

## OPTIC NEURITIS: A THREE YEARS RETROSPECTIVE STUDY

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### ABSTRACT

*Objective:* The aim of our study was to review our clinical experience with optic neuritis.

*Material and Methods:* A retrospective review of the medical records of patients admitted for optic neuritis from January 2000 through December 2002, in Ophthalmology Department of Lady Reading Hospital, Peshawar was undertaken.

*Results:* Out of 28 cases of optic neuritis, 10 (35.7%) were male whereas 18 (64.3%) were female. The mean age was 31.25 years. Eight (28.6%) cases had bilateral and 20 (71.4%) cases had unilateral optic neuritis. Nine (25%) eyes had retrobulbar neuritis, 24 (66.66%) eyes had papillitis and three (8.33%) eyes had neuroretinitis. Visual acuity (VA) at presentation was between no perception of light - hand movement in 11 (30.55%) eyes, counting finger - 6/60 in 18 (50%) eyes, 6/36 - 6/18 in five (13.88%) eyes and between 6/12 - 6/6 in two (5.55%) eyes. Patients had mean follow-up of 39.67 days. Final unaided VA of eyes with optic neuritis was between no perception of light - hand movement in 5 (13.88%) eyes, counting finger - 6/60 in 9 (25%) eyes, 6/36 - 6/18 in 4 (11.11%) eyes and between 6/12 - 6/6 in 18 (50%) eyes. Two (5.55%) cases had recurrence of optic neuritis during study period.

*Conclusion:* Young females are more affected than males. Majority cases were unilateral. Presentation is slightly late with marked impairment of vision. Papillitis is common clinical type of presentation. Fifty percent of patients regain good vision (6/6 6/12).

*Key Words:* Optic neuritis, Retrobulbar neuritis, Papillitis, Neuroretinitis.

### INTRODUCTION

Optic neuritis is an acute inflammation of the optic nerve that usually resolves with or without corticosteroid therapy over the course of a few weeks to months.<sup>1</sup> It is usually unilateral presenting with monocular visual impairment but rarely both eyes are involved simultaneously. Visual acuity at presentation may range from 6/6 to no perception of light (NPL). Ocular and periocular discomfort is common and frequently worsens with eye movements. Other features include frontal headache, globe tenderness, dyschromatopsia, visual field defect commonly diffuse depression of sensitivity in the entire central 30 degree, colour vision defects, decreased light brightness, decreased contrast sensitivity, pupillary reaction abnormalities and disc changes. Patients with optic neuritis are usually young in there 20s to 50s and more often females. The clinical profile of visual loss in optic neuritis may be similar to anterior ischemic optic neuropathy

(AION) the latter however, affects elderly age group.<sup>2,3</sup>

Demyelination is by far the most common cause of optic neuritis.<sup>4</sup> Other causes are para-infectious, which may follow a viral infection or immunization, and infections, which may be sinus related or associated with cat scratch fever, syphilis, Lyme disease and cryptococcal meningitis. Autoimmune optic neuritis may be associated with systemic autoimmune diseases.<sup>5</sup> Investigations are performed depending upon the individual patient history and clinical examination and include base line investigations, CT-scan brain or MRI and other specific investigations like VDRL, X-Ray paranasal sinuses (PNS) and visual fields.

This retrospective study was conducted in Ophthalmology Department of Lady Reading Hospital, Peshawar to review the clinical experience with optic neuritis.

