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IMPROVING FUNCTIONAL OF FACIAL ABILITY FOR CHRONIC BELLS PALSYS BY USING MODALITIES MASSAGE AND MIRROR EXERCISE: A CASE REPORT

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Abstract

Introduction: Bell's palsy is a weakness or paralysis of the peripheral facial nerves, is acute, and the cause is unknown (idiopathic). In Indonesia, the exact incidence of Bell's palsy is difficult to determine. Data collected from 4 hospitals in Indonesia in 2010 found that the frequency of Bell's palsy was 19.55% of all neuropathy cases and the highest was at the age of 21-30 years. Problems that arise in right Bell's palsy are facial asymmetry, stiffness and thickness on the affected side of the face, decreased facial muscle strength on the injured side, the potential for tissue spasm and adhesions, and the potential for irritation of the eye on the injured side.

Case Presentation: A 23-year-old woman with the status of a student was referred to medical rehabilitation with complaints of slurred speech during a speech, lack of right eyebrow movement, unconscious right eye blinking, inability to chew food, forehead wrinkles, and inability to whistle.

Management and Outcome: The Exercise Program is given three times a week for two weeks according to a doctor's referral and each session lasts 30-45 minutes. A home program is recommended to be done every day with a dose of twice a day and each movement is repeated five times. Results were measured using the Ugo Fisch for facial function. After six treatment sessions, the patient showed the improvement are increase in the score on the frown expression by 4 points from 3 points to 7 points and the smiling expression increased by 12 points from 9 points to 21 points.

Discussion: Physiotherapy measures in the form of massage and mirror exercise have been given to these patients. massage has a positive effect in improving muscle function and relaxation to improve blood circulation, thereby reducing tension, anxiety and stress. Mirror exercise is a therapeutic intervention in which a mirror is used to convey visual stimuli to the brain by observing the unaffected body part when the individual performs a series of movements.

Conclusion: Through our research and previous research, we concluded that massage and mirror exercise can improve the functional ability of facial muscles.

Keywords: bell's palsy, physiotherapy, massage, mirror exercise, functional ability, ugo fisch scale



Introduction

Bell's palsy is a weakness or paralysis acute of the peripheral facial nerve and the cause is unknown (idiopathic). In Indonesia, the Bell's palsy incident is certainly difficult to determine. Data collected from 4 hospitals in Indonesia in 2010 found that the frequency of Bell's palsy was 19.55% of all neuropathy cases and the highest was at the age of 21-30 years. Problems that arise in bell's palsy dextra are facial asymmetry, stiffness and thickness on the face of the injured side, a decrease in facial muscle strength on the injured side, potential for spasm and tissue adhesions, and potential irritation of the eye on the injured side. In most people with Bell's palsy the paralysis will heal, but in some of them the paralysis heals with residual symptoms. These sequelae may include contractures, synkinesis or spontaneous spasms.

Massage is a structured series of pressure or touch. The hands and other body parts such as the forearms and elbows can be used to manipulate the skin, especially on the muscles by massaging, rubbing, hitting, and pressing. In Bell's palsy condition the facial muscles are generally stretched towards the healthy side, this condition can cause stiffness on the affected side of the face. So by giving massage in the case of Bell's palsy aims to stimulate sensory receptors and subcutaneous tissue on the skin to make a relaxing effect and can reduce facial stiffness. Massage techniques commonly given to the facial muscles, among others (1) stroking, (2) effleurage, (3) finger kneading, and (4) tapotement and mirror exercises are facial exercises on the injured side in front of a mirror. which can prevent muscle atrophy so it can improve muscle function. Previous research conducted by Amanati et al., (2017), entitled the effect of infrared and massage on bell's palsy dextra and Abidin Haryanto's research (2017), entitled the effect of infrared, massage and mirror exercise on bell's palsy, both studies have a good effect to increase the functional activity of facial muscles. Based on previous research, the author is interested in doing a combination of massage and mirror exercise techniques in Bell's palsy case.

Case Presentation

A 23-year-old woman as a student was referred to medical rehabilitation with complaints of slurred speech during speech, lack of right eyebrow movement, unconscious



right eye blinking, inability to chew food, forehead wrinkles, and inability to whistle. The patient suddenly feel this experience after being exposed to a prolonged cold wind and had been experienced for 7 months ago in August 2020 and had received acupuncture before.

In the outpatient physiotherapy section, several clinical examinations were using the Ugo Fisch scale with five examination criteria, namely; 1) facial symmetry at rest, 2) frowning, 3) closing the eyes, 4) smiling, and 5) whistling. The results of the examination showed that the face looked symmetrical, there was a decrease in right forehead wrinkles compared to the left forehead, closing the eyes looked normal, when the face smiled and pursed the lips forward there was a decrease in the activity of the right side of the facial muscles compared to the left side. There was no change in sensation or paresthesias, no pain in the ear or face area, the patient's speech and hearing were normal.

