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ORIGINAL RESEARCH ARTICLE: STUDY OF OPHTHALMIC CLINICAL FEATURES OF PATIENTS OF FACIAL NERVE PALSY

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ABSTRACT

Background: Facial nerve (7th cranial nerve) palsy is often idiopathic (formerly called Bell palsy). Idiopathic facial nerve palsy is sudden in onset, unilateral peripheral facial nerve palsy.

Objective: The aim was to study Ophthalmic clinical features of patients of facial Nerve palsy

Methodology: In this Retrospective observational study we have analyzed 60 eyes from 60 facial nerve palsy patients who were referred to our ophthalmic clinic of our hospital.

Result: The most common ophthalmic signs caused by facial nerve palsy were lagophthalmos (45 eyes, 75%), corneal epithelium defect (35 eyes, 58.33%), and conjunctival injection (30 eyes, 50%). We have divided these signs into categories: eyelid, cornea, conjunctiva, and eye movement. Signs related to the eyelid were lagophthalmos (45 eyes, 75.0%),ptosis (30 eyes, 50%), lid laxity, entropion, ectropion, and swelling. Corneal signs were corneal epithelium defect (35 eyes, 58.33%) and corneal opacity (6 eyes, 10%). Conjunctival signs were conjunctival injection (30 eyes, 50%) and chemosis (8, 13.33%).Signs related to eye movement were paralytic strabismus (15 eyes, 25%), LOM (7 eyes, 11.6%), diplopia (8 eyes, 13%), and nystagmus (4 eyes ,6.66%). Other symptoms were epiphora (21 eyes, 35%) and dry eye syndrome (4 eye, 6.66%)

Conclusion: we would like to be conclude that the ophthalmic clinical features of facial nerve palsy were mainly corneal lesion and eyelid malposition, and their clinical course improved after invasive procedures. The prognosis and ophthalmic signs were worse than in cases of simple facial palsy.

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Key words: Bell palsy, Facial nerve palsy, Ptosis

INTRODUCTION

The facial nerve arises from the pons and travels through the internal auditory canal and the petrous portion of the temporal bone before innervating the muscles of facial expression. It is accompanied by the parasympathetic fibers of the nervus intermedius, which is responsible for tearing, salivation and taste.[1, 2]

Encompassing around 51% of cases of facial nerve palsy, Bell's palsy is a unilateral, acute onset (<72 hour), and idiopathic facial paralysis affecting around 23 people per 100,000 per year or about 1 in 60-70 people in a lifetime [3]. It occurs equally between men and women and peaks between the ages of 10 and 40 [4]. It is more common in those patients with diabetes, upper respiratory ailments, immune compromise and pregnancy and often is accompanied by a viral prodrome.

Severe bacterial infections including otitis media, otitis externa and mastoiditis can cause facial nerve palsy due to involvement of the facial nerve. Lyme disease caused by the transmission of Borrelia burgdorferi via tick bites causes facial nerve palsy in 10% of infected patients with 25% of these being bilateral. Damage can occur to the facial nerve in the setting of blunt or penetrating trauma or iatrogenically during surgery on the face, neck, or ear—especially the parotid gland. In addition, involvement of cranial nerves V, VI, VIII, and Horner syndrome can occur after resection of cerebellopontine angle tumors. A number of other etiologies of facial nerve paralysis are documented including congenital facial paralysis (Mobius syndrome), diabetes, Guillain-Barre syndrome, Melkersson-Rosenthal syndrome, sarcoidosis (Heerfordt syndrome), infarction, pontine demyelination, and vasculitis[5,6]

Facial nerve palsy most commonly presents as an acute onset of unilateral facial weakness or loss of facial expression including loss of forehead wrinkling, brow ptosis, incomplete eyelid closure, and drooping of the mouth with possible drooling. There can be associated pain around the jaw or behind the ear, headaches, and changes in taste, tearing, or hearing.

MATERIAL & METHODOLOGY

This retrospective observational study was conducted from January 2018 to January 2019 at Eye OPD in ophthalmology department of Pacific Institute of medical science, Udaipur, Rajasthan India.

We have analyzed 60 eyes from 60 facial nerve palsy patients who were referred to our ophthalmic clinic. Diagnosis, determination of treatment methods, operation, follow-up monitoring were conducted by the same ophthalmic surgeon for each patient. A photo was taken during every visit to objectively record and evaluate signs.

Diagnosis, determination of treatment methods, follow-up monitoring was conducted by the same team of surgeons for each patient. Accurate clinical history, followed by a

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comprehensive examination (general, neurological, ophthalmological examinations) were carried out.

Inclusion criteria :Patients of ages (15-65 years) of either sex presented with diagnosed facial nerve palsy.

