

Physiotherapy for a 38 years old man with Bell's palsy: A case report

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ABSTRACT

Introduction: Bell's palsy is regarded as temporary paresis of one side of the face and resulting in loss of facial function especially facial expressions. The aim of this case report is to share the evidence based plan of care of a Bell's palsy patient based on International Classification of Functioning, Disability and Health (ICF). **Case Report:** A 38-year-old male diagnosed as unilateral Bell's palsy. Patient complained of deviation of face towards the left side, unable to drink water and chewing difficulties. In addition, patient also complained of pain in the mastoid region and neck stiffness. Patient received a six weeks of dose based physiotherapy service including proprioceptive exercise, trophic stimulator, transcutaneous electrical nerve stimulation, facial neuromuscular rehabilitation and home exercise programs. Centre based physiotherapy was performed at center four sessions per week.

Each session consists of 45 minutes. During discharge, patient showed improvement in pain reduction at numerical pain rating scale by 4 cm and improvement of facial expression by 55% in accordance to Synkinesis Assessment Questionnaire (SAQ). Conversely, patient also showed improvement in ADL's, recreational activities and social gatherings. **Conclusion:** The case report showed that evidence based plan of care incorporating ICF helps in rehabilitation with full of potentials for a patient with Bell's palsy.

Keywords: Bell's palsy, International Classification of Functioning, Disability and Health (ICF), Physiotherapy, Synkinesis Assessment Questionnaire (SAQ)

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INTRODUCTION

Neurological disease remains one of the most important causes of activity limitation and participation restriction in daily activities. Majority of neurological conditions affects limbs and trunk thereby limiting motor

functions which affect functional activities. In addition, facial function can be affected with some neurological conditions. Among them, Bell’s palsy is currently considered the leading disorder affecting the facial nerve [1]. However, Bell’s palsy is a condition that affects the facial nerve causing paralysis of the face, mouth and eye unilaterally. A growing number of evidence showed that Bell’s palsy is the most common cause of acute onset unilateral peripheral facial weakness. The incidence of Bell’s palsy is 20–30 cases for 100,000 and accounts for 60–70% of all cases of unilateral peripheral facial palsy. Either sex is affected equally and may occur at any age. Left and right sides are affected equally [2]. The symptoms of Bell’s palsy range from mild to severe and most cases can last from two weeks to six months with a full recovery [3]. Bell’s palsy showed a wide range of symptoms and among them the most significant are drooping including the corner of the mouth which allow drooling, the inability to make normal facial expressions and loss of eyelid function. These symptoms impress psychological and physical effects upon the person and can immensely affect their quality of life [4]. Different researches [5, 6] describe case reports on Bell’s palsy which demonstrate the effects of Bell’s palsy on individual’s daily activities. One systematic review [7] stated that Bell’s palsy is a lower motor neuron type of paralysis therefore exercise therapy based on neuromuscular facilitation, education and mirror therapy improves facial muscles activity. In contrast, one recent Cochrane systematic review [8] found low quality evidence for effectiveness of electrical stimulation with massage and facial expression over placebo among patients with Bell’s palsy. The authors also concluded that moderate quality evidence supported in favor of exercises to get beneficial effects on facial disability among patients with Bell’s palsy compared with controls.

CASE REPORT

The patient was 38-year-old businessman living in Gaibandha district, Bangladesh. He was a self-invested shopkeeper. He is the only earning member of family. He has two daughters and one son who are currently studying in school. He has been suffering from hypertension for last three years and taking medication for this problem. About one and a half month ago suddenly he found his face deviated to left side. On that time, patient was not able to drink water, eyes remain open in right side and chewing difficulties. Earlier this affect he experienced pain in the mastoid region, headache and neck stiffness with fluctuation of blood pressure. Patient thought it as stroke and received medicine from local paramedics. After taking medicine for 14 days he was not improving and he as well as his family becomes anxious about his problems. Fortunately, the patient met with one of his cousins who received physiotherapy treatment from

centre for the rehabilitation of the paralyzed (CRP) and became functionally independent then the patient came to CRP for physiotherapy treatment and during assessment it was found that his face was leaning to the right, right shoulder was lower than the left, head was leaning slightly to the left, right cheek was lower than the left one and right lower corner of the mouth was lower (Figure 1). During local examination on face, it was found that patient had pain intensity 5 cm in a 10 cm numerical pain rating scale. A detailed neurological examination was performed (Table 1). Facial expressions were also examined and found asymmetry (Table 2 and Table 3). These results in an inability to raise eyebrows, wrinkle the forehead, or closing the eyelid. These deficits all result from involvement of the motor component of the facial nerve. Involvement of the parasympathetic fibers leads to decreased tear production and salivation. Involvement of the afferent fibers from taste receptors leads to alterations of taste sensation [8]. For activities of daily livings examination, patient showed problem in drinking water from a glass, eat something, brushing, chewing and taking care of environment. Consequently, patient’s problems were drawn in an ICF framework for better understanding of each component of framework at a glance (Figure 2). The main reason for incorporating ICF with this case was clearly understandable that Bell’s palsy affects a person as a whole. It not only affects the bodily system but also limitation in the activities of daily livings and the contextual factors.



