

# Attitude of Physiotherapists about the Role of Transpore Tape in the Treatment of Facial Palsy Patients

Dr. Zar Bakht Bano, Dr. Tehmina Ramzan, Dr. Mohsin Majeed, Dr. Hamza Sardar, Dr. Riffat Ammar, Dr. Ayesha Basharat, Dr. Muhammad Abubakar

Physical Therapy department of Sargodha Medical College

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**Abstract- Background:** Facial palsy refers to the weakness of facial muscles mainly resulting from the temporary damage to the facial nerve. The recommended treatments for facial palsy include facial muscle exercises, biofeedback, electrical stimulation, massage and sensory stimulation.

**Objective:** The purpose of this study is to check the attitude of physiotherapist about effectiveness of Transpore tape in patients of facial palsy in early correction of mouth deviation and associated complications. This is prime study to determine therapist trend about the use of Transpore tape in facial palsy conservative treatment in Punjab Pakistan.

**Methodology:** The study was conducted in different physical therapy units including both government and private hospitals of Punjab, Pakistan. Data was collected by the help of modified Synkinesis assessment questionnaire from 500 physiotherapists to know their opinion about effectiveness of supportive therapy by using Transpore tape in facial palsy treatment

**Results:** Results were analyzed from the data given by physiotherapist. According to the data, 60% physiotherapists recommended the use of Transpore tape for facial paralysis treatment for improvement in chewing process. 58% recommended Transpore tape for ease of drinking water. 40% physiotherapists recommended electrical stimulation for puffing of mouth. And 56% physiotherapists recommended Transpore tape for early correction of mouth deviation.

**Conclusion:** Transpore tape was an effective supportive therapy in early rehabilitation of mouth deviation & associated complications in facial palsy

**Index Terms-** Adhesive tape, Facial paralysis, mastication, angle of mouth, puffing of mouth.

## I. INTRODUCTION

Facial palsy is a neurological disorder caused by facial nerve injury. Facial nerve can be injured as a result of trauma, any infection to the nerve or degenerative diseases. Facial paralysis refers to the weakness of facial muscles (Orbicularis oris, buccinators, zygomatic major & minor, Angulii oris and Levator labii). It can occur sometimes on the lower half of the face and sometimes on one whole side of the face. This results in loss of normal facial functions like mastication and<sup>(1)</sup>. Some causes are listed below:

- Viral Infections like Bell's palsy and Ramsay hunt Syndrome.
- Surgical causes, e.g. removal of acoustic neuroma or facial nerve tumor or when operating on the parotid gland.
- Bacterial causes.
- Neurological conditions such as Guillain-Barré syndrome,
- Traumatic injury such as fracture of skull.
- Birth Trauma
- Congenital conditions such as abnormal development of facial nerve.

Stroke<sup>(2)</sup>.

Bell's palsy represents very nearly 75% of all intense facial paralyses. Highest incidence was being in 15-45 years of age. The annual incidence in UK population was around 20 per 100,000 with one in 60 people being affected during their lifetime. Men and women were equally affected<sup>(3)</sup>. It occurs with equal frequency on either the right or left side of the face. Simultaneously, bilateral facial palsy is extremely rare with a prevalence of 0.3-2% of the facial palsies. Bell's palsy arises more frequently in the spring<sup>(4)</sup>. The loss of the capacity to move the face has both social and useful ramifications for the patient. Over half were found to have a significant level of mental trouble and social withdrawal as a consequence of their facial paralysis. Signs and symptoms can include an asymmetric smile, Synkinesis, epiphora or dry eye, abnormal blink, problems with speech articulation, drooling, hyperacusis, change in taste and facial pain<sup>(5)</sup>. Diabetic patients are 30% more likely have chance to recover than non-diabetic patients that have only partial recovery; recurrence of Bell palsy is also more common among diabetic patients. The effectiveness of neuromuscular facial retraining techniques in combination with electromyography to improve facial function was studied in cases of long-standing paralysis. All patients made significant improvements in function with improved symmetry in dual-channel electromyography readings and increased facial movement percentages. Facial retraining is an amazing case of the plasticity of the central nervous system to reorganize, even in cases of long-standing paralysis. In individuals with long standing facial palsy, Neuromuscular facial retraining exercises are effective to improve facial movements<sup>(6)</sup>. Mime therapy is a novel therapy combining mime and physiotherapy. The effects of mime therapy for patients with longstanding (at least 9 months) sequel of unilateral peripheral facial paralysis were

