



THE CLINICAL STUDY OF ETIOPATHOGENESIS & MANAGEMENT OF FACIAL NERVE PALSY

Shaikh Sadiya Almas

Junior Resident Ent Department, T. N. medical College & Nair Hospital, Mumbai

ABSTRACT

Facial nerve plays a major role in maintaining facial symmetry. Facial nerve dysfunction causes physical, functional and psychological impact on quality of life, so early evaluation and management needed. Various causes of facial palsy are ideopathic (Bell's palsy),infection, trauma, neoplasia, iatrogenic etc. Evaluation of patient with facial palsy includes detailed history, clinical examination ( facial weakness, incomplete eye closure, loss of taste, decreased tear and salivary secretions), otoscopic examination of the ear, audiometry , topodiagnostic tests, imaging like CT scan or MRI to be done if indicated. Depending on the etiology patient require conservative or surgical management. An observational study on etiopathogenesis and management of facial nerve palsy was undertaken in our institute and 30 cases of facial palsy who met our inclusion criteria were enrolled for the study.The common age group with facial nerve palsy is 18-30 years. Deviation of angle of mouth/facial asymmetry was the commonest presenting symptom seen in all the cases of facial palsy(30 cases), followed by inability to close eye (26 cases),inability to puff out cheek(25 cases). Majority of the cases of facial palsy were presented with house brackmann grade IV (19 cases) followed by grade III (06 cases),grade II (05 cases). Co morbidities were seen in 08 cases , 06 cases had diabetes mellitus and 02 cases had diabetes mellitus and hypertension. In majority of the cases of facial palsy 15 cases were of bell's palsy, followed by Infection(9 cases), Trauma (04 cases), neoplasia(02 cases).Majority of cases in infective aetiology were chronic suppurative otitis media (06cases), followed by malignant otitis externa (02 cases).Organism in pus culture and sensitivity showed staphylococcus aureus(03 cases), pseudomonas species (02 cases).All (04 cases) temporal bone fracture had longitudinal fracture. Majority of them were presented with delayed onset facial palsy(03 cases).cases of neoplasia with facial palsy had Cerebellopontine angle tumour(01 case), parotid carcinoma(01 case).All bell's palsy cases showed normal hearing.Conductive hearing loss seen in 12 cases. Mixed hearing loss and sensorineural hearing loss presented in each of the one case.HRCT temporal bone done in cases of infection and trauma .(12 cases)MRI performed in cases of malignant otitis externa(02 cases) and neoplasia(02 cases).Out of total 30 cases of facial nerve palsy 70% cases (21) received medical/conservative management. 08 cases (30%) received surgical management. All cases of bells palsy (15 cases) received medical management (antiviral and steroids).All cases of malignant otitis externa received medical management According to culture and sensitivity.All cases of chronic suppurative otitis media received surgical management regardless of the grade of facial palsy.Cases of Bells palsy and infection recovered to grade I within 6 months after proper management.Cases of trauma recovered after medical/surgical management in 1 year to grade I. cases of neoplasia in which surgical management done not recovered in follow-up visits. **Summary** Patients presented with facial palsy were clinically evaluated, investigated and managed according to their etiology, various outcome of facial palsy observed and noted.

KEYWORDS :

Common presenting age group of facial nerve paralysis was between 18-30 years of age, predominantly presented in males. Clinical presentation in majority of cases were deviation of angle of mouth/facial asymmetry, incomplete eye closure at affected side. House brackmann grade IV noted at onset in majority of cases in the study.

Co morbidities like diabetes mellitus were found in infectious etiology.Ideopathic(bell's) palsy found in majority of the cases (50%) followed by Infection(30%), trauma (13%), neoplasia(7%). In infections common cause was chronic suppurative otitis media .Organisms grown in culture and sensitivity in infection cases were pseudomonas, staphylococcus aureus. In all malignant otitis externa cases pseudomonas organism found.Longitudinal fracture is the most common cause in traumatic facial palsy.Hearing loss noted in infections , trauma and cerebellopontine angle tumor cases.All infectious and traumatic cases conductive hearing loss seen , cerebellopontine angle tumor case presented with the sudden sensorineural hearing loss.In infectious and traumatic cases high resonance computed tomography were useful indicator (shows bony invasion ).In neoplastic and malignant otitis externa cases MRI brain done for diagnosing and management of the disease.Bells palsy cases were managed conservatively ,satisfactory outcome observed with antivirals and steroids.In malignant otitis externa patients with facial palsy can improve after proper glycemic control and conservative management with culture sensitive antibiotics and satisfactory outcome noted after conservative management.Chronic suppurative otitis media with

cholsteatoma managed surgically to clear the disease regardless of grade of facial palsy.Majority of traumatic cases with delayed onset facial palsy managed conservatively with good outcome.In neoplastic cases prognosis and outcome of facial palsy after surgical management seen was poor.

