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Surgical management of facial nerve palsy: our experience

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ABSTRACT

Background: Facial nerve palsy is a challenging task to deal with in patients as it has medical as well as social implications. The aim of this study was to examine the efficacy of different surgeries for facial palsy according to pathology and the ideal time for surgery.

Methods: This prospective study was conducted with the help of a structured proforma for history and examination. Defined diagnostic tests were performed and depending on complexities of cases, different surgical approaches were done.

Results: A total of 50 patients with secondary facial nerve palsies were included in our study and after thorough evaluation surgical management was planned. Ninety two percent were treated with facial nerve decompression, 4% with neurorrhaphy of the nerve and another 4% with cable graft.

Conclusions: High prevalence of facial nerve palsy in today's era necessitates early diagnosis and management in order to prevent complications and thereby reducing the risk of permanent disfigurement.

Keywords: Facial nerve palsy, Facial nerve decompression

INTRODUCTION

Facial palsy for a layman is a social hazard, while for a medical person it's a challenging task. The language of facial expressions is the highest importance for every human being. It is only too easy to understand that throughout the centuries such striking disfigurement has captured the interest not only of doctors, but also of artist.¹

Though facial palsy with rare exceptions does not endanger life, it does destroy the harmony of face and often even the harmony of human inter-relationship.² Only he who has undergone the ordeal of facial palsy himself can realize how much courage it takes to put up with it.

The evaluation and treatment of facial paralysis is especially intricate because of the wide variation in the potential for regeneration and lack of reliable prognostic indicators for spontaneous recovery.³ Thus through this study we examine the efficacy of different surgeries for facial palsy according to pathology, surgical procedure and the ideal time for surgery.

METHODS

This prospective cross sectional study was carried out in patients presenting with facial nerve palsy in civil hospital, Ahmedabad, over a period of three years from May 2013 to May 2016. The data collected was tabulated and subjected to statistical analysis using SPSS software.

Sample

Sample size was of 50 patients. All those who fit the inclusion criteria and gave consent for the study were included.

Inclusion and exclusion criteria

The inclusion criteria were patients who gave informed consent and had secondary facial nerve palsy. The exclusion criteria were age those who did not give informed consent and had idiopathic facial nerve palsy.

Baseline assessment of facial nerve palsy

Data was collected using a structured questionnaire. The data covered background information about the participant and a detailed history regarding chief complaints associated symptoms, past family and personal history. Basic general and systemic examination was done. Local examination of the ear and detailed examination of 7th cranial nerve was done. Examination of other cranial nerves and ENT examination was also included in our study. Routine blood and audiological investigations like PTA and radiological investigations like HRCT temporal bone were given emphasis. The patients had regular follow up at 1, 3, 6, 12 months.

RESULTS

A total of 50 patients with facial palsy were selected for the study. Of these, 68% (34) were males and 32% (16) were females. It was noted that the prevalence of facial palsy was highest in the 4th decade which was 36% (18).

This study probed to find different etiologies of facial nerve palsy. Fifty two percent (26) of the patients had facial palsy post trauma, out of which 76% (20) was due to post RTA leading to temporal bone fracture and 24% (6) was iatrogenic after performing modified radical mastoidectomy.

Table 1: Diagnosis wise distribution.

Diagnosis	Ν	Percentage (%)
Traumatic palsy	26	52
CSOM	20	40
SCC	4	08
Total	50	100

Among other causes 40% (20) of patients had facial palsy as a complication of CSOM and 8% (4) had it due to squamous cell carcinoma (Table 1).

Table 2: Modality of treatment.

Surgery offered	No. of patients	% of cases
Decompression	46	92
Neurorrhaphy	2	4
Cable graft	2	4
Total	50	100

Assessment of facial palsy was done according to House Brackmann (HB) grading and preoperatively 12% (6) patients were in grade II, 12% (6) in grade III, 48% (24) in grade IV and 28% (14) in grade V.

We mainly focused on the surgical management of facial nerve palsy in which 92% (46) were managed with facial nerve decompression, 4% (2) were managed with Neurorrhaphy and 4% (2) with nerve cable graft (Table 2).

Assessment of results was done again by HB grading system and improvement to Grade I of facial nerve function was considered as successful outcome. At the end of study that is 12 months of follow up 88% (44) patients had successful outcome with surgery however 12% (6) did not due to late presentation leading to complete laceration of the nerve.



Figure 1 (A and B): Pre op follow-up at 6th month.



Figure 2 (A and B): Facial nerve exploration after incision exposed vertical part of facial nerve of nerve sheath.

Photographs of patients with outcome of the facial nerve decompression are given in (Figure 1) and images of intra op findings of facial nerve are given in (Figure 2).

DISCUSSION

This was a cross sectional study conducted in a Civil Hospital in Ahmedabad. Fifty patients were included in the study of which, 68% (34) were male and 32% (16) were females with mean age being 34.8 yrs. In a study done by Bruno et al in 82 patients with facial nerve palsy 54 were males (65.8%) and 28 females (34.2%) and mean age 30.9 years which was nearly similar to our study in terms of sex predilection and mean age.⁴

Out of all, 52% (26) patients had traumatic facial nerve palsy amongst which 77% (20) had history of RTA

leading to temporal bone fracture, while 23% (6) patients had iatrogenic palsy, developed after performing modified radical mastoidectomy.