Exclusion criteria : Patients with palsy involving other cranial nerves were excluded. Patients with other ocular diseases, ocular surgeries. Patient refusing consent.

RESULTS

The 50 patients studied ranged in age from 15-65 years.

The ratio of male to female was 35 :25. Bell's Palsy (48.33%), trauma (16%), CVA (11.66%).(Table 1)

Table 1. The causes of facial palsy

Cause	**Number(%)**
Congenital paralysis	6(10%)
Brain tumor	8(13.33%)
Trauma	10(16.66%)
Cerebral vascular disease	7(11.66%)
Bell's palsy	29(48.33%)
Total	**60(100%)**

Fig 1:38 yr old lady having Bells palsy

Fig 2:55 old male patients having facial palsy after cerebovascular attack (CVA)

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Table 2: Ophthalmological clinical symptoms and signs

Symptom and sign		**Number (%)**
External ocular movement*	Paralytic strabismus	15 (25%)
	Limitation of motion	7(11.66%)
	Diplopia	8(13%)
	Nystagmus	4(6.66%)
Conjunctiva	Conjunctival injection	30(50%)
	Chemosis	8 (13.33%)
Eyelid Swelling	Lagophthalmos	45(75%)
	Ptosis	30(50%)
	Lid laxity	10 (16.66%)
	Entropion	12 (20%)
	Ectropion	8 (13.33%)
Others	Epiphora	21 (35%)
	Dry eye syndrome	4 (6.66%)
Cornea	Corneal epithelial defect	35(58.33%)
	Corneal opacity	6(10%)

The most common ophthalmic signs caused by facial nerve palsy were lagophthalmos (45 eyes, 75%), corneal epithelium defect (35 eyes, 58.33%), and conjunctival injection (30 eyes, 50%).

We divided these signs into categories: eyelid, cornea, conjunctiva, and eye movement. Signs related to the eyelid were lagophthalmos (24 eyes, 70.6%), ptosis (30eyes, 50%), lid laxity, entropion, ectropion, and swelling.
Corneal signs were corneal epithelium defect (35 eyes, 58.33%) and corneal opacity (6 eyes, 10%).
Conjunctival signs were conjunctival injection (30 eyes, 50%) and chemosis (8, 13.33%).

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Other symptoms were epiphora (21 eyes, 35%) and dry eye syndrome (4 eye, 6.66%) (Table 2).

DISCUSSION

Bell's palsy is defined as an idiopathic paresis or paralysis of the facial nerve. It is typically unilateral, with a sudden onset, and generally spontaneously resolves within 6 months. Many etiologies have been proposed, including a viral/inflammatory mechanism.[7,8]
The ophthalmic clinical features of facial nerve palsy are mainly corneal lesion and eyelid malposition [9]. Eyelid retraction is commonly thought to accompany facial nerve palsy, as it is related to unopposed levator function. But according to a study by Sinha et al. [10], this retraction occurs somewhat rarely, and most cases have a high-normal eyelid position (regardless of facial nerve palsy). In other words, patients do not have significant MRD1 asymmetry. Rather, they have a bilateral, relatively symmetric and elevated eyelid position. Nevertheless, the incidence of asymmetry was still higher than one would expect in the general population.

Bell's palsy is the most common cause of acute unilateral facial paralysis, accounting for approximately 60-75% of such cases. Bilateral facial paralysis can also occur, whose occurrence rate was less than 1%. Bell's palsy can also be recurrent in 4-14% of affected individuals. The condition was more characteristic for winter season, largely because lower temperatures were associated with an overall higher risk.

According to a study by Joseph et al. [11], it is very important to administer proper ophthalmic treatment for facial nerve palsy at the right time. This is because exposure keratopathy, which frequently occurs with facial nerve palsy, can cause serious ophthalmic sequelae like vision loss. In the same study, the median time interval from the onset of ocular symptoms to the initial ophthalmologic evaluation was 0.8 years. Engstrom et al concluded that patients with a high degree of nerve degeneration at both the initial examination and the first follow up have a poorer prognosis. [12]Gordana et al found that an incomplete paralysis at the onset can have complete recovery at the end, while when there was complete paralysis at the onset, the end result after the follow up period was disappointing, showing a degree of permanent paralysis. [13]

CONCLUSION

We would like to be conclude that the ophthalmic clinical features of facial nerve palsy were mainly corneal lesion and eyelid malposition, and their clinical course improved after invasive procedures. The prognosis and ophthalmic signs were worse than in cases of simple facial palsy.

CONFLICTS OF INTERESTS

Nil

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AUTHORS CONTRIBUTION

All Authors have Equally contributed in this research work.

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