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## Original Research Article

## Clinical profiles of patients with optic neuritis and papillitis: A prospective study

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## ABSTRACT

**Aim:** To analyse the demographics and presenting features of patients presenting with optic neuritis and papillitis.**Materials and Methods:** Clinical profiles of 40 patients presenting with optic neuritis and papillitis at a tertiary care center were collected retrospectively and prospectively. Detailed medical and ophthalmic history was taken especially about mode, duration and course of the disease, drug intake, alcoholism, smoking, pregnancy, lactation, convulsions, pyrexia, history suggestive of TB, syphilis, neurological deficit. A comprehensive ophthalmological and neurological evaluation was done for each patient along with radiological work up. Patients were prospectively followed up for an average of three months.**Result:** Females in the reproductive age group constituted largest number of the patients (61.8%) in the present series. Maximum patients (70%) were between 20-50 years of age. Vision was found to be affected in all the patients at presentation and most of them presented with vision CF or HM (35.4% and 29.25% respectively) while 4 patients had complete loss of vision. Two third (66.7%) of patients reported eye pain at presentation. Abnormal pupillary reaction was found in most patients with the most common being RAPD on swinging flash light which was seen in 85.4%. Equal percentage (39.5%) of patients presented with Blurred Hyperemic (BH) disc and ophthalmoscopically normal appearing disc. Onset and progression of disease was found to be rapid in most cases ranging from few hours to days. Visual recovery post treatment was found to be good with most eyes achieving vision 6/24 or better.**Conclusion:** Optic neuritis has varied clinical presentations. Most of our patients were young to middle aged females. The most common presenting features were decrease in vision ranging from slight to profound, eye pain and abnormal pupillary reaction. Morphological abnormalities in appearance of optic disc were also found in two third of cases. Rapid progression was noted in almost all cases. Most of the cases achieved a good outcome at the end of follow up period.This is an Open Access (OA) journal, and articles are distributed under the terms of the [Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License](https://creativecommons.org/licenses/by-nc-sa/4.0/), which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.For reprints contact: [reprint@ipinnovative.com](mailto:reprint@ipinnovative.com)

## 1. Introduction

During the early stages of optic neuritis, there is an outpouring of cells in the perivascular spaces (perivascular cuffing). This is followed by nerve oedema, which causes loss of function. The myelin sheaths breakdown into fat droplets. Degeneration then proceeds in both direction,

more rapidly away from the globe than towards it.<sup>1</sup>

After inflammation subsides, there is glial proliferation, and with this there is further atrophy of nerve fibres.<sup>2</sup> The inflammation is chronic, the glial tissue is replaced in an orderly arrangement (Columnar gliosis). If the optic neuritis is retrobulbar, the degeneration is mainly confined to the papillomacular bundle.

When demyelination is the cause of pathology, the inflammatory cells are present for a few days and then

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fat laden macrophages become predominant. These cells are not characteristic of inflammatory optic neuritis. In intraocular optic neuritis, cells which fills the cup, makes the disc margin irregular.<sup>3</sup> Narrowing and sheathing of the vessels may be present. Temporal disc pallor is caused by selective involvement of the papillomacular bundle.

Walsh and Hoyt (1969) has described optic neuritis as the general term used to describe involvement of the optic nerve as the result of any inflammation, demyelination or degeneration.<sup>4</sup> The term optic neuritis according to Chamlin (1953) is technically incorrect in as much as cases what we refer to as optic neuritis is not always inflammation of the optic nerve as the term implies, but also degeneration or demyelination as caused by plaques of multiple sclerosis.<sup>5</sup>

The ONTT group summarized findings of 448 patients of optic neuritis and found that more than three fourth of their patients were females and the mean age of presentation was in the fourth decade. Only one third of the patients presented with swollen optic discs and that MRI is an useful clinical tool to document demyelination.<sup>6</sup>

We tried to evaluate the characteristics of clinical presentation of optic neuritis in our series of patients via comprehensive multidisciplinary approach.

## 2. Materials and Methods

48 eyes of 40 patients presenting with optic neuritis and papillitis at the ophthalmology and neurology departments at a tertiary care center were evaluated prospectively. Detailed medical and ophthalmic history was taken especially about mode, duration and course of the disease, drug intake, alcoholism smoking, pregnancy, lactation, convulsions, pyrexia, history suggestive of TB, syphilis, neurological deficit etc.

### 2.1. Ophthalmic history & investigation

1. Sudden onset of rapid decrease in vision, colour blindness preceding eye pain spontaneous or in a definite gaze.
2. Headache, past history of vision loss/ colour blindness.
3. Neuralgia, present/ past treatment taken.

