Proprioceptive Neuromuscular Facilitation in LMN Facial Palsy: A Case Report

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Abstract

Background: LMN facial palsy changes facial expression and leads to functional problems in facial movement and negative psychological effects on patients. Fortunately, some ofLMN facial palsy problems recover completely, but some others remain with some sequelae like asymmetry, muscle contracture, synkinesis, and hyperkinesias that need rehabilitation**. Aim of Study:**The main purpose of this case report is to analyze the effect of proprioceptive Neuromuscular Facilitation (Rhythmic initiation, repeated stretch, 3 session /week) onLMN Facial palsy. **Method**: Patient was assessed by HOUSE BRACKMANN GRADING SCALE (HBGS) and then after he was given PNF treatment for a period of one month and once again the patient was reassessed by HOUSE BRACKMANN GRADING SCALE. **Result:** The finding of the case showed that there was overall improvement in functions of face muscle in LMN Facial palsy patients. **Conclusion**: The significant result shows the improvement in facial symmetry in bell palsy patients.

Keywords: *Proprioceptive Neuromuscular Technique, LMN Facial palsy, Rhythmic initiation, repeated stretch, House brackmann grading scale (HBGS).*

Introduction

LMN Facial Palsy is a type of facial palsy which occurs due to involvement of lower motor neurons and could be due to various reasons such as trauma, infection, idiopathic, leading to weakness of one side of the face. Muscle of the affected side of the face become laxed,facial lines are distorted, effort by the patient to smile leads to drooling of saliva from the paralysed side. The causesfor the same can be attributed to the history of exposure to extreme cold, water retention in pregnancy, infection of the middle ear, herpes zoster infection .Electrical Muscle Stimulationstimulates muscles as well as nerves or a combination of both. The physiological effects of stimulation are used therapeutically to strengthen muscles, helps in wound healing, to relieve pain and reduce edema. Numerous muscles may act at the same time to create movement (e.g., grimace), or movement may occur in a single area (e.g., as in raising an eyebrow). Failure of the facial musclesfunction leads to difficulty in communication[1]. Myofunctionaltherapy developed by Rogers or PNF devised by Kabat, Knott and Voss has been noted to permit improvement in the function of the muscle, PNF is normalised, facilitated training method for muscle that involved stretching , resisted movement, traction and approximation to ameliorate muscle decline, atropy, and joint movement limitation.[2]There are many studies which have reported the effect of stimulation on facial muscle toning and combination effect of stimulation and PNF on strength of facial muscle. The present case report has tried to examine the isolated effect of PNF on facial muscle strengthening.

Clinical Presentation

In the present case study we have examined, a 32 year old male patient who met with aRTA and difficulty in speech with complain of tingling and numbness. On examination the patient had grade 5 facial weaknesses on House Brackmann gradingsystem.The reflexes were diminished on right side of face and the radiological investigation (MRI) revealed that there was fracture of left zygomaticarch and lateral wall of right orbit. Theseinvestigation correlated with clinicalpresentation revealed the evidence of injury to facial nerve. Thepatient was under medical treatment as per standard medical protocol in case of LMN Facial Palsy.

Methodology

Prior to start of treatment proper explanation of the condition was given to the patient and demographic detail was collected and the written informed consent from the patient was taken prior to the start of the study.House-Brackmann scale was used to describe the severity of symptoms and accordingly gradingwas done . Theconcept of manual stimulation for the functional re-education, the concept of H. Kabat was used. This approach was used in clinical setting on LMN Facial palsy patient with more profound effects on increasing muscle control and overall functionally. The techniques that were used in LMN Facial palsy patient are Rhythmic initiation and repeated stretch.

Outcome Measure: The patients were evaluated pre and post treatment program using House-Brackmann Scale (HBS) to assess facial symmetry. [3]