We have to do a functional examination at each therapy meeting using the Ugo Fisch scale. At the first examination meeting score is 65 with the result of a sufficient interpretation (30-69), the second and third meetings obtained the same score, namely 65 with the adequate result interpretation (30-69), the fourth meeting got a score of 69 with the adequate result interpretation (30-69) and for the fifth and sixth meetings a score of 81 was obtained with good interpretation of results (70-99). The results of the overall functional examination using the ugo fisch index are listed in table 1.

Tabel 1: The results of the overall functional examination using the ugo fisch index

Posisi	T0 Score	T1 Score	T2 Score	T3 Score	T4 Score	T5 Score
Rest	100% x 20 = 20	100% x 20 = 20	100% x 20 = 20	100% x 20 = 20	100% x 20 = 20	100% x 20 = 20
Wrinkle Forehead	30% x 10 = 3	30% x 10 = 3	30% x 10 = 3	70% x 10 = 7	70% x 10 = 7	70% x 10 = 7
Close eyes	100% x 30 = 30	100% x 30 = 30	100% x 30 = 30	100% x 30 = 30	100% x 30 = 30	100% x 30 = 30
Smile	30% x 30 = 9	30% x 30 = 9	30% x 30 = 9	30% x 30 = 9	70% x 30 = 21	70% x 30 = 21
Whistling	30% x 10 = 3	30% x 10 = 3	30% x 10 = 3	30% x 10 = 3	30% x 10 = 3	30% x 10 = 3

SCORE	65	65	65	69	81	81
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Management and Outcome

According to the agreement between the patient and the physiotherapist, the physiotherapy program provided is massage and mirror exercise as a home program. The Exercise Program is given three times a week for two weeks according to a doctor's referral and each session lasts 30-45 minutes. Applying the massage with several techniques, namely; 1) stroking, 2) effleurage, 3) finger kneading, and 4) tapotement on both sides of the face.

The home program is recommended to do every day and the frequency is twice a day and each movement is repeated five times such as standing in front of a mirror frowning, closing your eyes, smiling and pursed lips forward for movements that have not been able to be carried out optimally can be facilitated with fingers independently then practice reciting A, I, U, E, and O.

Results were measured using the Ugo Fisch for facial function. After six treatment sessions, the patient showed the improvement are increase in the score on the frown expression by 4 points from 3 points to 7 points and the smiling expression increased by 12 points from 9 points to 21 points. The results of the treatment can be seen in Table 2.

Tabel 2: The result of the treatments

Variable	Tools for measurement	Pre-test score	Post-test score	Comments
Face functional	Ugo fisch scale	65 poin	81 poin	Face functional increase 16 poin

Discussion

In this case study, the patient experienced functional improvement in facial movements after receiving physiotherapy. Significant changes are found in the M.occipitofrontalis muscle which functions to move the scalp such as raising eyebrows or making wrinkles on the forehead and the zygomaticus major muscle, the zygomaticus major is part of the oral muscle group. Other oral muscles, such as the zygomaticus minor, risorius, levator anguli oris, and buccinator muscles also help the zygomaticus major to produce a



smile (Abdurachman, 2018).

Bell's palsy is a peripheral facial nerve paralysis due to a non-suppurative, non-neoplastic, non-degenerative process and due to edema in the facial nerve for the stylomastoid foramen or slightly proximal to the foramen, which begins acutely and can heal itself without treatment (Amanati et al., 2017). Although there are many theories about the etiology of Bell's Palsy, the exact cause is unknown, but there are several factors that are suspected to cause Bell's Palsy, namely; after traveling long distances by vehicle, sleeping in the open, sleeping on the floor, hypertension, stress, hypercholesterolemia, diabetes mellitus, vascular disease, immunologic disorders and genetic factors (Adam, 2019). The patient complained of paralysis on the right side of the face after being exposed to cold winds during sleep at night which the authors suspected was the cause of bell's palsy in this patient (Amanati et al., 2017).

Physiotherapy measures is massage (stroking, euffleurrage, finger kneading, and tapotement) and mirror exercises have been given to these patients. massage has a positive effect in improving muscle function and relaxation to improve blood circulation, reducing tension, anxiety and stress. In Bell's palsy the facial muscles are generally stretched towards the healthy side, this condition can cause stiffness on the affected side of the face. So that by giving massage in the case of Bell's palsy aims to stimulate sensory receptors and subcutaneous tissue on the skin so that it provides a relaxing effect and can reduce facial stiffness and Mirror exercise is a relatively new therapeutic intervention that focuses on moving the limbs that are not damaged. It is a form of imagery with mirrors used to convey visual stimuli to the brain through observing the body parts that are not affected when the individual performs a series of movements (Abidin & Haryanto, 2017). So this is the reason why our patient's facial functional ability improved especially in frowning and smiling movements.

Conclusion

The cause of facial paralysis or bell's palsy has not been determined with certainty, therefore a detailed history, thorough clinical examination, and appropriate investigations will assist in further planning and implementation of appropriate physiotherapy modalities for a better prognosis. Through our research and previous research, we concluded that massage and



mirror exercise can improve the functional ability of facial muscles.

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