FACIAL PALSY - TREATMENT OPTIONS

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ABSTRACT

Facial palsy poses a diagnostic and therapeutic challenge to the doctor. Definite treatment modalities, medical, surgical and physical have evolved and can be used either singly or in combination to treat this condition successfully. 25 cases of facial palsy of varied aetiology managed over 2 year period in the Neurotology clinic of Armed Forces Medical College are presented. 10 cases underwent medical management only. 15 cases underwent surgical management, consisting of facial nerve decompression (10), nerve approximation (2), nerve grafting (1) and hypoglossal facial anastomosis [2]. All patients underwent physiotherapy to the paralysed face. Patients with Bell's palsy had 83.5% recovery (5 out of 6 cases), CSOM cases after surgical decompression of facial nerve had a 100% recovery (3 out of 3 cases), iatrogenic facial palsy 80% (8 out of 10 cases) and patients after tumour excision 68% (4 out of 6 cases) recovery. The diagnostic approach, method of evaluation of degree of facial palsy based on clinical, electrodiagnostic tests and the various treatment modalities are discussed.

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KEY WORDS: Facial palsy; treatment modalities.

Introduction

Facial palsy is one of the most distressing and disfiguring symptoms that can affect any individual. It affects all age groups and is usually sudden in onset. The long and tortuous course of the nerve and the complex anatomy of its intra temporal course with its anatomical variations contribute to the difficulties in treating this condition [1]. Better understanding of its anatomy and the electrophysiology of nerve conduction and regeneration have contributed to certain definite treatment policies [2,3]. Acute facial palsy poses a diagnostic challenge to the doctor. Definite treatment modalities, medical surgical and physical have evolved and can be used either singly or in combination to treat this condition successfully.

Material and Methods

Twenty five patients with unilateral facial palsy seen at the Neurotology clinic of Armed Forces Medical College, Pune-40 from July 94 to September 96 were included in this study. They have been grouped into 4 categories based on the aetiology. These were Bell's palsy (6 patients), chronic otitis media (3 patients), iatrogenic facial palsy (10 patients) and facial palsy due to tumours (6 patients). Based on clinical assessment of facial function, the degree of facial weakness was graded using the grading system of House and Brackmann [4]. 5 of the 6 patients with idiopathic Bell's palsy had grade III palsy and one had grade IV palsy. The patients with complicated chronic otitis media had grade IV facial palsy. Iatrogenic facial palsy cases had a more severe degree of paralysis of grade IV or V. The patients with tumours (4 with acoustic neuromas and 2 with glomus jugulare) had grade II facial palsy.

Facial nerve function was assessed by nerve excitability test and evoked electromyography. The former was used in cases of acute onset and the latter in delayed cases to assess recovery of function. In case of a complete palsy, if the response to maximum stimulation test remained 11% or above when compared to normal side (100%), then reevaluation with electrical testing was continued every day upto 14th day after onset. At that time, if response to maximum stimulation test remained 11% or above in comparison to the normal side indicating 90% degeneration and EEMG showed some activity, then only medical therapy was continued. Conversely, if the response was below 11% of normal side or is completely lost within the first 14 days, then the patients were taken up for surgical treatment. However, where the nerve was damaged during the primary (mastoidectomy, skull base surgery) and in cases of complicated CSOM with facial palsy, surgical repair of the nerve was done soon. Imaging with HRCT was used in selected cases of suspected tumours and non recovering Bell's palsy.

Medical therapy consisted of physical, pharmacological and psychophysical therapy. Physiotherapy was done by application of warm towels, massaging the face and facial exercises. Pharmacological therapy with Prednisolone (40-60 mg/day) was given for 5 to 7 days to reduce oedema of the nerve. Reassurance of the patient, pain relief with non opiate analgesics and care of the eye were the components of psychophysical therapy. Corneal damage to the exposed, anaesthetic and dry cornea due to combined facial and trigeminal palsy and absence of lacrimation as in cases following excision of acoustic neuroma (4 cases) was prevented by tarsorrhaphy. Other patients with no loss of lacrimation and intact corneal sensation were given eye shade told to avoid rubbing the eye and prescribed antibiotic eye drops.