evaluated. Mime therapy, including auto massage, relaxation exercises, inhibition of Synkinesis, coordination exercises, and emotional expression exercises were performed<sup>(7)</sup>. On the basis of present evidence, mime therapy is a good treatment of choice for patients with long standing facial paralysis<sup>(8)</sup>. Multidimensional therapies were used for treatment of facial palsy. Most recommended treatments were electric stimulation<sup>(9)</sup>. EMG/Biofeedback<sup>(10)</sup>. Transpore tape on eyelid<sup>(11)</sup>.

Researchers named<sup>(9)</sup>. Performed randomized controlled and experimental group trials. The study was conducted on the use of electrical stimulation in the sub-acute and chronic stages of facial palsy, yet some physiotherapists in South Africa had been applying this modality in acute stage. The aim of the study was to determine the safety and potential efficacy of applying electrical stimulation to the facial muscles during the early phase of paralysis. They took two groups having palsy less than 30 days (control and experimental). Both Groups were treated with heat, massage and home-based exercises but experimental group also received electrical stimulation. They estimated the results by using House Brackman's scale and showed improvement in experimental group to 75% which was statistically significant as compared to control group. It concluded that Electrical stimulation could be effective and safe during the acute phase of paralysis<sup>(10)</sup>. published a randomized trial in 29 patients who were divided into two groups after an electro diagnosis test. The point of this article was to examine the symmetry and prevention of Synkinesis. 16 patients in Group 1 were treated with EMG biofeedback for 1 year (daily for 1 month and once per week for 11 months). In the first step of treatment, EMG biofeedback was used to treat weak muscles (performed by attaching electrodes to the muscles with minimal tonicity and muscle strengthening performed using one channel). In the second step of treatment, when symptoms of Synkinesis appeared, this modality was used to prevent Synkinesis in addition to the treatment of weak muscles (using two channels, one first for voluntary movement and the 2<sup>nd</sup> for involuntary movement; the patient was asked to try to control Synkinesis during active movement). They were also advised exercise therapy. Control group was recommended only home exercise therapy. Evaluation was performed using the Sunnybrook scale. The study showed improvement in both groups, but Group 1 showed significant differences compared with Group 2 in symmetry and reduction in Synkinesis<sup>(10)</sup>. In 2012, a study was conducted by Camara & Colleagues, to evaluate the efficacy of Transpore tape for management of upper eyelid. A prospective, consecutive, comparative, non-randomized, interventional case study was done on 50 patients with symptoms of tearing. Transpore tape was applied on right upper eyelid of each patient and the left eye was used as a control. The horizontal length of each patient's right eyelid was measured. The Transpore tape was firmly applied horizontally, approximately 5 mm above the eyelid margin, with the excess eyelid skin held upwardly taut. The tape inclusively covered the horizontal length of the eyelid, correcting the overriding preseptal Orbicularis. Patients were advised to remove the tape completely on its loosening so that the tape no longer held the excess skin upward. The patients also were instructed to record the duration (in days) from initial adhesion to spontaneous loosening or detachment Symptoms in the control left eye remained the same before, during, and after tape adhesion. The mean (SD) duration of tape adhesion on the right upper eyelid was

5 (1.5) days. As a result of this tape application, symptoms were relieved only while the tape adhered to the eyelid<sup>(11)</sup>.

## II. METHODOLOGY

### Materials & Methods:

The study was designed to determine the attitude of physiotherapists about the effectiveness of Transpore tape in treatment of facial palsy patients. The study was conducted in different physical therapy units of Government and private setups of Punjab, Pakistan. I.e. Lahore, Faisalabad, Sargodha, Jhang, Multan, Khushab. For this study we analyzed the data provided by 500 physiotherapists who treated the facial palsy patients with Transpore tape along with other treatment techniques. We inquired Physiotherapists by means of a modified Questionnaire based on Synkinesis Assessment Questionnaire<sup>(12)</sup>.