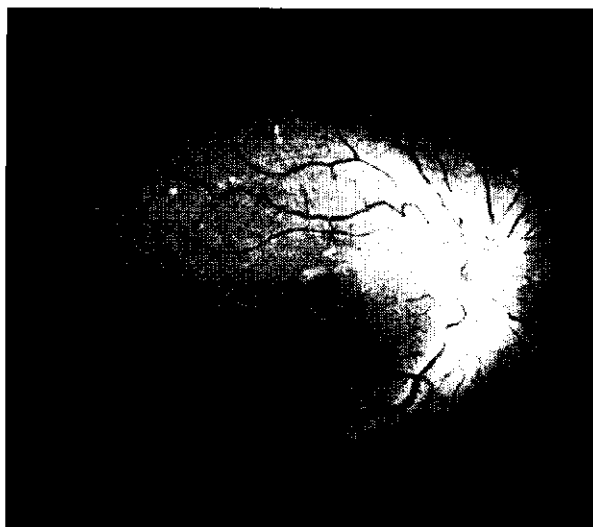


Figure No. 1: Right eye fundus photograph; Papillitis.

## MATERIAL AND METHODS

A retrospective review of the medical records of patients admitted for optic neuritis from January 2000 through December 2002, in the Ophthalmology Department of Lady Reading Hospital, Peshawar was undertaken. We have an intergraded filing system and data of all the patients are fed into a computer database. The files of patients admitted for optic neuritis during the study period in our unit were retrieved from the record room.

Optic neuritis cases were diagnosed on the basis of typical clinical features of sudden defective vision, pupillary response abnormality with or without disc changes (Figure No. 1). All the patients underwent baseline investigations; CT-scan/ MRI brain and other specific investigations if indicated such as VDRL, X-Ray PNS and visual fields. Patients were treated with a regimen including intravenous injection Methyl prednisolone 1 Gram daily in divided doses for



Figure No. 2: Age and sex distribution.

three days. After receiving intravenous steroids patients were put on oral steroids 1-2 mg/ kg/ day for 11 days and discharged. They were then followed up in our out patient department on regular bases.

A separate data collecting proforma was filled for every patient. After completion of the data collection on proforma, it was stored in SPSS (Statistical Package for Social Sciences) 8.0 for Windows statistical package. Statistical analyses of continuous data were made. Frequency of optic neuritis in patients admitted in our unit was made. Mean, median, mode, standard deviation (SD) and range of age, duration of symptomatology, stay in hospital and follow-up were determined. Sex distribution and laterality of optic neuritis was also determined. Frequency of different symptoms, signs and types of optic neuritis were determined. Visual acuity at presentation, follow-up and final unaided visual acuity was also determined.

## RESULTS

Out of 10237 total admissions in Ophthalmology Department of Lady Reading Hospital Peshawar, during the study period (from January 2000 through December 2002), 28 cases were of optic neuritis, which makes about 0.27% of our total admission. Frequency of optic neuritis was 9.33 cases per year in our unit.

Out of 28 cases of optic neuritis, 10 (35.7%) were male where as 18 (64.3%) were female, with male to female ratio of 1:1.8. The mean age was 31.25 years with SD of 13.97. Median age was 30 years and mode age was 35 years. The youngest patient was 10 years old while the oldest patient was 60 years of age (Range 10-60 years). We further analyzed the age and sex distribution of these cases, which is shown in Figure No. 2.

Eight (28.57%) cases had bilateral optic neuritis, while 20 (71.43%) cases had unilateral optic neuritis; so 36 eyes had optic neuritis. Going through symptomatology of these patients we found that 36 (100%) eyes had history of defective vision, 13 (46.4%) cases had complaints of associated headache and 12 (42.85%) cases had complaints of ocular or periocular pain, 5 (17.85%) cases complained of impaired colour vision, two (7.15%) cases complained of field defects while vomiting, nausea, photophobia and fever was associated with one (3.57%) case each.