Surgical repair of the facial nerve was done in all cases of iatrogenic facial palsy (10 cases after mastoidectomy and 2 cases after acoustic neuroma excision). In complicated chronic otitis media with facial palsy, the facial nerve was decompressed after

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excision of the disease. Surgical decompression of the tympanomastoid segment of the facial nerve (horizontal and vertical part) was performed by the transmastoid route. Granulations and cholesteatoma were found over the facial nerve in cases of chronic otitis media which were removed. Laceration and partial damage to the nerve was found in 7 cases of iatrogenic facial palsy, the sites being the pyramidal bend (5 cases) and the horizontal part (2 cases). Decompression was carried out by opening the bony fallopian canal on either side of the damaged site till normal nerve was found. The oedematous nerve sheath was incised. In 3 cases complete transection was found at the pyramidal bend. Mobilisation of the cut ends with approximation was performed in 2 cases and in 1 case a greater auricular nerve graft was interposed and sutured in place as the ends could not be approximated. Hypoglossal facial nerve anastomosis was carried out in 2 cases. In one case where the intracranial part of facial nerve was damaged during excision of acoustic neuroma and the other where a previous greater auricular nerve grafting in the mastoid had failed. In this procedure the distal hypoglossal nerve in the neck was anastomosed with the main trunk of the facial nerve at its exit from the stylomastoid foramen.

Recovery of facial function was assessed at 3 months, 6 months and 1 year post treatment. Apart from clinical examination, electrophysiological assessment using EEMG was used to detect fibrillation (recovery) potentials.

Results

There were 14 female and 11 male patients in the age range 5-60 years. Facial asymmetry was present in all patients, while pain around the affected ear was present in all the 6 cases of Bell's palsy. Associated otological symptoms were present in cases where the cause of facial palsy was otological. There were 19 patients with hearing loss, 17 with tinnitus and 13 with otorrhoea. 4 patients with acoustic neuromas had unsteadiness and 3 patients with complicated chronic otitis media had fever at the time of presentation.

The earliest recovery was detected at 3 weeks in cases of Bell's palsy and longest recovery in patients who underwent hypoglossal facial anastomosis at 9 months to 1 year. Five out of the six patients with Bell's palsy had electrical responses of 11 to 24% of normal side. All had complete recovery within 6 weeks. One case had no response at all on the affected side at 3 months after onset

indicating complete degeneration. The facial palsy did not recover. He was imaged using HRCT and tumour of CP angle/facial nerve was ruled out.

The cases of complicated chronic otitis media with facial palsy, after excision of the disease and decompression of the nerve had electrical activity of 20% to 30% of the normal side. They had Grade I/II recovery. In the iatrogenic group, there was very minimal response after 3rd to 5th post trauma day. These underwent surgical repair. 80% of these patients made a satisfactory recovery after 6 months to 1 year. Here again, electrical testing was able to predict the onset of recovery, when the evoked electromyographic potentials started appearing 4-6 weeks before clinical recovery started.

Among the surgical methods used, decompression was found to be effective and with quicker (6 months) and complete (grade I/II) return of function. In three cases where complete transection was found, mobilisation of the cut ends with approximation was performed in two out of three cases and in one case a greater auricular nerve graft was interposed and sutured in place with 8 '0' silk, as the ends could not be approximated. Facial nerve approximation yielded a satisfactory result (grade II), but took 6 months to 1 year. One case which underwent grafting did not make any recovery, probably as a result of fibrosis. The two cases that underwent hypoglossal facial anastomosis had satisfactory recovery (grade II/III) after 9 months to 1 year post op (Table 1). The overall results of the treatment are given in Table 2.

TABLE 1
Results of surgical repair of facial nerve (n=15)

Type of surgical repair	No of cases	Grade of facial palsy		Duration of recovery
		Pre-op	Post-op	
Decompression	10	IV	I-7 II-3	3-6 mths
Nerve approximation (Direct suturing)	02	IV	II-1 III-1	6 mths to 1 year
Grafting (greater auricular nerve)	01	IV	IV	No recovery at 1 year
Hypoglossal - facial anastomosis	02*	IV	II-2	9 months to 1 year

Includes one case of facial palsy which did not recover after grafting.

