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Clinical study of facial nerve Palsy - The causes and outcome at tertiary care centre

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Abstract

Facial paralysis causes physical as well as functional deformities and psychological problems that may lead to social and professional impairment. The most frequent cause is idiopathic other being trauma, tumours, infections, neurological, congenital or iatrogenic.

Objectives

1. To identify the etiological factors causing facial nerve palsy.
2. To compare the treatment modalities and recovery during follow up.

Materials and Method: 100 patents who suffered from facial nerve palsy were analysed. Detailed history was taken. Patients were subject to complete E. N.T, head and neck examination. Necessary investigations were done to confirm the diagnosis. Patients were treated either medically or surgically and facial nerve function was graded again during follow up after 1 week, 1 month and 3 months.

Results: The most common cause of facial nerve palsy is idiopathic (57%) followed by chronic suppurative otitis media (21%). Male preponderance was noted. At the end of three months 88% of patients recovered fully, 8% patients reduced to lower grades from presentation while 4% of patients did not recovered at all.

Keywords: Facial nerve palsy, Facial nerve palsy management.

Introduction

Facial nerve is a mixed nerve having motor, sensory and secretomotor function. It also carries taste sensation from anterior two third of tongue. Facial paralysis causes physical as well as functional deformities and psychological problems that may lead to social and professional impairment. The most frequent cause is idiopathic other being trauma, tumours, infections, neurological, congenital or iatrogenic.(1)

Materials and Method

This study was conducted for duration of 2 years from January 2015 to December 2016 at P.D.U. Hospital and Medical College, Rajkot.

Total 100 patients with facial nerve palsy of all age and sexes who came to department of E.N.T. were included in our study while those patients whose follow up was less than 3 months were excluded from the study.

Detailed history was taken of all the patients. Complete E.N.T. and head & neck examination was done. Facial nerve palsy was graded according to the House and Brackmann classification.(2) Appropriate investigations were done according to the aetiology. The patients were treated medically or surgically as indicated by their respective diagnosis along with ophthalmic care, multivitamins and physiotherapy.(3) All the cases were followed up after 1 week, 1 month, 3 months. At the end of 3 months again grading was done in every patient.

At the end of three months, the patients whose grade of facial nerve palsy reduced to grade I or II were considered to be the success of treatment and having grade V or VI were considered as the failure of the treatment. The patients whose grade reduced to III or IV from grade V or VI at the end of three months were considered having partial recovery.

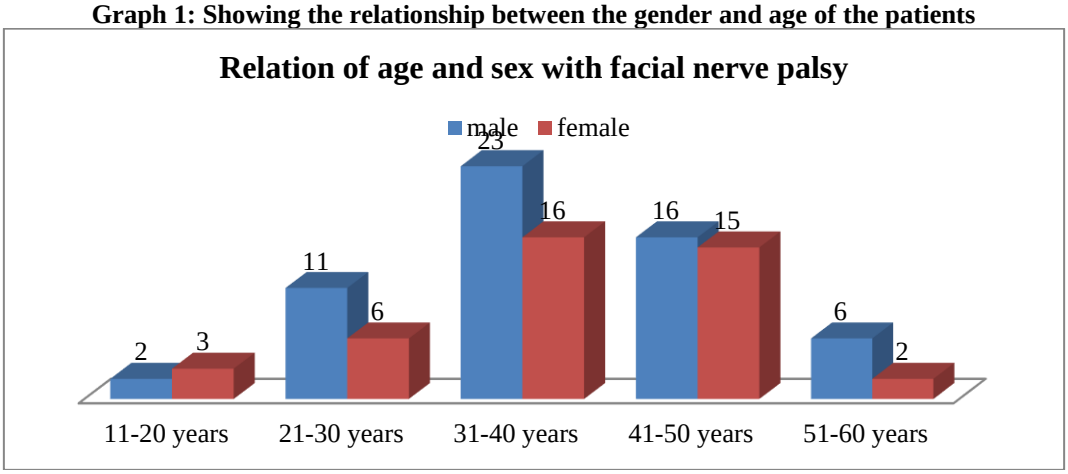
Results and Analysis

In this table, we relate gender distribution among various age groups. In our study, the youngest patient was of 12 years old while maximum age was 59 years accordingly we categorised different age groups.

