



INDICATIONS AND EFFICACY OF FACIAL NERVE DECOMPRESSION IN PATIENTS WITH FACIAL PALSY- A RETROSPECTIVE STUDY OVER 5 YEARS IN A TERTIARY CARE CENTER IN INDIA

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KEYWORDS

INTRODUCTION

¹Facial nerve decompression is a type of nerve decompression surgery where abnormal compression on the facial nerve is relieved. Nerve decompression surgery can help those living with facial paralysis regain facial function and improve facial symmetry. ²Most commonly the cause of facial nerve palsy remains unknown- Idiopathic/Bell's Palsy(70%), fractures involving the petrous part of temporal bone, iatrogenic injury can cause traumatic damage to facial nerve(10-23%), infections- viral or bacterial can cause facial nerve paralysis due to ganglionitis or dehiscence(4.5-7%), malignancies resulting in facial palsy constitute 2% of cases. ³Decompressing the facial nerve may be achieved through one of three approaches or a combination- the trans-mastoid, middle fossa, and trans labyrinthine approach.

AGE	NUMBER OF CASES
12-18yr	6
19-40yr	10
41-60yr	6
61-75yr	2

AIM

The aim of this study is to evaluate the indications and efficacy of facial nerve decompression through a microscopic trans mastoid approach for patients with facial paralysis.

This single-center (Tertiary care hospital) retrospective study over 5 years included 24 patients with facial paralysis arising from varied causes including infective etiology, post traumatic facial nerve injury, tumors in association with facial nerve, post operative complications and revision surgeries. We compared the facial nerve function before and after operation so as to reveal the feasibility and effect of the surgical approach.

PATIENT SELECTION

Of all the patients with facial paralysis treated at our hospital, 24 cases met the inclusion criteria:

- Age < 12 yrs
- Electroneurography (ENoG) test relative to the unaffected side of the face before surgery.
- Sufficient doses of steroids had been taken in the first 2 weeks after onset, and there was no improvement in the degree of facial paralysis.
- No relevant systemic disease affecting prognosis.
- Patients presenting with Bell's palsy were excluded from the study

Clinical Data

Our retrospective study was based on the clinical data of 24 cases of facial paralysis. The age ranged from 12-75 yrs. The causes of paralysis included 15 cases of Otitis Media (62 %), 3 cases of post operative complication (12%) which were referred to our tertiary care hospital , 2 cases of tumors- Schwannoma (8%), 2 cases of Revision surgeries (8%), and 2 case of post traumatic nerve injury (8%) According to the medical history, 22 cases presented with severe facial paralysis and 2 cases presented with minimal facial paralysis ranging

from grade 3 to 5. It is certain that these 24 patients with facial paralysis had initial conservative treatment without recovery. The duration of preoperative paralysis varied; in cases of otitis media- depending on detection of disease, post traumatic facial paralysis- depending on presentation to hospital post trauma; with an average duration ranging from 1 week to 2 months. All operations were performed by the same operator. All patients were followed up for at least 12 months- at intervals of 1 month, 2 months, 6months and 12 months to evaluate the recovery of facial nerve function

ETIOLOGY	NUMBER OF CASES	Preoperative HB	Postop HB at 1 y
Trauma	9	Grade 5	Grade 1, Grade 4 (1 pt)
Otitis Media	15	Grade 5, Grade 2 (1 pt)	Grade 1
Tumor (Schwannoma)	2	Grade 5	Grade 1, Grade 3 (1 pt)
Iatrogenic	3	Grade 5	Grade 1
Revision Surgery	2	Grade 5	Grade 1

Preoperative Examination

³Before operation, HRCT of temporal bone was used to evaluate the site of the facial nerve, facial canal dehiscence, abnormality of the fallopian canal. ⁴All patients underwent HRCT of temporal bone before operation, and facial nerve enhanced MRI examination when necessary. The diagnosis of temporal bone fracture, extent of disease, bony erosion, the range of facial nerve swelling were determined according to the imaging results. ⁶At the same time, the tear overflow test, stapedius reflex test, and taste test were conducted before operation to assist in judging the injury site of facial nerve. ENoG test is performed to evaluate the degree of injury and facial nerve function. Pure Tone Audiometry to evaluate the hearing function. At the same time, we combined the results with the House-Brackmann grade of facial nerve paralysis.

Facial Nerve Recovery

All patients were followed up for at least 12 months. At 1, 2, 6 and 12 months after operation, their HB grade of facial nerve function was evaluated. If necessary, ENoG test was used to evaluate the recovery of facial nerve. The standard of satisfactory recovery of facial nerve function was HB-I or -II on the surgical side 12 months after operation for 22 of the 24 cases. 2 cases of delayed traumatic facial palsy and schwannoma did not show much improvement. The hearing reconstruction was evaluated by PTA 12 months after operation.