TABLE 2
Overall results of treatment (n=25)

Aetiology	No of cases	Grade of facial palsy	Treatment	Post treatment recovery	Overall result % age
Bell's palsy	06	III	Medical	3 wks to 3 mths Gr I	5/6 (83.5%)
Chronic otitis media	03	IV	Medical & surgical	4-6 months Gr I, II	3/3 (100%)
Iatrogenic	10	IV/V	Decompression +/- grafting & XII-VII anastomosis	6 mths to 01 year Gr I - 3 Gr II - 5 Gr III - 2	8/10 (80%)
Tumours	06	II	Medical + Physiotherapy + surgical (hypoglossal facial anastomosis)	Gr I - 2 Gr II - 2 Gr III - 2	4/6 (68%) In 2 cases facial palsy worsened, but recovery is expected

Discussion

Acute facial palsy poses a diagnostic and management challenge to the doctor. This is due to the complex anatomy of the facial nerve, the vast number of diseases causing facial palsy and the variability in recovery of function which is difficult to predict accurately. Patients and their families seek answers to three important questions:

- (a) What is the cause (diagnosis)?
- (b) When can recovery be expected (prognosis)?
- (c) What can be done to promote recovery (treatment)?

In most cases a thorough clinical evaluation can provide an answer to questions. When no specific cause such as trauma, infection or tumour can be identified and the rest of the clinical features fit that of idiopathic lower motor neurone facial palsy, then a diagnosis of Bell's palsy is made. The prediction of time of recovery and the degree of recovery is made by evaluating

- (a) the completeness of the palsy
- (b) the response to electrophysiological testing
- (c) the time when recovery first begins.

The degree of recovery can be categorised using the classification system proposed by House and Brackmann [4]. In this system, grade I indicates complete recovery, grade II where a very subtle deficit remains, grade III and IV where there is incomplete recovery where signs of faulty regeneration such as synkinesis, spasm and facial weakness, grade V indicates severe dysfunction with barely perceptible movement and grade VI which is total paralysis. In this study, this system was used even at the time of initial assessment of facial function to ensure uniformity of scale of assessment and also because no other suitable comprehensive classification system for assessment of facial function exists.

Patients with acute facial palsy of traumatic or infective aetiology and idiopathic Bell's palsy who manifest residual facial movement beyond 14 days after onset will have a satisfactory recovery [5]. This was present in our study group also. Nevertheless, patients must still be followed up carefully and recovery documented by using electrical testing which can accurately predict recovery. In addition serial photography, if possible video photography to show movements of facial expression, is recommended to document the recovery in a more objective manner [6].

Management of acute facial palsy varies depending on the degree of palsy. In case of an incomplete palsy, the patient is reassured and reviewed after 3 weeks. If

there is no recovery after 6 weeks or there is worsening of the paresis, a tumour should be suspected. In case of a complete palsy, the nerve excitability tests (NET) and evoked electromyography (EEMG) are useful in predicting degree and time of recovery [7,8]. The recommended criteria to predict recovery is the same as that which was used in the study [7]. Generally, if electro diagnostic tests indicate less than 90% degeneration, the recovery is early and satisfactory. EEMG is useful in predicting recovery before clinical recovery is detectable. This rule does have a few exceptions as reported by May et al [8].

Although surgical decompression has been recommended in cases of idiopathic Bell's palsy [12] we did not use it in our series as five of the six cases made satisfactory recovery within 6 weeks. The one case where recovery did not occur reported to our centre 3 months after onset of palsy when the surgical decompression results are poor [13,14]. Hence, he was not offered surgery. Surgical decompression consists of deroofing the bony fallopian canal, and incision of the facial nerve sheath as recommended by Coker [15]. Decompression gave the best results, followed by nerve approximation and hypoglossal facial anastomosis. This is similar to the results reported by Angeli et al [16]. One case which underwent grafting did not make any recovery, probably as a result of fibrosis (Table 2).

While treating a patient with acute facial palsy it is important to remember that all is not lost. Thorough clinical evaluation including electrophysiological testing helps in assessing the aetiology and severity of the palsy and choose appropriate medical or surgical treatment which should be individualised to suit the particular patient. Treatment generally gives a satisfactory result. Reassurance provides a lot of emotional support to these unfortunate patients who frequently become depressed. In the end, patience, pays!

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