Limitation Of The Study

Low sample size of causes of facial palsy like cerebellopontine tumor and parotid related facial palsy, requires longer duration of study.In our study we came across patients with transverse fracture of facial canal but they were associated with head injury and poor general condition so could not be evaluated.

MATERIAL AND METHODS

The presentation of the Categorical variables was done in the form of number and percentage (%). On the other hand, the quantitative data were presented as the means ± SD and as median with 25th and 75th percentiles (interquartile range).

Table 1:-Distribution of demographic characteristics of study subjects.

Demographic characteristics	Frequency	Percentage
Age(years)		
18-30	11	36.67%
31-40	8	26.67%
41-50	4	13.33%
>50	7	23.33%
Mean ± SD	37.23 ± 14.4	
Median(25th-75th percentile)	36(26-47.25)	

Range	18-68	
Gender		
Female	13	43.33%
Male	17	56.67%

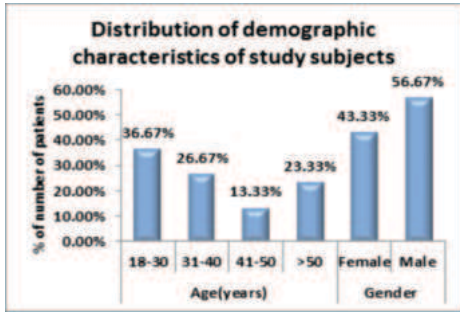


Figure 1:-Distribution of demographic characteristics of study subjects.

Total 30 subjects of facial nerve palsy 11 patients are in 18-30 years ,8 patients are in 31-40 years of age group,07 patients are in > 50 years of age group and 04 patient presented in 41-50 years of age group. common presenting age group is 18-30 years i.e 36.67%.

Mean value of age(years) of study subjects was  $37.23 \pm 14.4$  with median(25th-75th percentile) of 36(26-47.25).

Out of 30 patients 17 patients are male and 13 patients are females. Most common presenting group is male.

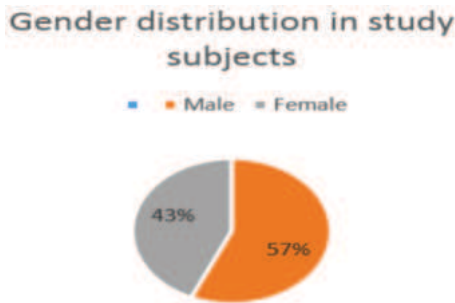
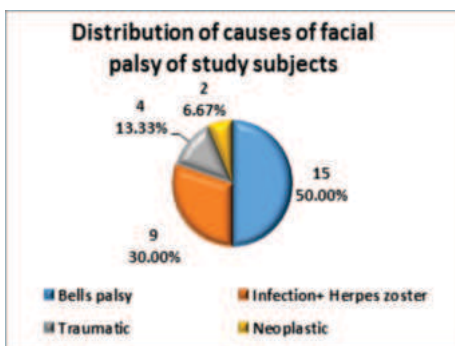


Figure 2 : Gender distribution in study subject

Table and figure 3 : Causes of facial palsy

In majority patients out of total 30 cases of facial palsy 15 cases are of bell's palsy, followed by Infection , total cases of infections are 09 including Herpes zoster and 04 cases are Traumatic facial palsy. 02 cases of facial palsy are of neoplastic aetiology.

Causes of facial palsy	Frequency	Percentage
Bells palsy	15	50.00%
Infection+ Herpes zoster	9	30.00%
Traumatic	4	13.33%
Neoplastic	2	6.67%
Total	30	100.00%



Most common presenting cause of facial palsy noted is Bell's (50 %).It is shown in table 05, figure 05.

