

A Prospective Study on Management Options of Post Traumatic Facial Nerve Palsy at a Tertiary Care Teaching Hospital

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ABSTRACT

Background: Facial nerve loss of motion by injury is normal cause after idiopathic. Facial paralysis accordingly of intra cranial, intra fleeting and additional transient limit harm or break and both. Sudden and prompt facial nerve paralysis requires early surgical intervention for better result. Facial nerve decompression and termino- terminal anastomosis surgical intervention had done in present study.

Methods: A prospective study of the 21 cases of traumatic facial nerve palsy attending Department of Otorhinolaryngology, Katihar Medical College, Bihar were enrolled during February 2014 to January 2015. The complete clinic examination, otoscopic, audio logical, topodiagnostic, and radiological evaluation were done in all the patients. The outcome of these patients was done on the House-Brackmann nerve grading system.

Results: All patients have infra nuclear type of facial nerve palsy. The maximum incidence of facial nerve paralysis found in the age group between 21 to 30 years. Out of 21 patients, 16 patients were normal hearing. Suprachordal (52%) involvement is the most common site of lesion in traumatic facial nerve paralysis.

Conclusion: Sudden and immediate onset facial nerve paralysis needs early surgical intervention for better outcome. Facial nerve decompression was better outcome comparing to termino terminal anastomosis. The facial nerve paralysis prognosis depends upon degree of paralysis, duration of paralysis, site of injury and patient's factors.

KEYWORDS: Trauma, Facial Nerve Paralysis, Temporal Bone Fracture.

INTRODUCTION

The facial nerve is a blended nerve which conveys tactile, engine and also parasympathetic nerve strands. The different reasons for facial nerve paralysis likes idiopathic, injury, irritation, disease, tumor, intrinsic irregularities/dysplasia and others are specified. Engine vehicle mishaps are the most well-known system of traumatic facial nerve harm. Fleeting bone crack, Limit, Infiltrating damage, Shot, Rocket harm and Iatrogenic surgical damage different reasons for facial nerve harm.^{1,2,3} Approximately 5% patient have temporal bone fracture of all trauma.¹ These fractures are classified as longitudinal, transverse and Oblique (mixed) with respect to the long axis of the petrous pyramid (ridge). Longitudinal fracture is most commonly type of temporal bone fracture. Facial nerve palsy developed common in transverse fracture. In transverse fracture, the facial nerve is usually injured at its labyrinthine segment

and patient manifest with sensorineural hearing loss and vestibular dysfunction. It is important to diagnose early facial nerve palsy and early intervention for better recovery. In most of the cases spontaneous recovery happened. However some need surgical exploration and nerve repair with or without cables grafting.

MATERIAL AND METHODS

A prospective study of the 21 cases of traumatic facial nerve palsy attending Department of Otorhinolaryngology, Katihar Medical College, Bihar were enrolled during February 2014 to January 2015. We had enrolled infranuclear type of facial nerve palsy but we did not enroll any patient of central / supranuclear facial nerve palsy. The total facility examination, otoscopic, sound legitimate, topodiagnostic and radiography were done in every one of the patients.

Sixteen patients were dealt with conservatively and one each was overseen surgically like nerve decompression and termino-terminal anastomosis. Brackman nerve reviewing framework was connected to know the result of the patients.

RESULTS

All patients have infranuclear type of facial nerve palsy. Patients were treated conservatively as well as surgically. The surgical techniques were applied in the form of facial nerve decompression and termino-terminal anastomosis.

Out of 21 patients, 16 were male and 5 were female. 14

(66%) patients had left sided facial nerve palsy and 6 (34%) right sided facial nerve paralysis. The maximum incidence of facial nerve paralysis found in the age group of 21-30 years (mean age 27 years).

Lacerated wounds generally results in lesions of the facial nerve distal to the stylomastoid foramen (Extra temporal).

Birth trauma represents rare but important cause of traumatic facial nerve paralysis in new born. Facial nerve palsy show normal hearing in 16 patients out of 21 patients. Conductive hearing loss duo to Hemotyampanum and a patient did not do pure tone audiometry because his age was less than one month.

Table 1: Clinical and Radiological characteristics.

Parameter	No.	Percentage (%) #
Complete	16	76
Incomplete	6	24
Hearing loss	5	18
Hemotyampanum	4	12
Lacerated wound pinna	3	12
Temporal Bone Fracture	5	18
Head Injury(SDH&EDH)	3	12

Some patients have more than one symptom.