Figure 1: Patient with right sided Bell’s palsy.

Table 1: Neurological examination

Test	Left	Right
Shagging of face	Nil	Present
Deviation of face	Present	Nil
Eye blinking	Normal	Absent
Muscle tone	Normal	Flaccid
Muscle weakness	Nil	Present
Sensation (light and pin prick)	Intact	Intact
Cranial nerves (CN)	Intact	Intact Except CN VII

Table 2: Facial expressions testing

Test	Left	Right
Happy face	Normal	Asymmetrical
Sad face	Normal	Asymmetrical
Fear face	Normal	Asymmetrical
Surprise face	Normal	Asymmetrical
Anger face	Normal	Asymmetrical

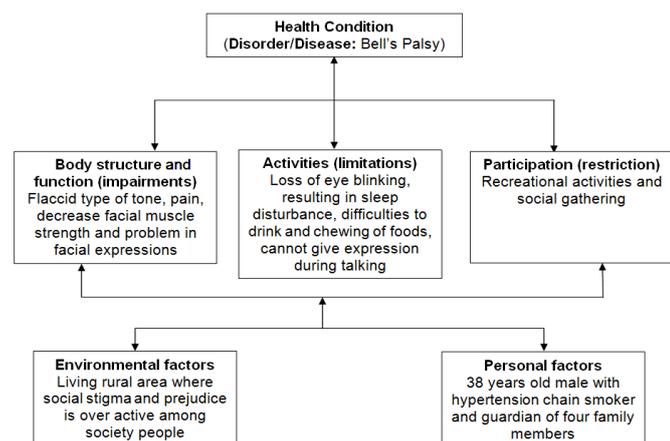


Figure 2: Problems of patient at a glance incorporating International Classification of Functioning, Disability and Health (ICF) framework.

Plan of Care

The short-term (within two weeks) plan was to normalize muscle tone, minimize pain, improve facial muscle activity especially orbicularis oculi, frontalis and corrugator. Besides, the long term (within six weeks) plan of care was to improve the quality of ADL's, ensure participation in recreational activities and social gathering.

Informed Consent

Prior to examination and application of treatment, an informed consent was taken from patient.

Interventions

The etiology and degree of facial paralysis are quite variable and so are its treatment and treatment outcomes at this time [9]. The detailed interventions were applied week to week basis which is as follows.

Session 1 and 2: *Impairments:* Moderate pain and flaccid type of muscle tone. *Treatment:* According to the agreed goal setting between patient and physiotherapist, pain was the first limiting symptom. Transcutaneous electrical nerve stimulator (TENS) was applied in face in constant mode of current for 20 minutes [10]. To improve the activity of frontalis, orbicularis oculi, corrugator,

orbicularis oris, platysma and zygomaticus minor and major, gentle stroking massage in upward and lateral direction for five minutes, trigger point stimulation for 3–5 minutes [11].

Session 3 and 4: *Impairments:* Mild pain and flaccid type of muscle tone. *Treatment:* Transcutaneous electrical nerve stimulator (TENS) was applied in face in constant mode of current for 10 minutes [10], Electrical stimulation (Tropic stimulator) on motor point of face for five minutes in each motor point [12]. Proprioceptive neuromuscular facilitation (PNF) in terms of stretching and strengthening exercise for five repetitions each muscles in each directions [13].

Session 5 and 6: *Impairments:* Flaccid type of muscle tone and loss of facial expressions. *Treatment:* re assessment of patient condition, continue treatment of week-1 plus gentle facial motor point stimulation for three to five minutes [14], facial neuromuscular re-education each muscle firstly by facilitation then assisted facilitation, facial expression exercise practice by sadness, happy, fear etc. for five times in expressions in front of mirror [7].

Session 7 and 8: *Impairments:* Loss of facial expression and problem in drinking water. *Treatment:* Re-assessment of patient condition, continue treatment of week-1 plus functional training of each affected muscles of face in front of mirror and practice of drinking water by glass after activation of orbicularis oris and levator anguli oris muscles [15].

