

Combined Acupuncture and Shirodhara as an Effective Treatment Approach in the Management of Progressive Bulbar Palsy: A Case Report

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ABSTRACT

Progressive bulbar palsy is a motor neuron disease with symptoms of dysarthria, dysphagia, sialorrhea with tongue muscle atrophy and fasciculation. A patient came to a tertiary neurological center with symptoms of dysphagia, dysarthria and excessive salivation from last 6 months. Patient stated that the several medications were tried including Tab. Riluzole and injection edaravone without any success. Hence the integrated approach of western and Eastern alternative therapy including Acupuncture and Ayurveda Shirodhara was started for 18 days. Patient was initially assessed via Dysphagia Score and NIH Dysarthria score before the commencement of the treatment session. This case demonstrates that the acupuncture and shirodhara can be an effective treatment approach for the management of progressive bulbar palsy.

Keywords: Acupuncture; Ayurveda; Progressive bulbar palsy; Shirodhara.

INTRODUCTION

Progressive bulbar palsy is a motor neuron disease that involves the brain stem. It contains lower motor neuron which is responsible for swallowing, speaking, chewing, and other functions. This disease is a variant of amyotrophic lateral sclerosis which is the most common motor neuron disease.¹ The initial symptom of MND is extremity weakness in an about 70% of patients. The remaining 25% present with dysarthria and dysphagia, and about 5% of patients present with trunk or respiratory symptoms at the onset.¹ According to a systematic analysis of the global burden of MND in 2016, the worldwide all-age prevalence was 4.5 (4.1–5.0) per 1,00,000 people, and the all-age incidence was 0.78 per 1,00,000 person.² The main symptoms include dysarthria, dysphagia, tongue muscle atrophy, sialorrhea and fasciculation. This disease is generally severe and develops rapidly. The patho-physiology of MND remains unknown that results

difficulty in effective treatment. There are only two approved drugs for the treatment of MND named riluzole and edaravone.³ But riluzole can only prolong the median survival time by approximately 2 to 3 months in patients with ALS while mechanism of action of edaravone therapy is still unclear.³ Due to the lack of effective treatment, many patients with MND turn to alternative medicine for treatment option. However, there are few studies that investigate the effectiveness and safety of traditional Chinese medicine in treating dysphagia and sialorrhea in patients with MND. As far as our knowledge, no study has been published reporting on the Ayurvedic - Acupuncture treatment of this condition, probably due to its rare occurrence. The aim of this case report is to illustrate the combined effect of Shirodhara and Acupuncture treatment in PBP as presented in 33 years male and report the outcome. The patient had provided informed consent for publication of this study.

CASE REPORT

A 33 years old male patient was presented to the emergency department of Annapurna Neuro Hospital with the complaint of difficulty swallowing, slurred and unclear speech, heaviness of the tongue with fasciculation, regurgitation of the food and excessive salivation. The symptoms were gradual in onset and progressive in nature followed by generalized weakness and dizziness. The patient was quite nervous and depressed due to nasogastric tube (NG tube) insertion and frequent need of suctioning for sialorrhoea.

He gave the post treatment history of the leprosy 3 years ago with MDT. None of his family had a history of neuromuscular disease. Clinical examination revealed normal level of consciousness. The tongue was atrophic and he was unable to totally protrude it from the mouth, gag reflex was diminished. The deep tendon reflexes were diminished, Babinski sign and Hoffman's sign were not present. Laboratory examinations including blood level of glucose, liver function test, thyroid function test, hematology, CPK-NAC, CSF analysis all were within normal limits. In the renal function test, serum creatinine was slightly high. EEG and ECG examinations were unremarkable. Chest X-ray, abdominal ultrasound and cerebrospinal fluid analysis and culture were performed to rule out intracranial pathology and showed no specific abnormality.

