



**Case Report**

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**Idiopathic facial paralysis and tens therapy- A case report**

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**Abstract**

Idiopathic facial paralysis, also known as Bell’s Palsy is one of the common facial nerve . It is the neuropathy of the peripheral branch of seventh cranial nerve (facial nerve) which has a sudden onset. It usually results from trauma, compression, infection or any metabolic abnormalities. However, in most of the cases no etiology is identified and the conclusive diagnosis is idiopathic. Here we report one such case of facial paralysis with defective speech and heaviness of left side of the face and application of transcutaneous electrical nerve stimulation [TENS] therapy on this patient.

**Keywords:** Idiopathic, Paralysis, TENS.

**INTRODUCTION**

Bell’s palsy is a clinical condition which can be defined as an acute, idiopathic, unilateral paralysis of any branch of facial nerve without any associated disorders [1]. This condition is named after Dr Charles Bell, who pointed out a complete facial nerve paralysis after injury of the stylomastoid foramen in 1821 [2]. Facial nerve paralysis is relatively rare with annual incidence of around 30 in 100000 in a population. The etiology may be varied starting from head injury to an idiopathic palsy but may also occur due to an injury to central or peripheral nervous system [3]. Treatment options for the above pathology are pharmacologic and physiotherapeutic. Pharmacologic therapies have shown better results when compared with control group or other treatments [4]. There are less number of reports in literature mentioning the use of transcutaneous electrical nerve stimulation in reducing the symptoms of facial palsy, despite their actual use [5]. Also, there are certain random and controlled studies that test the efficacy of electro-stimulation [6,7]. Here we present a case of 21 year old male patient with signs of facial paralysis and application of TENS therapy as part of management.

**CASE REPORT**

A 21 year old male patient named Thafseel, reported to our department with chief complaint of asymmetry of face. In the history of presenting illness, he gave a history of facial asymmetry which he noticed since birth. He also reported about the limited facial movements. However, mastication was normal, there was no previous history of trauma, no pain and no history of swelling over the orofacial region or elsewhere. There was also no history any viral infection during the first and second year of birth. There was no difficulty in mouth opening. Regarding his past medical history, he consulted physician for the same problem, who found out that third branch of seventh cranial nerve is affected. Also there was a history of eye surgery done 2 years back (due to excessive lacrimation). His past dental history, he underwent extraction 2 years back and restoration 1 month back. About his family history, there was no history of maternal infection during the time of pregnancy. He had a normal gait. On general physical examination he was conscious, co-operative, moderately built and nourished. All his vital signs were within the normal limits.

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Extraoral examination revealed facial asymmetry on the left side of face. Ears showed no abnormality. Nose, lips and eyes were abnormal. TMJ also showed no abnormality with no clicking or any tenderness and the lymphnodes were not palpable.



Figure 1

On intra oral examination of the soft tissues, the labial mucosa, buccal mucosa, tongue, vestibular area and floor of the mouth showed no abnormality. Gingiva was soft and edematous. On hard tissue examination, there were decayed teeth irt 27,28,35 and 48, missing teeth irt 24,26 & 4. The oral hygiene index was calculated to be fair with mild stains and calculus and moderate plaque.

On local extraoral examination, on inspection facial asymmetry was appreciated over the left side. There was deviation of nasal septum to right side along with facial midline shift to right. On examining the skin over the forehead, absence of wrinkling (figure 2) was appreciated. Watering of left eye was evident. Blinking was not seen with respect to the left eye. Patient was unable to close his left eye completely, resulting in a “heavenly look” however eye movements were normal over the right side (unaffected side). Also, while smiling there was drooping of lips to the affected side (left). He had a prognathic mandible and there was absence of facial contraction. On palpation, there was no swelling or any tenderness over the area. No signs of scars, bleeding spots or any discharge were present.



Figure 2



Figure 3



Figure 4



Figure 5

On intra oral examination, on inspection midline shift was appreciated. In addition, upper and lower teeth crowding were present. He had Angle’s class III malocclusion (figure 4). Due to mandibular prognathism, there was bilateral crossbite (figures 2, 3). Uvula was shifted to the affected side (left) (figure 5). However tongue movements were normal, there was no deviation during protrusion of

tongue. But while speaking, deviation of corners of lip was appreciated. On palpation, no tenderness was present. Also, there were no trigger zones present over the region.

Based on the history given by the patient and the clinical examination carried out, a provisional diagnosis of Bell’s palsy on left side was given along with chronic generalized gingivitis, dental caries in relation to 27,28,35,48, Angle’s class III malocclusion with bilateral crossbite & Partially edentulous space in relation to 24, 26 & 46.

Differential diagnoses considered were:

1. **Unilateral central facial weakness** may be due to a lesion of the contralateral cortex, subcortical white matter, or internal capsule (no history).
2. **iatrogenic:** surgical procedure may sometimes be responsible (h/o surgery)

As part of management, started with steroid therapy [100mg Wysolone] for regeneration of nerve Along with TENS therapy carried out biweekly for 4 weeks (figure 6).



Figure 6

Following review after 3 weeks, patient report with mild sensation of the left side with the application of TENS.

## DISCUSSION

Facial nerve paralysis or Bell’s palsy is defined as a neural disorder of the peripheral seventh cranial nerve or the facial nerve. Most often it is idiopathic but various other etiologies have been reported such as traumatic, compressive, infective, inflammatory or metabolic abnormalities involving the facial nerve. Previously stated incidence of Bell’s palsy is 20 to 30 cases per 100,000 people per year [8]. Idiopathic (Bell’s) palsy occurs with a frequency of 15-40/100,000 people [9]. The condition is acute in onset and presents with edema of the nerves and is associated with numbness or pain in the ears, face or neck in approximately 50 % of cases. Majority of patients presenting with this condition respond extremely well to steroids and physiotherapy within a 6-month period [10]. Various studies have been conducted investigating the role of steroids in addressing facial palsy, typically with regimens such as prednisone 1mg/kg/d up to 70-80mg. This is commonly tapered after 5-7 days, although treatment may be extended if no improvement is appreciated. Many investigations have cited benefit to steroids [11].

Most of the studies where electrosurgery was used to treat denervated muscles were performed on animals or in muscles bigger than facial muscles. There is always a lack of precision regarding the current type, duration and frequency of the stimuli that may favour better outcome [12,13]. Electrical stimulation was applied in the present case to check for the nerve stimulation if present as reported and is not a complete treatment. As stated TENS therapy used along with other modes of treatment can be beneficial. As in the present case was referred to plastic surgeon who advised the used of TENS after the surgery for

better results. It is probable that electrical stimulation of nerves, if applied with other modes, that is, electromyography and electroneurography studies may give better results with the aim of restoring or getting the facial expressions back.

## CONCLUSION

We highlighted a case of facial nerve paralysis affecting a 21 year old male with visible clinical features. The present case has nil etiology and is considered as idiopathic. Here we attempted TENS therapy as a mode of management along with steroid therapy, and patient experienced a mild variation on the affected side on a biweekly dose of therapy. Although TENS therapy cannot cure the disease to a full extent, it can be used as an adjuvant in the management of neural pathologies giving better results.

## Conflict of interest

There is no conflict of interest.

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