Additional Treatment

Patient was advised to do some home exercises. All the home exercises were advised to perform five times in each direction and two sets per day. These exercises were stand in front of the mirror and try to wrinkle your forehead with hands, stand in front of the mirror and try to release the wrinkled forehead with hands, stand in front of the mirror and try to do some facilitation of check muscles, stand in front of the mirror and try to elongate both corners of mouth using fingers, stand in front of the mirror and try to keep your mouth 'O' shaped using fingers, stand in front of the mirror and try to close your both lips, stand in front of the mirror and start providing the main facial expressions and expressions like smiling, sad face, angry face and surprising face.

Outcome was measured by using numerical pain rating scale for pain measurement [16] and facial expression was measured by Synkinesis Assessment Questionnaire (SAQ) [13]. After eight sessions of treatment, patient showed improvement in impairments. i.e pain decreased by 4 cm in numerical pain rating scale and improved facial expressions by 55% in accordance with SAQ (Figure 3). The outcome of the treatment is given in Table 3.

Table 3: Outcome of pain and facial expressions

Variable	Tools for measurement	Pre-test score	Post-test score	Comments
Pain	NPR	5 cm	1 cm	Pain decreased by 4 cm
Facial expressions	SAQ	40	22	Facial expressions improved by 55%

DISCUSSION

In this case study, the patient showed improvement in pain and facial expressions after receiving physiotherapy treatment. In this case, patient’s problems were prioritized in accordance with patient’s demand and physiotherapist agreed plan of care. Throughout the plan of care and interventions, patient’s problems were listed in accordance with the ICF components, i.e. impairments, activity limitation, participation restriction and contextual factors as personal factor and environmental factor. Bell’s palsy is a condition which seems in clinical practice primarily affects the bodily system. However, different studies showed that pain and facial expressions are important factors to be considered in the management plan [7, 14]. The current case study found its significance of physiotherapy treatment for Bell’s palsy patient with having the recommendation of dose base physiotherapy in daily clinical practice of physiotherapists.

CONCLUSION

This is interesting and unique because in Bangladesh patients with Bell’s palsy most commonly treated traditionally medicine along with general exercise prescribed by medicine practitioner. In fact, there is no management guideline for Bell’s palsy which physiotherapist could follow and ultimately the scope of physiotherapy practice for Bell’s palsy is unique countrywide. In reality, the Bangladeshi physiotherapist prefers to use electrotherapeutic device based on anecdotal evidence. In this case, the treatment which was delivered was evidence based. In addition, the authors believe if the article is published in your reputed journal, ultimately the Bangladeshi physiotherapist would have a common guideline for physiotherapist practice for Bell’s palsy patients.

Author Contributions

Mohammad Habibur Rahman – Substantial contributions to conception and design, Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Md. Shofiqul Islam – Substantial contributions to conception and design, Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Ehsanur Rahman – Substantial contributions to conception and design, Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Samana Akter Kakuli – Substantial contributions to conception and design, Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Farjana Sharmin – Substantial contributions to conception and design, Acquisition of data, Revising it critically for important intellectual content, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

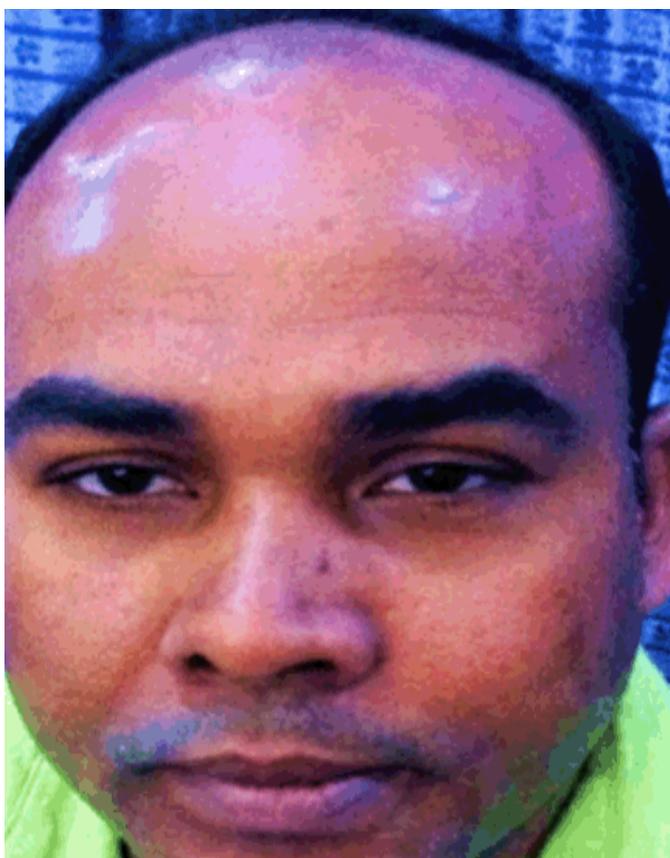


Figure 3: Six weeks later from the date of first assessment.

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