Table and Figure 4: Hearing loss in different causes of facial palsy

Causes of facial palsy	Normal	Conductive hearing loss	Sensorineural hearing loss	Mixed hearing loss	Total
Bells palsy	15 (100%)	0 (0%)	0 (0%)	0 (0%)	15 (100%)
Infection + Herpes zoster	0 (0%)	8 (88.89%)	0 (0%)	1 (11.11)	9 (100%)
Traumatic	0 (0%)	4 (100%)	0 (0%)	0 (0%)	4 (100%)
Neoplastic	1 (50%)	0 (0%)	1 (50%)	0 (0%)	2 (100%)
Total	16 (53.33%)	12 (40%)	2 (6.67%)	01	30 (100%)

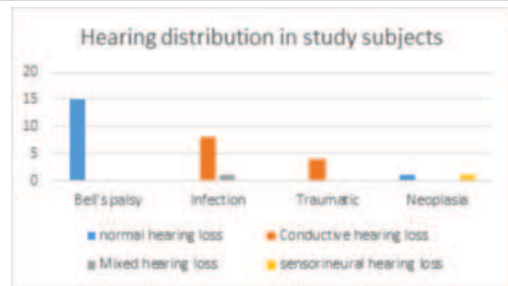


Table 5 : Distribution of management of 30 study subjects

Management	Cases	Percentage
Medical	21	70%
Surgical	09	30%

Out of total 30 cases of facial nerve palsy 70% cases (21) received medical/conservative management.

Rest of the 08 cases (30%) received surgical management.

Distribution of management

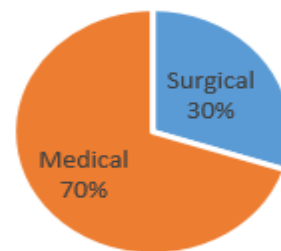


Figure 5: Distribution of management of 30 study subjects of facial nerve palsy.

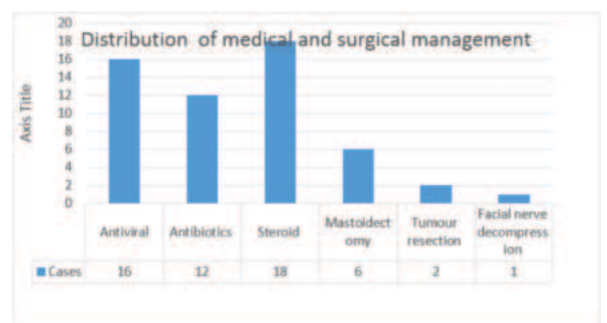


Table 6 : Medical and surgical distribution of management



Figure :- Distribution of management of study subjects.

Out of 15 cases of bells palsy, All patients received antiviral and steroids.

Out of 9 patients of infection, 01 case of herpes zoster received antiviral, other 8 patients received Antibiotics treatment and total 6 patients received surgical treatment(mastoidectomy).

Out of 4 patients of trauma, 03 patients received steroid and other 01 patient received surgical treatment(facial nerve decompression)

02 patients received surgical treatment i.e tumor resection.

It is shown in table 18 and figure 18.



Figure 8 & 9 :- Distribution of outcome & recovered cases of study subjects.

Out of 15 cases of bells palsy, All patients received antiviral and steroids.

Out of 9 patients of infection, 01 case of herpes zoster received antiviral, other 8 patients received Antibiotics treatment and total 6 patients received surgical treatment(mastoidectomy).

Out of 4 patients of trauma, 03 patients received steroid and other 01 patient received surgical treatment(facial nerve decompression)

02 patients received surgical treatment i.e tumor resection.

**Patient with grade III facial palsy**  
**Picture showing House Brackmann Grade IV facial palsy in a case of Idiopathic facial palsy(Bell's palsy),incomplete eye closure present**



Grade V facial palsy



Grade IV Facial palsy in a case of right csom with cholesteatoma temporal bone (bone window cut) left temporal bone longitudinal fracture with facial palsy.

Picture showing patient of facial palsy in right csom with cholesteatoma pre and post op pictures

Electromyography responses of same patient orbicularis oris,orbicularis oculi responses in a patient of