### Assortment Criteria:

**Inclusion criteria:** All the physiotherapists who had the experience of treating the facial palsy patients and used Transpore tape along with other treatment modalities.

**Exclusion criteria:** All the physiotherapists who did not experience facial palsy patients.

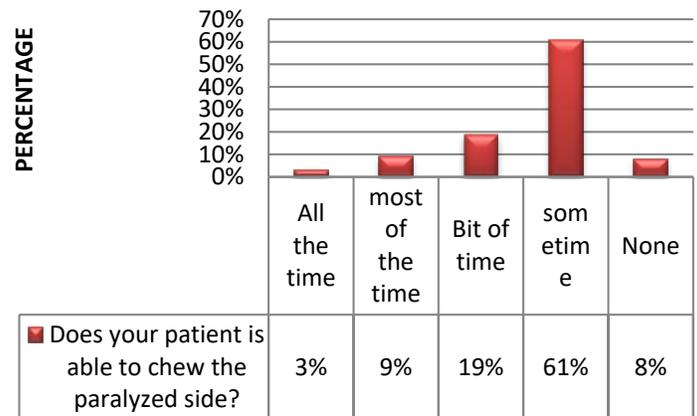
### Measurement Procedure:

**DATA Analysis:** Data was compiled via SPSS (statistical package for the social sciences) and presented in tables and graphs.

### Graphical Presentation:

Graph 1:

#### Does your patient able to chew on the paralyzed side?



61% physiotherapists said that it was only sometime when their patients were able to easily chew on paralyzed side. So, this data suggested that most of the physiotherapists' patients were having problem in chewing during their symptoms .

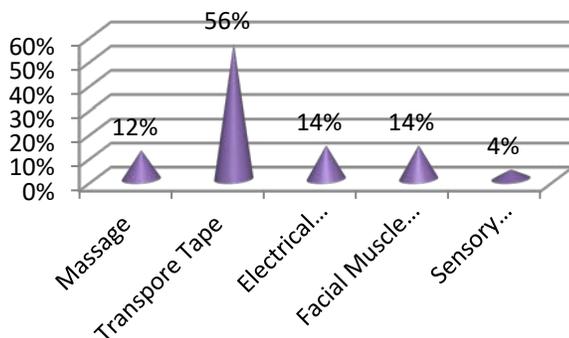
**Table Representation:**

Does your patient spills liquid while drinking?		
	Frequency	Percentage
<b>All the time</b>	60	12%
<b>most of the time</b>	190	38%
<b>Bit of time</b>	140	28%
<b>sometime</b>	95	19%
<b>None</b>	15	3%

This graphical presentation showed that (12%) subjects' patient spills liquid while drinking all the time, 38% told most of time, 28% answered the question as bit of time, 19% observed that sometime their patient spills liquid and 3% subject's patient never spills liquid while drinking.

**Graph: 2**

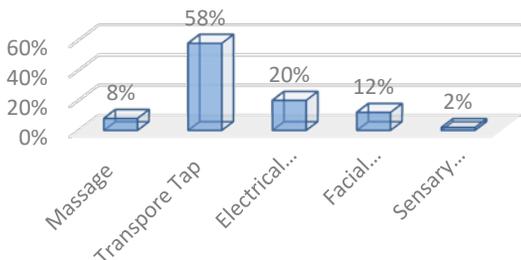
**What do you think which technique is best for improvement in chewing process?**



Physiotherapists gave their suggestion about the best technique for improvement in chewing process. 56 % favored Transpore tape, 12% physiotherapists suggested massage, and 14% answered electrical stimulation and 14% said facial muscles exercise and 4% suggested sensory stimulation.