Table 1: Relation of age and sex with facial nerve palsy

Age Group	Male	Female	Total
11-20 Years	2	3	5
21-30 Years	11	6	17
31-40 Years	23	16	39
41-50 Years	16	15	31
51-60 Years	6	2	8
Total	58	42	100

Graph 1: Showing the relationship between the gender and age of the patients

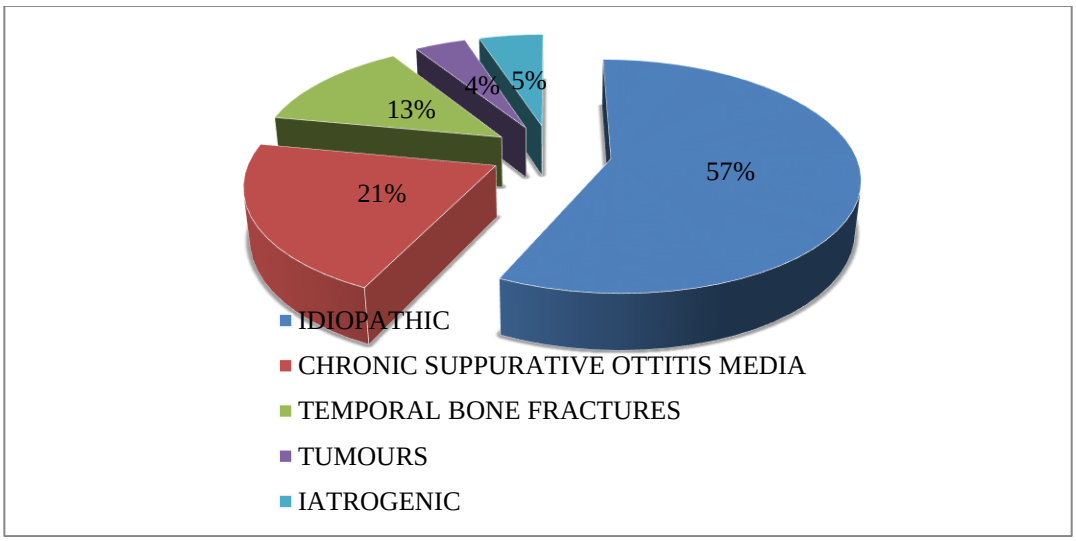


The above table and graph shows the relation of age and sex with facial nerve palsy. It is evident that majority of patients are in the age group of 31-40 years. 39(39%) of patients were amongst 31-40 years of age while 31(31%) patients belonged to 41-50 years age. 5(5%) patients were amongst age group of 11-20 years, 17(17%) in 21-30 years and 8(8%) of patients were of age group of 51-60 years.

Various etiological factors lead to facial nerve palsy of which majority is idiopathic and their exact causes were not known.

Table 2: Etiological Factors for Facial Palsy

Etiology	No.	%
Idiopathic	57	57%
Chronic Suppurative Otitis Media	21	21%
Temporal Bone Fractures	13	13%
Tumours	4	4%
Iatrogenic	5	5%

