

Ocular Manifestations in Cases of Bell's Palsy

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Abstract

Background: The facial nerve controls the muscles of facial expression, and in Bell's palsy, dysfunction of facial expression is noted and the blink response dysfunction occurs due to damaged facial nerve. Lid retraction, a defective tear pump mechanism that leads to decreased tear production may also be reported. In cases of Bell's palsy, ophthalmic signs such as lid malposition, dry eye, exposure to keratopathy, and tearing are common.

Material & Methods: The present prospective study was conducted at the Department of E.N.T. and ophthalmology of our tertiary care hospital. The study duration was of one year from January 2019 to December 2019. A sample size of 50 was calculated at a 95% confidence interval at a 10% acceptable margin of error by epi info software version 7.2. Institutional Ethics Committee Clearance was obtained before the start of the study and written and informed consent for the procedure was obtained from all the patients. Strict confidentiality was maintained with patient identity and data and not revealed, at any point in time.

Results: In the present study, on the assessment of Bell's palsy based on ophthalmic presenting signs it was found that out of total study participants, the most common presenting sign was Lagophthalmos in 96% of patients which was followed by conjunctival congestion in 42% patients, which was followed by corneal infiltrate among 34% patients, which was followed by reduced blinking among 22% patients which were followed by reduced corneal opacity among 18% patients, which was followed by poor Bell's phenomenon among 08% patients and only 1 patient was presented with a corneal ulcer.

Conclusion: We concluded from the present study that Bell's Palsy was commonly seen in young, aged patients between 20-and 30 years of age. The prevalence was more in females. The most common presenting signs were lagophthalmos, watering, and corneal infiltrate. Complete recovery occurs with medical management alone however, the rate was greater among younger than in older patients.

Keywords: Bell's Palsy, Facial nerve palsy, Ophthalmic complication.

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Introduction

Facial nerve palsy can be subdivided into central palsy and peripheral palsy. Peripheral facial palsy is induced by a

disorder of the facial nerve pathway originating from the brain, whereas central facial palsy is induced by a brain disorder

[1]. Causes of peripheral facial palsy include Bell's palsy, trauma, Ramsay-Hunt syndrome, and the compression of a facial nerve. Out of these, the most common cause is Bell's palsy. In this case, facial nerve palsy occurs due to inflammatory pathology. The facial nerve (the 7th cranial nerve) controls the muscles of facial expression, and in Bell's palsy, dysfunction of facial expression is noted and the blink response dysfunction occurs due to damaged facial nerve [2]. Blink dysfunction is occurred due to weakness of the orbicularis oculi muscle and ectropion. Lid retraction, a defective tear pump mechanism that leads to decreased tear production may also be reported. In cases of Bell's palsy, ophthalmic signs such as lid malposition, dry eye, exposure to keratopathy, and tearing are common [3].

Bell's Palsy is the most common cause of acute unilateral or isolated facial nerve paralysis leading to loss of voluntary movements of facial muscles on the affected side of the face. Although Bell's palsy is self-limiting, the facial paralysis may cause significant temporary oral incompetence and an inability to close the eyelid which leads to a potential eye injury [4]. However, about 80% of reported cases show recovery even without treatment. Bell's palsy affects all age groups; However, the highest incidence is seen in the second to third decade, without gender preference. The initial treatment is supportive like the use of lubricating eye drops, use of eye shields, taping of lids at night, and physiotherapy of facial muscle [5]. Surgery is reserved for such patients who have failed non-surgical methods to protect the cornea and for those who had long-term or permanent paralysis. The present study was conducted to assess the ophthalmologic Clinical Features of Bell's Palsy Patients at the tertiary care center.

Materials & Methods

The present prospective study was conducted at the Department of E.N.T. and ophthalmology of our tertiary care

hospital. The study duration was of one year from January 2019 to December 2019. A sample size of 50 was calculated at a 95% confidence interval at a 10% acceptable margin of error by epi info software version 7.2. Patients were enrolled from the outdoor department and ward by simple random sampling. Institutional Ethics Committee Clearance was obtained before the start of the study and written and informed consent for the procedure was obtained from all the patients. Strict confidentiality was maintained with patient identity and data and not revealed, at any point in time.

The data were collected by detailed history and general physical and clinical examination from each patient after taking the written consent. Data obtained from Visual acuity, anterior segment and posterior segment examination by slit-lamp biomicroscopy were recorded. On the follow-up visit, the same data were recorded and compared. All the data was recorded on a Microsoft Excel spreadsheet and data analysis was done at 10% alpha and 95% confidence intervals using SPSS v22 software. Test of significance was applied to collected and organized data and a p-value less than 0.05 was considered a statistically significant association between study variables.

Results

In the present study, we enrolled 50 patients with Bell's Palsy. Out of the total study participants, 58% were females and 42% were males. The mean age of the study population was 26.8 ± 3.4 years. Out of the total study participants, the majority of patients were belonging to the age group of 20 to 30 years of age i.e., 52% which was followed by the age group of 30 to 50 years of age i.e., 20% which was followed by age group of 50 to 70 years of age i.e., 14% which was followed by age group of 10 to 20 years of age i.e., 08% which was followed by age group of more than 70 years of age i.e., 06%. (Table 1)

Table 1: Distribution of study participants based on age and gender.