Among other causes 40% (20) patients developed facial palsy as complication of cholesteatoma and 8% (4) patients had squamous cell carcinoma affecting the facial nerve requiring excision of the segment. In a study done by Santos et al bell's palsy was the most frequent etiology (53.7%), followed by post traumatic (24%), Ramsay hunt syndrome (9.2%), cholesteatoma (5.5%) which was similar to our study in terms of prevalence of post traumatic facial palsy being most common (Bell's palsy and Ramsay hunt syndrome was excluded from our study).⁵

Ninety percent (46) patients underwent facial nerve decompression. In traumatic facial nerve palsy decompression was carried out by posterior tympanotomy approach.⁶ Neurorrhaphy was performed in 4% (2) patients by coating the partially lacerated nerve ends and wrapping them with temporalis fascia graft. Greater auricular nerve grafting was done in 4% (2) patients with squamous cell carcinoma involving and requiring excision of the segment which was similar to a study done by Dragoljub et al included 13 patients who undergone surgical management, 84% (11) patients undergone decompression, 8% (1) patient has end to end anastomosis and 8% (1) patient had greater auricular nerve grafting.⁷

The rate of good recovery when undergoing decompression surgery within 2 weeks of onset was HB grade 1 of facial nerve function, resulting in a significantly better outcome than that of patients undergoing delayed intervention. In a study done by Chang and Cass, decompression surgery provides beneficial effects if performed within 14 days of injury and delayed surgery should be done if the facial nerve function does not show any recovery to ascertain acute or delayed facial nerve paralysis.⁸

Assessment of results was done by HB grading system. Gaining of HB grade 1 of facial nerve function was considered successful outcome at the end of 12 months of surgery. Preoperatively 12% (6) patients were in grade II, 12% (6) in grade III, 48% (24) in grade IV, 28% (14) in grade V. At the end of study that is 12 months 88% (44) patients had successful outcome with surgery however 12% (6) did not due to late presentation leading to complete laceration of the nerve in comparison to a study done by Luan et al. 60 patients who were surgically treated, 39 achieved grade I of facial nerve function, 18 achieved grade IV, according to the HB grading system, thus 65% (39) of the patients achieved grade I facial nerve function.⁹

On the basis of the outcome observed in the present surgical series, the recovery of satisfactory facial nerve function could be achieved, regardless of timing of surgery performed, within the first 3 months after the onset of paralysis which was similar to a study done by Darrouzet et al.¹⁰

This study demonstrates that unless there is a disruption of the main trunk, necessitating primary end to end anastomosis or grafting, the type of injury does not have any clear effect on the facial outcome, as long as appropriate surgical management is applied.

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REFERENCES

- Glasscock M, Shambaugh G. Facial nerve surgery. In: Surgery of the ear, Glasscock M, Sham- baugh G, editors. Philadelphia: W.B. Saunders; 1990: 434-465.
- Melvin TA, Limb CJ. Overview of facial paralysis: current concepts. Facial Plast Surg. 2008;24(2):155– 63.
- 3. Hadlock TA, Greenfield LJ, Wernick-Robinson M, Cheney ML. Multimodality approach to management of the paralyzed face. Laryngoscope. 2006;116(8):1385–9.
- 4. Bruno R. Pinna, José RG. Testa and Yotaka Fukuda, Brazilian J Otorhinolaryngol. 2004;70(4):3069.
- Junior NA, Junior JJJ, Gignon VF, KiticeAT, Prado LSA, Santos VGW, et al. Facial Nerve Palsy: Incidence of Different Ethiologies in a Tertiary Ambulatory. Int Arch Otorhinolaryngol. 2009;13(2):167-71.
- 6. Rajati M, Rad MP, Irani S, Khorsandi MT, Zarandy MM. Accuracy of high-resolution computed tomography in locating facial nerve injury sites in temporal bone trauma. Eur Arch Oto-Rhino-Laryngol. 2014;271(8):2185–9.
- Popović D, Stanković M, Popović Z, Milisavljević D. Factaiversitatis Series. Medicine and Biology. 2003;10(3):145–7.
- 8. Chang CY, Cass SP. Management of facial nerve injury due to temporal bone trauma. Am J Otol. 1999;20:96-114.
- 9. Xie S, Wu X, Zhang Y, Xu Z, Yang T, Sun H. The timing of surgical treatment of traumatic facial paralysis: a systematic review. Acta Oto-Laryngologica. 2016;136(12):1197-200.
- 10. Darrouzet V, Duclos JY, Liguoro D, Truilhe Y, De Bonfils C, Bebear JP. Management of facial paralysis resulting from temporal bone fractures: our experience in 115 cases. Otolaryngol Head Neck Surg. 2001;125:77-84.

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