Facial Nerve Grading Scale 2.0				
Score	Region			
	Brow	Eye	NLF	Oral
1	Normal	Normal	Normal	Normal
2	Slight weakness >75% of normal	Slight weakness >75% of normal Complete closure with mild effort	Slight weakness >75% of normal	Slight weakness >75% of normal
3	Obvious weakness >50% of normal Resting symmetry	Obvious weakness >50% of normal Complete closure with maximal effort	Obvious weakness >50% of normal Resting symmetry	Obvious weakness >50% of normal Resting symmetry
4	Asymmetry at rest <50% of normal Cannot close completely	Asymmetry at rest <50% of normal	Asymmetry at rest <50% of normal	Asymmetry at rest <50% of normal
5	Trace movement	Trace movement	Trace movement	Trace movement
6	No movement	No movement	No movement	No movement
Secondary movement (global assessment)				
Score		Degree of movement		

DISCUSSION

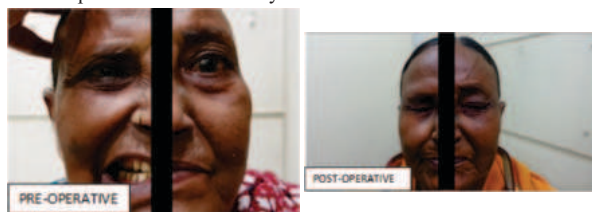
⁷Facial nerve paralysis is a debilitating condition that seriously affect patients' normal social life and makes them suffer great psychological pain. Therefore, active and effective treatment of facial paralysis is of great significance to improve physical and mental health of patients.

In the study 9 cases presented with post traumatic facial palsy, 3 showing immediate palsy while 9 presented with delayed onset, up till 2 weeks after traumatic incident. ⁸Immediate onset facial paralysis suggests a potential facial nerve transection, while delayed onset facial palsy is believed to be due to inflammation and swelling compressing the facial nerve. Out of the 9 cases 8 showed significant improvement following decompression while 1 case of delayed presentation did not show improvement due to axonal damage. ⁹All 15 cases of otitis media having choleostoma with significant bony erosions causing nerve compression showed satisfactory nerve function recovery. Of the 2 cases that presented with facial nerve paralysis due to Schwannoma compressing the nerve, 1 patient showed improvement following tumor resection and facial nerve decompression. Other patient presented with a rare case of intramural schwannoma; tumor removal involved transection of facial nerve followed cable graft anastomosis hence showed poor improvement. ¹⁰3 cases of iatrogenic presentation that were referred to our hospital came with facial palsy onset within 10 days of otological surgery, during the operation we found that there was sheath breach and the nerve was herniating outside the sheath- the defect was sutured using 8-0 PDS suture and all the 3 patients recovered with HBI and II scale. 2 cases of previously performed nerve decompression were brought again with facial nerve palsy after 6months. This presentation was thought to be either bells palsy or nerve compression causing palsy. On operating it was seen that there was fibrosis around the sheath of the nerve ;showed improvement from grade 5 to grade 1 and grade 2 respectively on regular follow up

CONCLUSION

In this retrospective study we can conclude that the timely detection of cause of facial nerve palsy, early intervention and surgical repair of a compressed, transected or penetrated nerve is fundamental to patient recovery. However, the small number of cases, and the lack of long-term results in these patients are the main limitations of our present study, which makes it difficult to conduct stratified and in-depth analysis of prognostic factors affecting the efficacy, such as age, duration of facial paralysis, onset time, and so on. Therefore, this is our preliminary study. Future studies will enroll more patients with multicenter cooperation and increase the duration of follow-up to analyze the relationship between surgical effect and different prognostic factors.

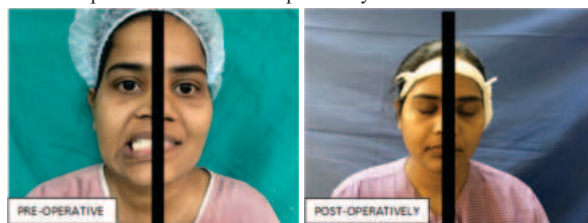
67year/Female Presented with Iatrogenic Facial Palsy, Presented to Our Hospital 2weeks After Palsy



23year/Female Presented with Post Traumatic Facial Nerve Palsy Showing Good Improvement Postoperatively



35year/Female Case of Otitis Media Showing Grade3 Facial Palsy Which Improved to Grade1 Postoperatively



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