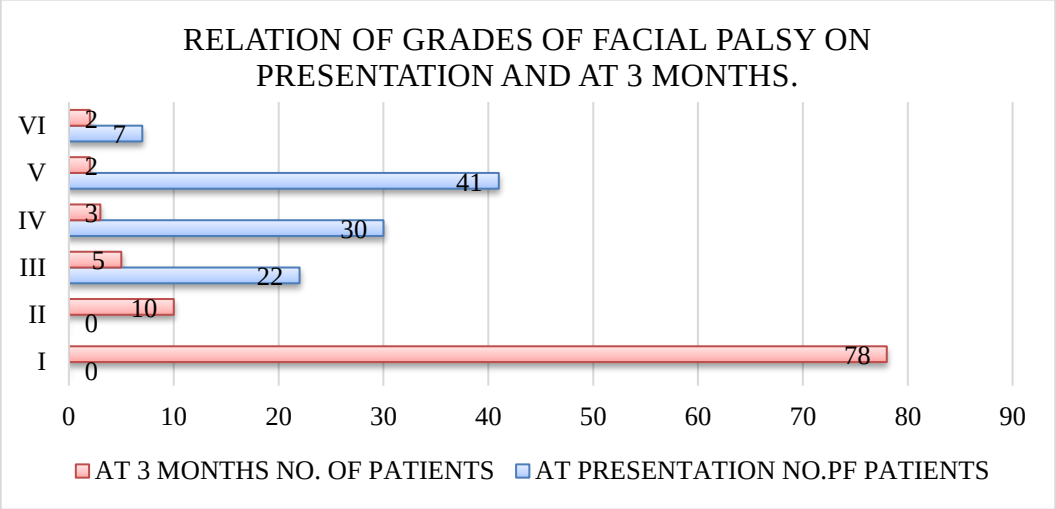


In our study 57(57%) patients were having idiopathic facial palsy, where exact cause of facial palsy was not known. 21(21%) patients were having palsy due to chronic suppurative otitis media and 13% of patients were having temporal bone trauma. 4% patients were having tumours and 5% had history of surgery.

At time of presentation as well as at the end of three months we graded all patients according to the House and Brackmann classification.

Table 3: Relation of grades of facial palsy on presentation and at 3 months

House Brackmann Grade	At presentation no. of patients	At 3 Months no. of patients
I	0	78
II	0	10
III	22	5
IV	30	3
V	41	2
VI	7	2



Patients were graded according to the House and Brackmann classification. We found that most of the patients were having grade V (41%) at presentation followed by grade IV (30%) and 22% were having grade III. When patients came for follow up at 3 months, 88% of patients recovered completely. 5% of patients had grade III. 3% patients had grade IV facial palsy and 4% patients had grade V or VI.

After development of facial palsy, some patients presented immediately within 48hrs were recovered well as compared to those who presented late.

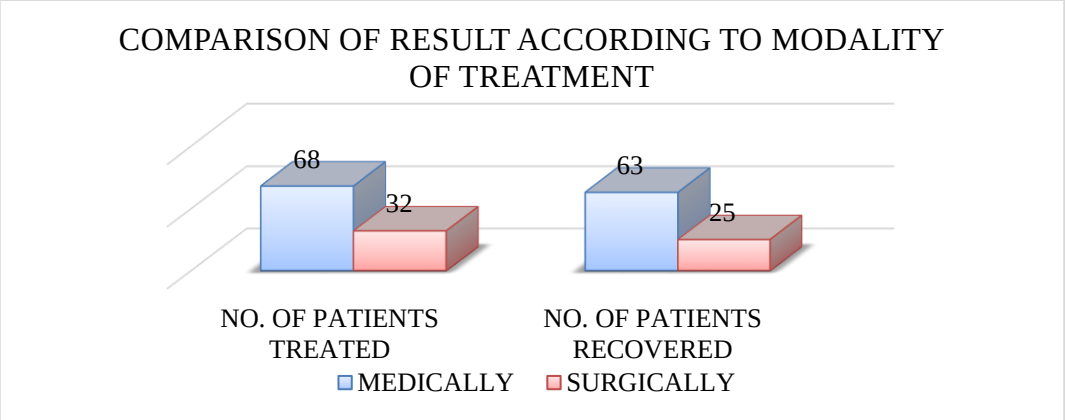
Table 4: Effect of duration with recovery of facial nerve palsy

	Less Than 48hrs	More Than 48 hrs
No. of Patients came	65	35
No. of patients recovered	61(93.84%)	27(77.14%)

In our study, 61(93.84%) patients out of 65 were fully recovered at the end of 3 months as they presented within 48 hrs of development of facial nerve palsy. While 27 (77.14%) patients out of 35 who presented after 48 hrs were having partial recovery. So patients who visited earlier, were treated earlier and better results were obtained.