Duration of defective vision at presentation ranged from 3 - 120 days (Range was 117 days). Mean duration was 19.63 days (SD 29.49), median and mode was 7 days. Visual acuity at presentation is given in Figure No. 3. Signs present at presentation are given in Table

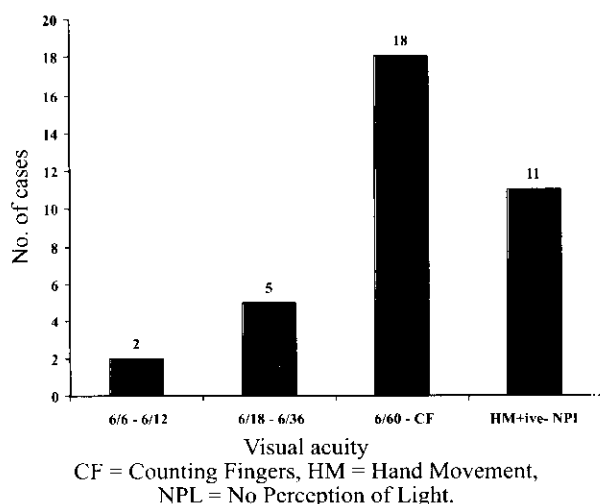


Figure No. 3: Visual acuity at presentation.

No. 1. Types of optic neuritis are given in Table No. 2. Patients suffering from optic neuritis had a mean stay in hospital of 5.6 days (SD 2.56), median and mode was 5 days with range of 3 - 12 days. These patients had mean follow-up of 39.67 days (SD 45.04), median and mode was 14 days with range of 4 - 195 days. Follow-up visual acuity of patients with optic neuritis is given in Table No. 3. Final unaided visual acuity of patients with optic neuritis is given in Figure No. 4. Two (5.55%) cases had recurrence of optic neuritis during study period.

**DISCUSSION**

The annual incidence of optic neuritis in western countries ranged from 1.4 to 6.4 new cases per 100,000 population.<sup>6</sup> The frequency of optic neuritis was 9.33 cases per year in our unit.

Our study was a hospital-based study and not a population based but still the results showed that the optic neuritis is not uncommon in this part of the country. Male to female ratio was 1:1.8 in our study that is comparable to previous studies.<sup>3,7</sup> The mean age was 31.25 years with range of 10 - 60 years of age that is again comparable to various

**SIGNS AT PRESENTATION**

Signs	No. of eyes n=36	%Age
Relative afferent pupillary defect	18	50
Sluggish pupillary response	7	19.4
Globe tenderness	7	19.4
Dyschromatopsia	5	13.9
Afferent pupillary defect	3	8.3
Decreased light brightness	2	5.6
Decreased contrast sensitivity	2	5.6

Table 1

studies.<sup>3,7</sup> Eight (28.57%) cases had bilateral optic neuritis, while 20 (71.43%) cases had unilateral optic neuritis; so 36 eyes had optic neuritis. While in another study the bilateral cases were 26.3% (5 out of 19 cases) and unilateral cases were 73.7% (14 out of 19 cases).<sup>3</sup>

Duration of defective vision at presentation ranged from 3-120 days with mean duration was 19.63 days (SD ± 29.49) in our study. While in Optic Neuritis Treatment Trial the symptom of visual loss was present for 5.1+/- 1.6 days before entry into the study.<sup>7</sup> In our study 12 (42.85%) cases complained of ocular or periocular pain; while in Optic Neuritis Treatment Trial pain accompanied the visual loss in 92.2% of cases<sup>7</sup> and 89.7% in another study.<sup>3</sup> Visual acuity at presentation was between no perception of light - hand movement in 11 (30.55%) eyes, counting finger - 6/60 in 18 (50%) eyes, 6/36 - 6/18 in five (13.88%) eyes and between 6/12 - 6/6 in two (5.55%) eyes. While in Optic Neuritis Treatment Trial visual acuity at presentation was 6/12 or

**TYPE OF OPTIC NEURITIS**

Type	Bilateral	Unilateral	No. of eyes
Papillitis	5	14	24
Retrobulbar	2	5	9
Neuroretinitis	1	1	3
Total	8	20	36

