



Optic Neuritis In Young Females- A Case Series

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Abstract

Purpose: To assess the outcome of early diagnosis and treatment in patients with optic neuritis.

Methods: A retrospective observational study was done on patients who were diagnosed and treated with optic neuritis between October 2021 to September 2022, at a tertiary care centre.

Results: All the patients diagnosed and treated with optic neuritis were young females with 60% of patients between the age 11-20 years. All the patients presented with diminution of vision with 80% of patients having bilateral presentation. 40% patients had a history of COVID 19 vaccination after which they developed optic neuritis and all the patients showed improvement in vision after treatment with I.V. methyl prednisolone and oral prednisolone.

Conclusion: The study demonstrates early presentation rapid diagnosis and management of optic neuritis can lead to restoration of vision.

Keywords: COVID 19 vaccination, optic neuritis, visual outcome

Introduction

AOptic neuritis or inflammation of optic nerve is a common clinical condition of the central nervous system.

It affects both children and adults and has association with multiple sclerosis, Neuromyelitis Optica and Myelin Oligodendrocyte glycoprotein IgG neuritis.

It is characterized by sudden diminution of vision (uniocular or binocular), impaired color vision (dyschromatopsia), decreased contrast sensitivity, Relative afferent pupillary defect (RAPD).

Optic neuritis can be classified on the basis of etiology as:

1. Demyelinating / typical optic neuritis
2. Infectious
3. Inflammatory¹

The mainstay of treatment of optic neuritis is I.V. methylprednisolone for 3 days followed by oral prednisolone for 11 days in a tapering dose pattern.²

Early diagnosis of optic neuritis and rampant management can help in restoration of vision of the patient.

Therefore the prognosis of the disease depends upon the etiology, the duration of presentation and severity of the disease and the response to treatment.

Materials And Methods

This study was a retrospective observational study done on patients who were diagnosed with optic neuritis and were treated, over a period of one year at a tertiary care center.

The study complied with the declaration of Helsinki.

Inclusion criteria:

Patients diagnosed with optic neuritis having a vision of at least perception of light and treated with I.V. methylprednisolone were included in the study

The patient evaluation included:

1. Detailed history of the complaints of the patient.
2. Visual acuity on Snellen’s chart .
3. Anterior segment examination under torch light and slit lamp.
4. IOP using applanation tonometer.
5. Dilated fundus examination using 78 D biomicroscopy lens.
6. MRI brain with optic nerve to confirm the diagnosis.

7. Treatment of patients with I.V. methylprednisolone for 5 days followed by oral prednisolone in a tapering pattern.

Recording of vision was done on Day 1 Day 5 and Day 14 of initiation of treatment.

Results

In our study all the 5 patients who were diagnosed and treated for optic neuritis were young females, 3 patients were between 11-20 years of age, 1 patient was less than 10 years of age and 1 patient was > 20 years of age.

Table 1: Distribution of patients according to age of presentation

AGE	NUMBER OF PATIENTS	PERCENTAGE OF PATIENTS
0-10	1	20%
11-20	3	60%
>20	1	20%

All the patients presented with sudden painless diminution of vision, 4 (80%) of which had bilateral diminution of vision, 2(40%) patients presented with headache and 1(20%) patient with fever, 2 (40%) patients had RAPD, 3 (60%) patients had bilateral blurring of all disc margins whereas 2(40%) patients had unilateral blurring of disc margins, 2(40%) patients had history of COVID 19 infection and the same 2 patients received 2 doses of vaccine.

Table 2: Distribution of patients according to presenting symptoms and signs

SYMPTOMS	Patient 1	Patient 2	Patient 3	Patient 4	Patient 5
DOV	In both eyes since 2 days	In both eyes since 3 days	In right eye since 2 months	In both eyes since 3 days	In both eyes since 10 days
Headache	Present since 15 days				Present since 10 days
Fever					Present since 10 days
SIGNS					
Pupillary reaction	Both eye sluggishly reacting to light	Right eye RAPD left eye normal size reacting	Both eye normal size reacting to light	Both eye sluggishly reacting to light	Both eyes ill sustained pupil

		to light			
Optic disc	Both eye obliterated cup with blurring of all disc margins	Both eyes blurring of all disc margins	Right eye crowded disc with blurring of disc margins	Both eye hyperemic disc with disc edema with blurring of all disc margins	Left eye blurring of all disc margins
Laterality	Bilateral	Bilateral	Unilateral	Bilateral	Bilateral
H/O COVID 19	Absent	Present	Present	Absent	Absent
COVID vaccination status	Absent	Present	Present	Absent	Absent

Only 1(20%) patient had normal MRI Brain with optic nerve, rest all patients MRI Brain suggested optic neuritis. Only 1 (20%) patient had serum ANA positive.