STRETCH **RESISTANCE**

FIGURE 1

FRONTALIS

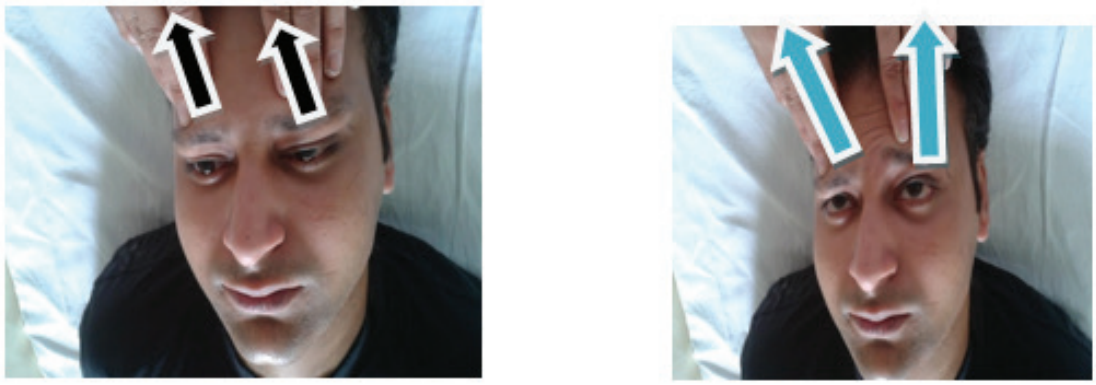

FIGURE 2

ORBICULARIS OCULI

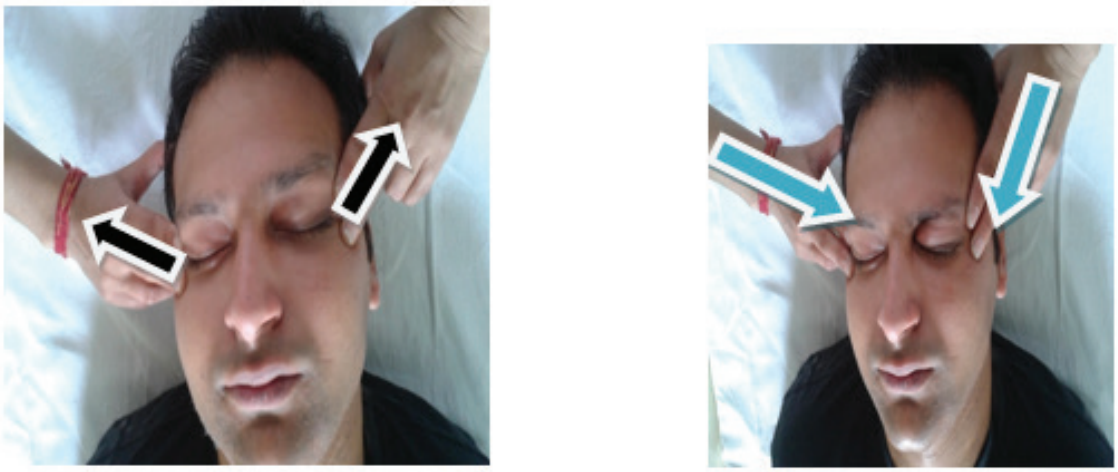

FIGURE 3

ZYGOMATIC MAJOR & LEVATOR LABII

Discussion and Conclusion

The aim of the study was to assess the efficacy of proprioceptive Neuromuscular Facilitation (Kabat technique) in case of LMN Facial palsy patients.The significant improvement in post treatment on HBG Scale after 1month. As the PNF technique had the effects of facilitation, so it has effect on neuromuscular education there by reducing facial disability. The functional status of the patient progressed from grade V to grade II. This helps toimprove the facial expression as early as possible. Expressions in traumatic LMN facial palsy become the major limiting factor for subjects. It causes social impairment and also functional impairments. It affects self-esteem.

The finding of the present study are supported byBarbara. M et al[4] (2010) that the role of kabat physical rehabilitation in bell's palsy as seen in randomized trial and concluded that When applied at an early stage, Kabat's rehabilitation has shown to provide a better and faster recovery rate.Similar results were put forwarded by Ghous. M et al[5] (2018) who studied the effect of kabat rehabilitation versus taping to reduce facial disability and synkinesis in bell's palsy and concluded that PNF is more effective than the taping in bells palsy patients. Kumar et al[6] had reported thatcomparison between proprioceptive Neuromuscular Facilitation and Neuromuscular re-education for reducing facial disability and synkinesis in patient with Bells palys,a Randomised clinical Trial and concluded PNF with conventional PT Is more effective in improving facial function and reducing the facial disability.Tandon.et al had studied advance approach effectiveness of PNF technique for bell's parasis case control study along with conventional PT and concluded that , electrical with proprioceptive neuromuscular facilitation is more effective than electrical stimulation without proprioceptive neuromuscular facilitation with conventional therapy in Bell's paresis rehabilitation.[7]

Conclusion

In this case report we have studied the efficacy of PNF on Traumatic facial palsy and found the PNF is an effective means of strengthening the weakness facial muscle after LMN palsy due to facial trauma.

Conflict of Interest: There is no conflict of interest was between author

Financial Aid: Nil

Ethical Clearance: The case study has been taken up after clearance from the college research ethical committee

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