Table 2

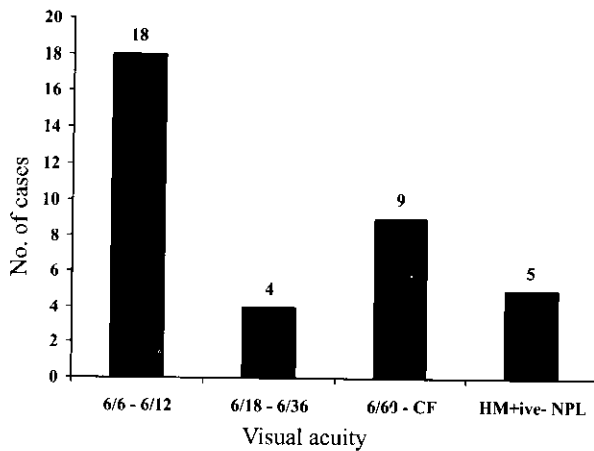
better in 35.3% cases, 6/18 - 6/36 in 28.8% cases and 6/60 or worse in 35.9% cases.<sup>7</sup> So in our study patients present slightly late with marked impairment of vision. Papillitis (66.6%) was common clinical presentation in our study; while in Optic Neuritis Treatment Trail papillitis was 35.3% of cases.<sup>7</sup>

Treatment is usually not indicated for all patients but is initiated for selected patients like those with very severe visual loss at presentation, simultaneous involvement of both eyes, when only seeing eye is affected in a one eyed patient and in case of non resolving or recurrent attacks. If at all

**FOLLOW-UP VISUAL ACUITY**

Visual acuity	3rd day		14th day	
	Frequency n=36	%age	Frequency n=36	%age
6/6 - 6/12	4	11.1	16	38.8
6/18 - 6/36	9	25	6	16.7
6/60 - CF	16	44.4	10	27.8
HM - NPL	7	19.5	6	16.7

Table 3



CF = Counting Fingers, HM = Hand Movement,  
NPL = No Perception of Light.

Figure No. 4: Final unaided visual acuity.

treatment is considered necessary, it should be according to the recommendations of the Optic Neuritis Treatment Trial which is intravenous methylprednisolone 1G/day for 3 days followed by oral prednisolone 1-2 mg/kg body weight /day for 11 days. In our study patients were treated with same protocol. A new alternative advocated treatment for corticosteroid dependent optic neuritis not associated with demyelinating disease is systemic immunosuppression, which is safer and more effective treatment than chronic oral corticosteroid.<sup>8</sup> Most patients with optic neuritis regain good vision that is upto 6/6 or slightly less but unfortunately recurrences are frequent in patients with multiple sclerosis.<sup>9</sup>

Final unaided visual acuity of eyes with optic neuritis was between no perception of light - hand movement in five (13.88%) eyes, counting finger - 6/60 in nine (25%) eyes, 6/36 - 6/18 in four (11.11%) eyes and between 6/12 - 6/6 in 18 (50%) eyes in our study. The visual acuity in the affected eye 5 years after optic neuritis in Optic Neuritis Treatment Trial was better than 6/9 in 87%, 6/9 6/12 in 7%, 6/18 better than 6/60 in 3% and 6/60 or worse in 3% cases;<sup>10</sup> while after 10 years visual acuity in the affected eye was 6/6 or better 74%, 6/9 6/12 in 18%, less than 6/12 6/60 in 5% and less than 6/60 in 3% cases.<sup>9</sup> Two (5.55%) cases had recurrence of optic neuritis during our study period. The recurrence of optic neuritis in either eye occurred in 28% of patients after 5 years<sup>10</sup> and 35% after 10 years<sup>9</sup> in Optic Neuritis Treatment Trial.

## CONCLUSION

- Optic neuritis is not uncommon in this part of the country.
- Young females are more affected than males.

- Majority (71.43%) cases were unilateral.
- Presentation is slightly late with marked impairment of vision.
- Papillitis (66.66%) is common clinical type of presentation.
- Fifty percent of patients regain good vision (6/6 6/12).
- Recurrence of optic neuritis was 5.55% during study period.

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