Table 5: Comparison of result according to modality of treatment

	Medical	Surgical
No. of patients treated	68	32
No. of patients recovered	63	25



In our study, 63(92.64%) patients out of 68 patients treated medically, resolved completely at the end of 3 months. While 25(67.56%) out of 37 patients treated surgically, resolved completely. Rest had partial recovery. Idiopathic facial palsy was treated medically and fully resolved. All 21 patients of chronic suppurative otitis media where surgically treated. All of them were fully recovered. Initially, all patients of traumatic facial nerve palsy were given medical treatment. Those who did not recovered by medical management were advised HRCT Temporal bone and given surgical treatment by facial nerve decompression. Out of 13 patients of post traumatic facial nerve palsy, 10(76.92%) were treated by facial nerve decompression. 8(80%) patients fully recovered and 2(20%) patients were having partial recovery. In our study, 5 patients developed facial palsy after surgery. 2(40%) patients developed after mastoidectomy while 2(40%) patients had after parotid surgery. 1(20%) patient developed after submandibular gland excision. 4(80%) patients out of 5 of iatrogenic facial palsy were treated medically and recovered. 1(20%) patient of iatrogenic facial nerve palsy did not resolved after medical treatment was given surgical treatment by facial nerve decompression and recovered fully.

Image 1: Patient at presentation came with grade V facial palsy

Image 2: Patient underwent surgical treatment and was completely recovered at the end of 3 months

Discussion

Facial nerve, originates from the pons, runs a long intratemporal course and exits through stylomastoid foramen to supply different muscles of facial expression.[1,4] This long intra-osseous part of the nerve makes it vulnerable to different types of injuries ranging from local oedema to entrapment of the nerve in the bony canal or even impingement of the nerve by bony spicule after fracture of temporal bone.[4]

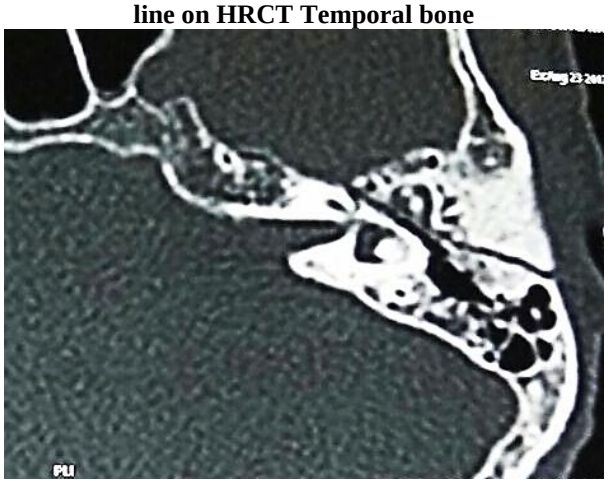
Treatment of facial palsy depends upon cause, duration, degree of facial palsy. Patients were treated medically and/or surgically. Medical treatment includes Prednisolone 1mg/kg/day and antiviral drugs.[3]

The recovery is better if patients present early. Higher grade of the facial palsy had direct impact on outcome as well as longer time of recovery as compared to the patients having lower grades at presentation. The maximum age of incidence was in 31-40 years (39%) with a male preponderance. While the study done by Hanaa Moala, Sharfi Ahmed, and Yousif M. Yousif also revealed most patients belonging to 31-40 years (22.8%) followed by 21-30 years (20.4%).[5] The mean age in our study is 34.5 years while in their study it was 35.7years.