Study parameter	No. of patients	Percentage	
Age group	10-20	04	08%
	20-30	26	52%
	30-50	10	20%
	50-70	7	14%
	>70	3	6%
Gender	Male	21	42%
	Female	29	58%

In the present study, on the assessment of Bell's palsy based on ophthalmic presenting symptoms it was found that out of total study participants, 82% of patients were unable to close their eyes on the affected side, 68% of patients had Watering of the affected eye, 62% patients had Foreign body sensation in the affected

eye, 54% patients had Burning sensation in the affected eye, 48% patients had Blurring of vision in the affected eye, 26% patients had Pain in the affected eye, 12% patients had Photophobia in the affected eye and 8% patients had Redness in the affected eye. (Table-2)

Table 2: Distribution of study participants based on presenting symptoms

Symptoms	No. of patients (%)
Unable to close eye on affected side	41 (82%)
Watering of affected eye	34 (68%)
Foreign body sensation in affected eye	31 (62%)
Burning sensation in affected eye	27 (54%)
Blurring of vision in affected eye	24 (48%)
Pain in affected eye	13 (26%)
Photophobia in affected eye	6 (12%)
Redness in affected eye	4 (8%)

In the present study, on the assessment of Bell's palsy based on ophthalmic presenting signs it was found that out of total study participants, the most common presenting sign was Lagophthalmos in 96% of patients which was followed by conjunctival congestion in 42% of patients, which was followed by corneal

infiltrate among 34% patients, which was followed by reduced blinking among 22% patients which were followed by reduced corneal opacity among 18% patients, which was followed by poor Bell's phenomenon among 08% patients and only 1 patient was presented with a corneal ulcer. (Table-3)

Table 3: Distribution of study participants on the basis of presenting signs

Presenting Signs	No. of patients (%)
Lagophthalmos	58 (96%)
Conjunctival congestion	21 (42%)
Corneal infiltrate	17 (34%)
Reduced blinking	11 (22%)
Reduced corneal sensitivity	09 (18%)
Poor Bell's Phenomenon	04 (08%)
Corneal ulcer	01 (02%)

Discussion

In the present study, we enrolled 50 patients with Bell's Palsy. Out of the total study participants, 58% were females and 42% were males. The mean age of the study population was 26.8 ± 3.4 years. Out of the total study participants, the majority of patients were belonging to the age group of 20 to 30 years of age i.e., 52% which was followed by the age group of 30 to 50 years of age i.e., 20% which was followed by age group of 50 to 70 years of age i.e., 14% which was followed by age group of 10 to 20 years of age i.e., 08% which was followed by age group of more than 70 years of age i.e., 06%. Similar results were obtained in a study conducted by P Sthapit et al among 69 patients with Bell's palsy and found that the Bell's Palsy was commonly seen in young adult females. Complete recovery usually occurs within six months and the recovery rate was reported faster in younger individuals. The most commonly affected age group was 16 to 30 years of age [6]. Similar results were obtained in a study conducted by V Danielidis et al among 250 patients with Bell's palsy and found that the Bell's Palsy was commonly seen in young adult females. They reported similar results to the present study [7].

In the present study, on the assessment of Bell's palsy on the basis of ophthalmic presenting symptoms, it was found that out of total study participants, 82% of patients were unable to close their eyes on the affected side, 68% of patients had Watering of affected eye, 62% patients had Foreign body sensation in the affected eye, 54% patients had Burning sensation in the affected eye, 48% patients had Blurring of vision in the affected eye, 26% patients had Pain in the affected eye, 12% patients had Photophobia in the affected eye and 8% patients had Redness in the affected eye. Similar results were obtained in a study conducted by S K Katusic et al among 206 patients with Bell's palsy and found a similar pattern of presenting

symptoms. They reported similar results to the present study [8]. Similar results were obtained in a study conducted by Seunghyun Lee et al among 34 patients with Bell's palsy and found a similar pattern of presenting symptoms. They reported similar results to the present study [9].

In the present study, on the assessment of Bell's palsy based on ophthalmic presenting signs it was found that out of total study participants, the most common presenting sign was Lagophthalmos in 96% of patients which was followed by conjunctival congestion in 42% of patients, which was followed by corneal infiltrate among 34% patients, which was followed by reduced blinking among 22% patients which were followed by reduced corneal opacity among 18% patients, which was followed by poor Bell's phenomenon among 08% patients and only 1 patient was presented with a corneal ulcer. Similar results were obtained in a study conducted by Ali Rowhani et al among 977 patients with Bell's palsy and found a similar pattern of presenting signs. They reported similar results to the present study [10]. Similar results were obtained in a study conducted by V Lee et al among patients with Bell's palsy and found a similar pattern of presenting signs. [11] They reported similar results to the present study [3].

Conclusion

We concluded from the present study that Bell's Palsy was commonly seen in young aged patients between 20-and 30 years of age. The prevalence was more in females. The most common presenting signs were lagophthalmos, watering, and corneal infiltrate. Complete recovery occurs with medical management alone however, the rate was greater among younger than in older patients. Vision-threatening complications were rare in the present study.

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