Table 2: Hearing assessment

Pure Tone Audiometry	No.	Percentage (%)
Normal Hearing	16	76
Conductive hearing loss	4	12
Mixed hearing loss	1	6

Table 3: Topographical site of lesions.

Site	No	Percentage(%)
Suprachordal	11	52
Infrachordal	8	38
Transgeniculate	2	9.5

Table 4: Stapedial Reflex Test.

Stapedial Reflex	No.	Percentage(%)
Present	5	34
Absent	16	66

Suprachordal (52%) involvement is the most common site of lesions in traumatic facial nerve paralysis. Topographical test was not done in one patient (neonate). Stapedial reflex test was done in sixteen cases, one patient (neonate) did not co-operate. Out of 21 patients, 16 (66%) cases show absent Stapedial reflex and six (34%) cases show present Stapedial reflex.

DISCUSSION

The facial nerve contains motor, sensory and parasympathetic fibers. The facial expression convey us the twinkle of fun, smile of love, composure of confidence, hence the name of the “Nerve of facial

expression”. All this is lost in facial nerve paralysis. More than 40 causes of facial nerve paralysis such as Idiopathic, Traumatic, Inflammatory, Tumors and others as mentioned.

The traumatic facial nerve paralysis due to its variety of forms and outcomes, its difficult to diagnose and represents a challenge especially from the therapy point of view. In present study motor vehicle accidents (60%) is the most common causes followed by blunt trauma and fall from height (18%) each.^{4,5} One case had birth trauma. Temporal bone fractures have divided into three types as longitudinal, transverse and oblique (mixed) in relation to the long axis of the petrous pyramid.

Longitudinal fractures are clinically more common and produce delayed and less common facial nerve palsy. Transverse fracture are clinically less common but produce severe, immediate facial nerve palsy.^{3,6} As per literature many surgical option for facial nerve palsy like facial nerve decompression, end to end anastomosis, interposition grafting, facial reanimation and facial reconstruction procedure. There are limitations for primary repair and grafting. It can be repair and decompression by intracranial, intratemporal, extra temporal and in combination. Facial nerve repaired can be immediate or delayed. It can be accomplished without tension by greater auricular or sural nerve. It is best to freshen both end of nerve and make 45° or oblique cut with sharp knife and used minimal number of neurosuture.^{7,8} We have done end to end repair of extra temporal facial nerve transaction and facial nerve decompression of vertical segment.

Electrophysiological test is an important diagnostic tool to estimate the amount of severe facial nerve degeneration which was not available at our center, so we used clinical topographic diagnostic test. Electroneurography (ENoG) is a mandatory because it is an important prognosis factor which is positive only after 4 days of facial nerve injury. It can estimate the amount of severe facial nerve fiber degeneration, if degeneration of greater than 90% of the individuals within 14 days of complete facial nerve paralysis indicates poor prognostic factors are likely to recover normal facial function. Electromyography (EMG) performed by using intramuscular recording electrodes probably most useful more than 2 weeks of facial nerve paralysis. This test measures motor activity of facial muscles that indicate wallerian degeneration or polyphasic potentials is a sign of regenerating nerve fibers.⁹

Surgical intervention for post traumatic facial nerve paralysis remains controversial and most of the patients recover fully without surgical intervention. Out of 17 patients, a patient underwent facial nerve decompression and one patient for end to end anastomosis. Both patients have sudden immediate onset facial nerve paralysis. The complete facial nerve recovery was seen of facial nerve decompression and incomplete was in end to end anastomosis. Remaining fifteen patients managed conservatively on steroids, symptomatic treatment and eye care. Out of 21 patients, 16 patients (76%) was done complete recovery and rest 4 patients (19%) had incomplete recovery. These patients are managed by adjunctive measures like tarsoraphy and gold weight.

The facial nerve paralysis prognosis depends upon degree of paralysis, duration of paralysis, site of injury, and patient's factors. The final goal of the facial nerve paralysis managed as defect reconstruction, facial

re-animation by hypoglossal to facial, nerve grafting, muscles trans position and adjunctive measures.

CONCLUSION

1. Sudden and immediate onset facial nerve paralysis needs early surgical intervention.
2. Facial nerve decompression gives better outcome comparing to termino-terminonal anastomosis.
3. Surgical intervention and result depends upon duration of nerve paralysis, degree of paralysis site of injury and patients factors.

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