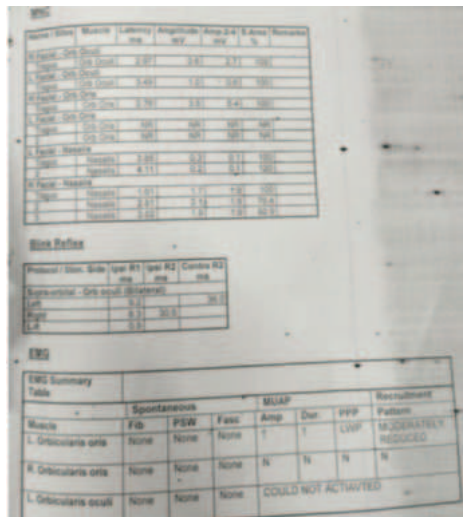
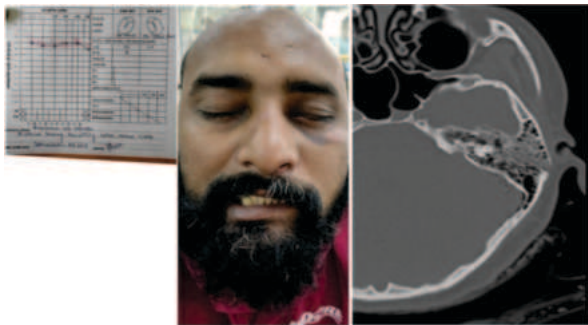


FIG. Traumatic facial palsy



Patient with Herpes Zoster oticus with Right side facial palsy.

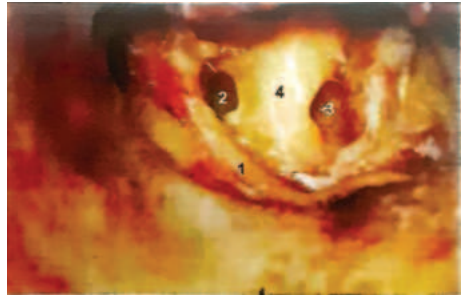


Fig 1a. Intra operative picture showing 1.Facial nerve 2.Oval window 3.Round window 4. Promontory

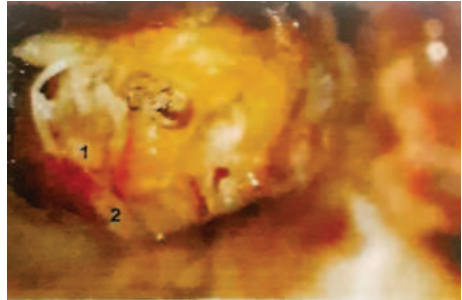


Fig 1b: Intra operative picture showing 1.Cochleaiform process 2.Facial nerve

REFERENCES

- 1) Coulson SE, O'dwyer NJ, Adams RD, Croxson GR. Expression of emotion and quality of life after facial paralysis. *Otol Neurotol.* 2004 Nov;25(6):1014-9.
- 2) De Diego-Sastre JJ, Prim-Espada MP, Fernández-García F. [The epidemiology of Bell's palsy]. *Rev Neurol.* 2005 Sep 1-15;41(5):287-90.
- 3) Holland NJ, Weiner GM. Recent developments in Bell's palsy. *BMJ.* 2004 Sep 04;329(7465):553-7.
- 4) Riordan M. Investigation and treatment of facial paralysis. *Arch Dis Child.* 2001 Apr;84(4):286-8.
- 5) Williamson IG, Whelan TR. The clinical problem of Bell's palsy: is treatment with steroids effective? *Br J Gen Pract.* 1996 Dec;46(413):743-7.
- 6) Ziahosseini K, Nduka C, Malhotra R. Ophthalmic grading of facial paralysis: need for a closer look. *Br J Ophthalmol.* 2015 Sep;99(9):1171-5.
- 7) Ravikumar A, Singh P, Batish VK. FACIAL PALSY - TREATMENT OPTIONS. *Med Armed Forces India.* 1999 Jan;55(1):41-44. doi: 10.1016/S0377-1237(17)30312-X. Epub 2017 Jun 26. PMID: 28775564; PMCID: PMC5531769.
- 8) Kim J, Jung GH, Park SY, Lee WS. Facial nerve paralysis due to chronic otitis media: prognosis in restoration of facial function after surgical intervention. *Yonsei Med J.* 2012 May;53(3):642-8. doi: 10.3349/ymj.2012.53.3.642. PMID: 22477011; PMCID: PMC3343423.
- 9) Bachi T. Hathiram, D.S Grewal. ENT simplified 2<sup>nd</sup> edition, Bhalani publisher 2002;
- 10) Scott - Brown 's Otorhinolaryngology ,Head and neck surgery ,Seventh edition;2008;Volume three
- 11) Glisscock - Shambaugh. Surgery Of The Ear ,6<sup>th</sup> Edition .2