Nerve conduction test shows features that suggested bilateral sural sensory neuropathy. While the EMG of tongue revealed normal conduction velocity but showed wide spread denervation patterns with fibrillation. The MRI scan of the head showed few small non-specific T2W hyper intense signal foci white matter of the B/L frontal lobes. The Patient had visited various Hospitals and he was prescribed with different medicines like painkillers, corticosteroid with differential diagnosis of Guillain-Barre Syndrome (GBS), polyneuropathy, Carcinoma of tongue, intracranial hemorrhage, MND etc. However, he was not getting better with those interventions and came to Annapurna Neuro hospital for further consultation and effective intervention. After completing all the investigations in the emergency department, he was admitted to the standard ward. Then, a further integrated approach of western medicine including Tab dextona etc along with Ayurvedic Panchakarma Therapy "Shirodhara", and "Acupuncture" was started. He was given 18 sessions of Acupuncture along with shirodhara.

Shirodhara and Acupuncture Treatment

Shirodhara is a well established form of ancient Ayurvedic treatment which is widely practiced worldwide. It is a

procedure of pouring the non-medicated or medicated tail (oils), ghrita (ghee), kwatha (decoction of medicinal herb), ksheer (milk), takra (buttermilk) and ikshurasa (juice of sugarcane) etc. over the forehead continuously in rhythm from a specific height for a specific period of time. He got shirodhara for 18 days. The patient was kept in supine position and was done in the morning in an empty stomach after a head massage. In this particular case, the patient was given a comfortably warm Teel and Brahmi tail (2liter +200ml) over the forehead continuously in a rhythmic pattern from a height of 10 cm for forty-five minutes. During this treatment procedure various marma points such as Sthapani, Utshepa, Avarta, Shankha and Apanga were fully stimulated. According to Ayurveda concept, Marma is a vital point where energy is stored. After shirodhara, he received acupuncture treatment for 18 days. He received six treatments per week. For continuous stimulation of acupoints in Lianquan(CV23) and Fengchi (GB20), electrical stimulation was done using 15-20 Hz, 5 mA current. Each Acupuncture treatment session lasted for 30 minutes. Patient was kept in supine position and needles were inserted to 0.5 to 1 cun perpendicularly and obliquely. The following acupoints were used for treatment.

Lianquan (CV23)- On the anterior median line of the neck, above the throat prominence, in the depression above the upper border of the hyoid bone.

Yifeng (TE17)- Posterior to the ear lobe, in the depression between the mastoid process and the angle of the mandible.

Fengchi (GB20)- In the nape, below the occiput in the depression between the upper portion of muscle sternocleidomastoideus and muscle trapezius.

Fengfu (GV16)- On the midline at the nape of neck, in the depression 1 cun above the midpoint of the posterior hairline, immediately below the base of the external occipital protuberance.

Baihui(GV20)- At the vertex of the head, 5 cun posterior to the midpoint of the anterior hairline or directly above the apex of the auricles and the midline of the head.

Sishenchong (EX-HN1)- 4 points in all, grouped around Baihui(GV20), 1 cun anterior, posterior and lateral to it.

Jinjin (EX-HN12)- Yuye (EX-HN13) – Along two side of frenulum of tongue. Outcome measures for this study were taken via Knyrim Dysphagia score and NIH score for dysarthria. Initial assessment of dysphagia score was at 4 and NIH dysarthria score was 2. After six days of intervention, patient felt easy during speaking and swallowing with dysphagia score 3 and NIH score 1 with moderate dysarthria and excessive salivation was significantly decreased, need one time suctioning only in day time. After 12 days of intervention patient feel easy in

swallowing solid and semisolid food with dysphagia score and his voice was easily understood with NIH dysarthria score 1 with mild dysarthria. NG tube was removed after 15 days of intervention as patient started drinking liquid diet also. His voice was more clear than previous and there was significant reduction in sialorrhea. After 18 sessions of treatment, he was discharged from hospital as he was problem free with dysphagia score 0 to NIH dysarthria score 1 with mild problems and drooling severity 2 with frequency 1.



