).

MUSCLES (RIGHT)	PRE	POST
Frontalis	2	4
Supercili Corrugator	2	4
Orbicularis Oculi	1	3
Nasalis	1	3
Zygomaticum	1	4
Orbicularis Oris	1	3
Bucinator	3	5
Procerus	1	3
Mentalist	3	5
Levator Labii	1	3

Treatment Protocol:

WEEK 1	Facial massage, Electrical stimulation
WEEK 2	Strength training, Mime therapy
WEEK 3	Mime therapy

Facial Massage:

In Bell's palsy, the facial muscles are typically drawn towards the unaffected side. This condition may lead to stiffness on the side of the face that is affected. Therefore, administering massage for Bell's palsy is intended to stimulate the sensory receptors and subcutaneous tissue of the skin, thereby producing a relaxing effect and alleviating facial stiffness. The massage techniques frequently applied to the facial muscles consist of (1) stroking, (2) effleurage, (3) finger kneading, and (4) tapotement.

Forehead: Gently massaged in an upward direction from the eyebrows to the hairline, and then reverse the motion.

Cheeks: Employed circular motions on the cheeks to enhance muscle activity.

Mouth/Lower Facial Muscles: Hold the corners of the lips with thumb and index finger, then gently pushed the lips forward and upward to form a smile.

Eyebrows: Used a finger to press the eyebrows together to facilitate movement.

Electrical Stimulation:

Intermittent galvanic current was used to stimulate the affected muscles (Frontalis, Supercili Corrugator, Orbicularis Oculi, Nasalis, Zygomaticum, Orbicularis Oris, Bucinator, Procerus, Mentalist, Levator Labii). 30 contractions for each muscle was given with 20 seconds of rest period.

Strength Training:

Forehead:

Utilizing the fingers to assist in raising the eyebrows on the affected side, then attempt to elevate the eyebrows symmetrically on both sides.

Eyes:

Gently close one eye and wink, employing your fingers to aid in closing the eye if necessary. Look downward and close both eyes to manage Bell's phenomenon.

Nose:

Flare the nostrils by pressing down on the skin adjacent to the nose while attempting to wrinkle it, followed by taking a deep breath through the nose.

Mouth:

Smile with your mouth open, then close it, using your fingers to assist in lifting the corner of the mouth on the affected side. Pucker your lips and extend them outward as if you are kissing or whistling.

Cheeks:

Inflate your cheeks and exhale air, repeating this exercise several times.

Tongue:

Press your tongue against the roof of your mouth, position the tip of your tongue against the back of your upper teeth, and extend your tongue while curling it towards your nose.

Modified Mime Therapy:

Neck extension: In prone position, the patient is asked to extend the neck and both eyebrows are lifted simultaneously.

Neck lateral rotation: In prone position the patient is asked to track the light which is shown by the therapist.

CONCLUSION AND DISCUSSION

At the end of this study, the subject got drastic improvement in the muscle activation and functional improvement. This research focused on detailing the alterations in the consequences of facial nerve paresis throughout a timeframe during which physiotherapy was administered. Notable enhancements were observed in nearly all consequences of facial nerve paresis across all three levels (impairments, disabilities, and quality of life).

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