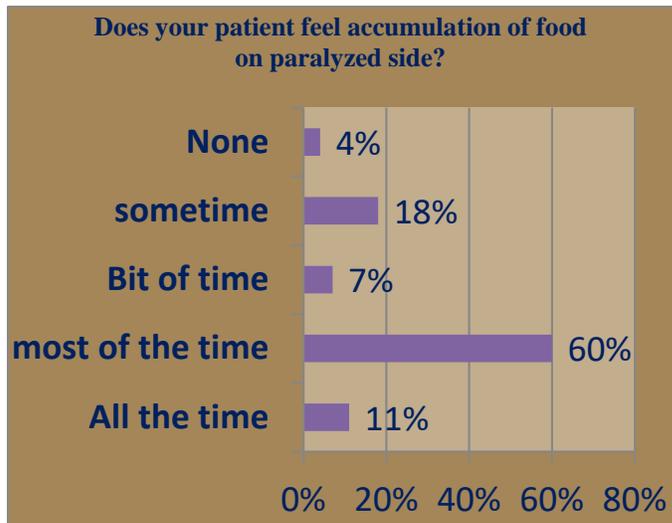
**Graph: 3**

**What do you think which treatment option helps in ease of drinking water**



Physiotherapists gave their suggestion about the best treatment option which helps in ease of drinking water. 58% physiotherapists recommended Transpore tape, 20% favored electrical stimulation and 12% said facial muscles exercise, 8% favored massage and 2% told sensory stimulation.

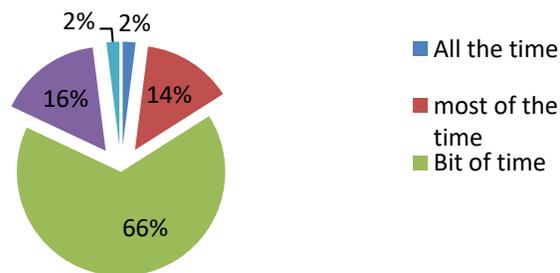
**Graph: 4**



This graphical presentation shows that (11%) subjects' patients feel accumulation of food on paralyzed side all the time, 60% told most of time, 7% answered the question as bit of time, 18% observed that sometime their patients feel accumulation of food and 4% subject's patient never feel accumulation of food on paralyzed side.

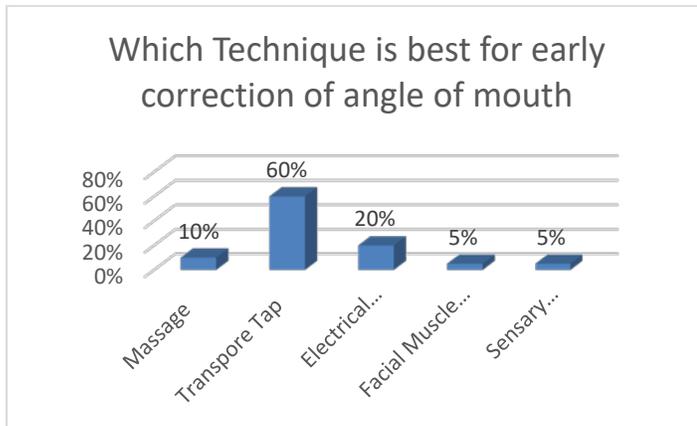
**Graph: 5**

**Does upper and lower lips of your patient matches in position while smiling?**



This graphical presentation showed that (2%) subjects' patient's lips matches in position while smiling all the time, 14% told most of time, 66% answered the question as bit of time, 16% observed that sometime their patient's lips matched and 2% subjects' experiences that the patient's lips never matched in position while smiling.

**Graph: 6**



Physiotherapists gave their suggestion about the best technique for early correction of angle of mouth. 60% favored Transpore tape, 20% favored electrical stimulation (10%) physiotherapists suggested massage and 5% suggested facial muscles exercise and 5% answered electrical stimulation.

### III. DISCUSSION

The aim of this study was to check the attitude of physiotherapists about the effect of transpore tape in early rehabilitation of mouth deviation, eating disorder, chewing process.

Previous researchers gave different opinion regarding the treatment of facial paralysis.

Hato and his colleagues conducted prospective, randomized, placebo-controlled trials evaluating Valacyclovir and prednisolone treatment in patients with Bell's palsy. They concluded that Valacyclovir and prednisolone therapy was statistically more effective than placebo and prednisolone therapy in improving the recovery of patients with Bell's palsy. In 2010, a study was conducted on the use of electrical stimulation in sub-acute and chronic stages of facial palsy. The aim of study was to determine the safety and potential efficacy of applying electrical stimulation to the facial muscles during the early phase of paralysis.<sup>(9)</sup>

In 2012, a study was conducted about application of transpore tape on upper eyelid to relieve symptoms of tearing. The tape inclusively covered the horizontal length of the eyelid, correcting the overriding preseptal orbicularis. Patients were advised to remove the tape completely on its loosening. After the application of this tape, the symptoms were seen to be relieved<sup>(11)</sup>.