A detailed ophthalmological examination was done emphasizing on the visual acuity assessment, pupillary reaction and fundus examination. Colour vision and contrast sensitivity was assessed wherever possible.

A thorough neurological assessment was done for every patient and search was made to find the aetiology of optic neuritis. Hemoglobin count, TLC, DLC, ESR, Peripheral Smear, VDRL, Blood sugar, Montoux test urine- routine examination and microscopy, X-ray chest, skull and sinus were done in all cases. Radiological evaluation in the form of CT scan or MRI was done where needed and possible.

## 3. Results

Table 1 shows that 13(61.8%) out of 21 female and 6 (31.5%) out of 19 male were in 20-40 years age group.

Maximum patients presented with vision C/F or HM (35.4% and 29.25% respectively). We had 4 eyes (8.35) with no PL, only PL PR seen in 10 eyes (20.8%) and BCVA of 3/60 in 1 case and BVCA 6/60 in 2 cases (4.25). No patient presented with BCVA better than 6/36.

As most our patients presented with low vision, the assessment of color vision and contrast sensitivity could not be adequately done. However, 2 patients noted loss of color vision on Ishihara Chart.

66.7% of the patients presented with eye pain which they found to be aggravated on attempted eye movements. Swinging Flash light test (SFL) was abnormal in 85.4% eyes at presentation. 54.2% of patients presented with SI papillary reaction. There was equal percentage of patients (39.5%) who presented with BH (hyperemic with blurred margins) disc or with ophthalmoscopically normal disc. Optic disc pallor was noted in the rest of patients.

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## 4. Discussion

In our study 70% of the patients suffering from optic neuritis were in the age group of 3rd 4th and 5th decades of life. A study had reported 70% incidence of optic neuritis in 3rd 4th 5th decades of life. Most of the cases suffering from optic neuritis were in the age group of 20-40 years.<sup>7</sup>

In all the cases of the present series (100%), loss of visual acuity was rapid and reached a maximum usually in few hours to a day or two. In the present series 4 eyes (8.3%) had come with total blindness at the time of first visit while rest 44(91.7%) had gross diminution of vision (6/60 or less).

In the present series, maximum number of eyes 35(73.0%) attained their final visual acuity in 1st follow-up at 1 month, the recovery of vision usually took 3 weeks to 3 months Rarely improvement may be delayed for months. The more rapid the recovery the more complete it was likely to be and slow recovery usually indicated that there will be residual visual impairment. Similar to our findings, Wakakura et al also reported that 45% of patients recovered within first 4 months of disease.<sup>8</sup>

Despite most of the patients presenting with significant reduction in visual acuity, the general prognosis for visual recovery was good. Recovery of vision was only slightly worse in more severely affected cases.

**Table 1:** Sex distribution of cases in various age group

Age Group (Years)	Male		Female	
	No. of Cases	Percentage	No. of Cases	Percentage
0-10	0	0	1	4.8
10-20	3	15.8	1	4.8
20-30	2	10.5	8	38
30-40	4	21.0	5	23.8
40-50	7	36.8	2	9.5
More than 50 years	3	15.8	4	19
Total	19	100%	21	100%

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**Table 2:** Retrospective and prospective case distribution

Retrospective cases	Prospective cases	Total
10	30	40
25	75	100%

75% cases studied were prospective and 25% cases were taken retrospectively

**Table 3:** BCVA at the time of first visit

Vision	No of eyes	Percentage
No PL	4	8.3
Only PL PR	10	20.8
HM	14	29.2
C/F	17	35.4
3/60	1	2.1
6/60	2	4.2
6/36 or better	0	0
Total	48	100%

**Table 4:** Signs and symptoms at presentation

	Pain +ve	SFL (Swinging flash light test) +ve	SI (Sluggish ill sustained)	PRN BI (Brisk ill sustained)	Optic disc changes				
					B (Brisk)	A (absent)	BH (Blurred hyperemic)	Pal (Pale)	N (Normal)
Eyes	32	41	26	8	0	13	19	10	19
%	66.7%	85.4%	54.2%	16.7%	0	27	39.5	20.8	39.5

## 5. Conclusion

Varied clinical presentations of optic neuritis were noted in this study. Most of our patients were young to middle aged females. The most common presenting features were decrease in vision ranging from slight to profound along with eye pain and abnormal pupillary reaction. Morphological abnormalities in appearance of optic disc were also found in two third of cases. Rapid progression was noted in almost all cases ranging from few hours to days. Most of the cases achieved a good outcome at the end of follow up period. The worse visual acuity at presentation found to have little or no impact on the final visual outcome.

## 6. Source of Funding

None.

## 7. Conflict of Interest

The authors declare no conflict of interest.

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