Table 3: Distribution of patients according to MRI Brain and serum ANA findings

	Patient 1	Patient 2	Patient 3	Patient 4	Patient 5
MRI Brain	B/L optic nerve enlargement with thickening of peri-optic space and peri-optic fat stranding		Minimal edematous signal	Mild thickening of B/L optic nerve and retrobulbar and intracranial segments	Bulky retrobulbar and orbital segments of B/L optic nerve
			Along B/L optic nerve (right>left) focal optic neuritis on right side		
		No significant abnormality			
Serum ANA	Negative	Negative	Negative	Negative	positive

All the patients had improvement in visual acuity post treatment with I.V. and oral steroids

Table 4: Distribution of patients according to improvement in visual acuity before and after treatment with steroids

VISION	Patient 1		Patient 2		Patient 3		Patient 4		Patient 5	
	RE	LE	RE	LE	RE	LE	RE	LE	RE	LE
At presentation	PL+ PR accurate	PL+ PR accurate	Jun-36	FC 2m	FC 1m	6/9(P)	FC 2m	PL+ PR accurate	Hand movement PL+ PR accurate	PL+ PR accurate
DAY 1	PL+PR accurate	PL+ PR accurate	Jun-36	FC 2m	FC 1m	6/9(p)	FC 2m	PL+ PR accurate	FC 1/2m PL+ PR accurate	FC1/2m PL+ PR accurate
DAY 5	FC 2m	FC 2m	24-Jun	24-Jun	FC 4m	6/9(p)	6/6(P)	6/6(P)	6/18(P)	6/12(P)
DAY 14	FC 6m	FC 6m	24-Jun	24-Jun	FC 4 m	6/9(p)	6/6(P)	6/6(P)	6/9(P)	6/12(P)

Discussion

The inflammation of the optic nerve can be either idiopathic or associated with infection or autoimmune which can affect any part of the optic nerve.

All the patients in the study were females with 60% patients were in the age group of 11-20 years of age. In a study done by Kowsalya et al on pediatric optic neuritis 58% patients were females between the age of 5-14 years.³

In a study done by Saxena et al on clinical profile of patients with optic neuritis in India 70 % patients were females with mean age of presentation being 27.6±8.8 years.⁴

In a study done by Singh. Et al on clinical spectrum of pediatric optic neuritis in children all the patients were between the age 2-20.⁵

80% patients in the study had bilateral presentation whereas 20% patients had unilateral presentation.

In the study done by Kowsalya et al unilateral presentation was more common.³

In the study done by Saxena et al 19.3 % cases had bilateral presentation.⁴

The study by Singh et al showed bilateral presentation in 57.1% of patients.⁵

All the patients in this study presented with diminution of vision with 40% patients presenting with headache and 20% patients with fever.

Kowsalya et al reported 96.3% patients with diminution of vision with 45 % patients with headache and 12% patients with fever.³

40% patients in our study presented with RAPD

In the study by Kowsalya et al RAPD was seen in 46.29% of cases.³

In our study 40 % patients had history of COVID vaccination after which they contracted COVID 19 infection and developed optic neuritis.

In a study done by Alvarez et al 69 % patients with history of COVID 19 vaccination developed optic neuritis.⁶

In this study 80% of patients showed thickening of optic nerve in MRI Brain.

In the study done by Kowsalya et al 16 out the 22 cases in which MRI Brain was done showed thickening of optic nerve.³

All the patients in this study showed improvement in vision after treatment with IV Methyl Prednisolone followed by oral prednisolone.

In the study done by Kowsalya et al 88.9 % patients showed improvement in vision after receiving IV methyl prednisolone followed by oral prednisolone.³

Conclusion

In this study we found that all the patients affected with optic neuritis in the post COVID 19 period were females with some having history of COVID 19 vaccination. Almost all the patients presented early to us from the onset of their symptoms which led to immediate initiation of treatment. All the patients had their vision restored during and after the course of treatment.

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