Figure 1: Acupuncture & Shirodhara Application

DISCUSSION

In Ayurveda, this disease comes under vata-baha shrots disease. By the use of Shirodhara it has direct impact on the medulla oblongata, and hypothalamus which stimulates the central nervous system and cools down the nerve excitation. Physiological changes during shirodhara are found to be similar to those of meditation. Shirodhara is an Ayurvedic treatment procedure in which there is a continuous medicated oil-dripping over the patient's head. The exact mechanism of its action is not fully understood but the most probably the oil exerts pressure on the forehead during this procedure which provides constant soothing vibration and amplification of vibrations done by the intracranial sinus causes activation of certain areas of the frontal lobe, limbic system, brain stem, and autonomic nervous system.⁴

It was observed that plasma noradrenaline and urinary serotonin excretion decreased more significantly after shirodhara treatment. This shows that shirodhara procedure has an anxiolytic effect. Apart from this, significant decrease in rate of breathing and reduction in diastolic blood pressure along with reduction in heart rate was observed. The relaxed alert state, after shirodhara, was correlated with an increase in alpha rhythm in EEG. Apart from this the patient showed deep restfulness

with less anxiety as if he was in between the sleep and awakening states. Studies show that shirodhara induces bradycardia, which indicates lowered sympathetic tone.⁵ Recent study on the pharmaco-physio-psychologic effect of Shirodhara with medicated sesame oil mixing with essential oil from *Lavendula augustifolia* (lavender) has significantly showed potent anxiolytic and altered state of consciousness (ASC) inducing or promoting effects, increasing foot temperature, decreased level of state anxiety. This study has speculated that probable mechanism of shirodhara will be sesame oil dripped on the forehead induce somato-autonomic reflex through thermo sensors or pressure sensors in the skin or hair follicles via trigeminal nerve.⁶ Primary Motor cortex has a substantial role in the neural control of voluntary swallowing.⁷ A study conducted by Shuai Cui et.al showed that electrical stimulation of acupoint Lianquan (CV23) can boost the functional compensation of M1 in the non-infarction side, strengthen the excitatory of hypoglossal nerve, and be involved in the voluntary swallowing neural control to improve Post stroke dysphagia. The motor cortex on the non infarction side transmitted motion excited to NTS (Nucleus of Solitary Tract) and NA (Nucleus Ambiguous) of the central pattern generator (CPG) that generates the swallowing reflex.⁷

Another study done by Zhang Sy et.al showed the therapeutic effects of the electro acupuncture (EA) improve dysphagia, he found significantly improved in dysphagia score and VFG outcomes and improve the quality of life.⁸ A comprehensive systematic review and meta analysis done by Jinke Huang et al also concluded the effect of acupuncture on post-stroke dysarthria may be maximized if EA is combined with Speech language Therapy.⁹ Another study done by Xinming Yang et.al revealed that Acupuncture in different areas has various therapeutic effects. Scalp acupuncture can promote the recovery of cerebral system and facilitate the connection of the bilateral cortex, medulla oblongata pathway. Tongue acupuncture, neck acupuncture and Body acupuncture can stimulate the recovery of peripheral nerves and balance the vocal muscle spasm. Electro acupuncture (EA) was better in terms of the effective rate, WST, VFSS, IFRS and IAP of dysphagia after stroke.¹⁰ In addition, stimulation of conception vessel (CV) 23 by electro-acupuncture could improve the blood flow in Primary Motor cortex and around deglutition-muscle groups, promote blood supplementation in tissue, and restore voluntary swallowing.¹¹ A clinical case report conducted by Peng et.al showed Chinese herbal medicine combined with acupuncture, effectively reduce the symptoms of MND/PBP.¹²

CONCLUSION

In general, it has been found that shirodhara and acupuncture therapy had a beneficial role in this case. Patient got removal of the NG Tube within two weeks, the tongue movement, speech and swallowing and sialorrhea also got significantly improved. The main purpose of this case report is to raise awareness about alternative treatment options for such conditions as the integrated treatment approach for PBP is found effective in this case and it also helps to avoid patient unnecessary anxiety, time and expenses. However, there is still need of further study to prove its effectiveness as it is a single case study. This case report serves as a lead for further research in the management of Progressive bulbar Palsy.

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