The questionnaire contained close ended questions. Questions were asked about chewing process, liquid spilling, food accumulation lips matching. Physiotherapists were asked about best treatment options for rehabilitation of these facial palsy complications. 56% were in favor of transpore tape for increase in chewing process and 58% were in favor of transpore tape for ease of drinking water. And last question we asked about the treatment of early correction of angle of mouth. Most of the therapists were in favor of transpore tape (60%).

Previous studies showed use of transpore tape in other areas of face rather than mouth deviation correction. We considered if it could help in other areas why not in case of mouth angle correction;

So, data was collected about role of transpore tape in correction of mouth deviation. Use of electrical stimulation along facial exercises for facial palsy treatment was a traditional method used by physical therapist in Punjab (Pakistan).

Many physiotherapists used this method without considering the effectiveness of this as supportive therapy. So, we discussed this method with physiotherapists that what do they think about this tape to use it as a supportive technique in conservative treatment. More than 50% were in favor of transpore tape as supportive therapy but there were many unaware about taping process

### IV. CONCLUSION

It was concluded that most physiotherapists recommended the use of Transpore tape as a supportive technique in conservative treatment of facial palsy.

As mouth deviation occurred due to paralysis of Orbicularis oris, Levator labii superior, Buccinators, Zygomaticus major and minor, Angulii oris muscles resulted in difficulty of food and water intake. Supportive therapy using Transpore tape along with other treatments helped patient in correction of mouth angle as well their functional activities and early rehabilitation.

### V. SIGNIFICANCE

The findings of this study provided insight knowledge about Facial palsy, their signs and symptoms and treatments used.

The findings of this study determined physiotherapists about benefits of Transpore tape in conservative treatment of facial palsy that could help in early mouth control and to prevent further damage by excessive pulling of mouth towards normal side, as well as improved chewing process and drinking of water. Moreover, study provides physical therapy significance in conservative treatment of facial paralysis.

### VI. LIMITATIONS

Hence, there exist some limitations of every study. In our study limitations were:

- Novice physiotherapists who had less experience of treatment with facial paralysis.
- Lack of personal conveyance
- Time shortage
- Financial problems
- Low access of literature and literature sites.

### VII. RECOMMENDATIONS

- Investigate Transpore tape usage in other areas of Pakistan.
- It was recommended that study should be repeated by data collected from experienced physiotherapists.
- Whether Transpore tape may be supportive for deviation of mouth angle.
- Need to arrange good quality seminars regarding use of Transpore tape as supportive treatment technique in facial palsy patients.

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## AUTHORS

- First Author** – Dr. Zar Bakht Bano, Working as Internee at DHQ Hospital Jhang , MS\* Neuromuscular PT, (Riphah University Lahore Campus), DPT Sargodha Medical College  
Email: bzarbakht@gmail.com
- Second Author** – Dr. Tehmina Ramzan, Working as internee at Holy Family hospital Rawalpindi, DPT Sargodha Medical college, Email: tehminaramzan013@gmail.com
- Third Author** – Dr. Ayesha Basharat\*\* (Supervisor), Lecturer at Sargodha medical College Mphil Sargodha Medical College., BS.PT King Edward Medical University Lahore, Email: Docayesha@gmail.com
- Fourth Author** – Dr. Mohsin Majeed (DPT) MS\* Neurology Physical Therapy department of University of Lahore  
Email: mohsinmajeed21@gmail.com
- Fifth Author** – Dr. Hamza Sardar , Student of MBBS final year Sargodha Medical College, Email: hamza.ghallu94@gmail.com
- Sixth Author** – Dr. Riffat Ammar, Consultant physiotherapist at DHQ Hospital Jhang, Mphil Physiotherapy Riphah University Islamabad, BS. PT Karachi
- Seventh Author** – Dr. Muhammad Abubakar, (DPT) Sialkot College of Physical Therapy affiliated with University of Sargodha Consultant Physiotherapist at Bashir Hospital Sialkot  
Email: mbakar338@gmail.com