The most common aetiology for facial palsy was found to be idiopathic (57%) followed by chronic suppurative otitis media (21%). In Mark May's study, idiopathic constituted about 55% while second was trauma (17%).[6]

Cholesteatoma is having erosive properties and compression along with osteitis.[7] HRCT temporal bone was advised for diagnosis.

Image 3: This image shows temporal bone fracture line on HRCT Temporal bone



The treatment was mainly surgically eradication of the disease as early as possible along with antibiotics support. All patients having temporal bone fractures, had road traffic accident followed by facial palsy. Most of the patient presented with either grade IV or V. Temporal bone fracture was confirmed by CT Temporal bone. Out of 13 patients of post traumatic facial nerve palsy, 10(76.92%) were treated by facial nerve decompression. 8(80%) patients fully recovered and 2(20%) patients were having partial recovery.

Surgery was another cause for facial nerve palsy. In our study 2(40%) patients developed palsy following canal wall down mastoidectomy and 2(40%) following parotid surgery. 1(20%) patient had facial nerve palsy after submandibular gland excision. All were given medical treatment. 4(80%) recovered completely. 1(20%) patient did not recover was offered facial nerve decompression. However, all of them recovered. Cautious drilling and meticulous dissection is advocated.

Because of tumours, facial palsy developed in 4 patients. Amongst them 1(25%) patient had vestibular schwannoma and 3(75%) had carcinoma of parotid gland. Typical symptoms include the slowly progressive facial nerve paralysis, hearing loss, tinnitus, pain and vertigo. CT scan and MRI were advised. Parotid tumours were confirmed by FNAC. After confirmation of diagnosis, surgery and radiotherapy were advised.

At time of presentation, most of the patients came with grade V (41%) followed by grade IV (30%). Every patient was treated medically or surgically according to aetiology. In our study, 68 patients were treated medically while 32 patients underwent surgical treatment. All patients with Idiopathic facial palsy were treated medically and fully recovered. All 21 patients of chronic suppurative otitis media where surgically treated. All of them were fully recovered. Initially, all patients of traumatic facial nerve palsy were given medical treatment. Those who did not recovered by medical management were advised HRCT Temporal bone and given surgical treatment by facial nerve decompression. Out of 13 patients of post traumatic facial nerve palsy, 10(76.92%) were treated by facial nerve decompression. 8(80%) patients fully recovered and 2(20%) patients were having partial recovery. 3(23.07%) patients of post traumatic facial palsy were treated medically of which 1(33.33%) patients had partial recovery while 2(66.66%) resolved completely. In our study, 5 patients developed facial palsy after surgery. 2(40%) patients developed after mastoidectomy while 2(40%) patients had after parotid surgery. 1(20%) patient developed after submandibular gland excision. 4(80%) patients out of 5 of iatrogenic facial palsy were treated medically and recovered. 1(20%) patient of iatrogenic facial nerve palsy did not resolve after medical treatment was treated by facial nerve decompression and recovered fully.

Every patient was given ophthalmic care along with physiotherapy. 63(92.64%) patients of 68 patients who were given medical treatment completely resolved. 25(78.12%) patients of 32 who underwent surgical treatment recovered fully. Rest of the patients had partial recovery. Regular follow up was advised to these patients.

At the end of 3months, 88% of patients resolved completely. They were considered into success of the treatment. 8% patients were having partial recovery. They reduced from higher grades to lower grades at the end of 3 months. 4% patients who remained as such even at the end of three months were considered to be the failure of the treatment.

Conclusion

The most common cause of facial palsy was idiopathic followed by chronic suppurative otitis media. Male preponderance was noted. Facial paralysis can produce significant impact on the patient psychologically, professionally as well as socially and in daily life, and should be treated in a timely manner. Management involves both medical and surgical treatment. Surgery was another mode of treatment having distinct role in chronic suppurative otitis media and temporal bone trauma. For iatrogenic palsy can be reduced by proper training, improving surgical skills, better instrumentation, cautious drilling and meticulous dissection.

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