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"A CLINICAL STUDY ON OPTIC ATROPHY IN A TERTIARY CARE HOSPITAL"

Ophthalmology

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ABSTRACT

A Clinical study of One hundred consecutive patients of optic atrophy attending Siddhartha Medical college, Government general hospital, who came directly to Department of Ophthalmology or who were referred here for evaluation between March 2014 and March 2017, were screened for the detection of varied etiological factors giving rise to optic atrophies. A good number of cases were due to glaucomatous optic atrophy in this study.

KEYWORDS

Optic atrophy, Clinical study, India

1. INTRODUCTION

The subject of optic atrophy is the one that afflicts a high proportion in the world of the blind where therapy is almost helpless in the majority of the conditions. In most cases therapy is limited, the only effective being addressing the causative factor. From this point of view, the present study was taken up to assess the various etiological factors giving rise to optic atrophies.

Optic atrophy is the end result of various lesions of the visual pathways from the ganglion cell layer to the lateral geniculate body. clinically optic atrophy is well known triad of pallor of the optic disc, diminution in the visual acuity & visual field defects. (1,2) Depending upon the histology, etiology & ophthalmoscopic picture, different classifications of optic atrophy have been in vogue.

In western countries, besides the specific infections, demylienating diseases are held responsible for the most of the cases of optic atrophy of unknown etiology. (3)

In tropical & subtropical countries like India & Africa demyelinating diseases are less common. Hence in most of the cases of optic atrophy in this country, the etiology remains obscure despite evaluation.

Clinically, optic atrophy manifests as changes in the colour & the structure of the optic disc associated with variable degrees of visual dysfunction. optic atrophy is actually a misnomer, in the strict histologic definition, atrophy refers to involution of a structure resulting from prolonged disuse.

According to Tielsh et al, the prevalence of blindness attributable to optic atrophy was 0.8%. (4) According to Munoz et al, the prevalence of visual impairment & the blindness attributable to optic atrophy was 0.04% & 0.12% respectively. (5)

2. METHODOLOGY

One hundred consecutive patients diagnosed with optic atrophy at Government General hospital, from a period of March 2014 to March 2017 were screened for the detection of various etiological factors giving rise to optic atrophies. Patients were either referred of attended the OPD service of Department of Ophthalmology or who were referred by themselves.

Besides the detailed history of present complaints, any ingestion of toxic substances, tobacco, alcohol, with particular reference to neurological complaints was ascertained. A thorough ophthalmological evaluation was performed including recording of visual acuity, refraction, external & slit lamp examination of the eyes, ophthalmoscopic examination, perimetry, applanation tonometry, optic disc evaluation by both direct ophthalmoscopy & slit lamp biomicroscopy using +90D, fundus photography by Zeiss Visucam. Systemic work-up included general, physical, neurological, respiratory & cardiovascular examination & ENT check up were carried out in each case.

In addition, the following investigations were performed:

- Hemoglobin
- Total & differential leucocyte count
- ESR
- Mantoux test
- Serological test for syphilis
- Complete urine & stool examination
- Cerebro spinal fluid examination, skiagrams of skull & nasal sinuses & chest screening were done where indicated.

The cases were classified according to the ophthalmoscopic picture as:

1.PRIMARY OPTIC ATROPHY: These patients had pallor of the disc involving the entire disc or the temporal pallor extending upto the disc margin, with well defined borders of the papilla; normal caliber or slight constriction of the bigger vessels & disappearance of the vessels of small caliber. Physiological cup was slightly deeper than normal & lamina cribrosa were seen more clearly

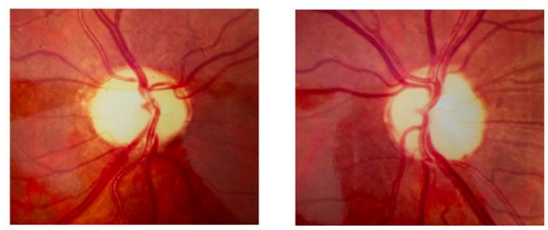


Figure 1: Fundus photographs of both eyes of a case of primary optic atrophy

2. SECONDARY OPTIC ATROPHY: Ophthalmoscopic examin ation showed pallor of the disc with evid ence of present or preceding exudation, including obstruction of the physiological cup, irregularity & distortion of neuroretinal outlines, wiling of the lamina cribrosa with fibrous or glial tissues which may extend along the retinal vessels. Such a picture may be due to papilledema or papllitis.

Secondary optic atrophy was attributed to papilledema when there were other evidences of raised intra cranial tension, history of slow gradual progressive loss of vision, and to papillitis when history of sudden loss of vision & no evidence of intracranial tension were evident.

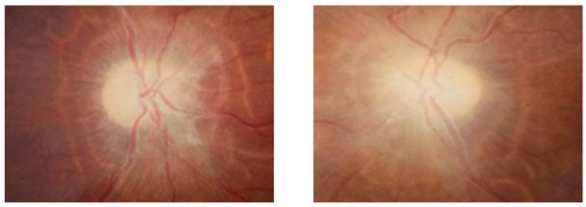


Figure 2: Fundus photographs of both eyes of a case of secondary optic atrophy (post-papillitis)

3.CONSECUTIVE OPTIC ATROPHY: Waxy looking disc with evidence of inflammatory & degenerative changes in chorio retinal tissues.

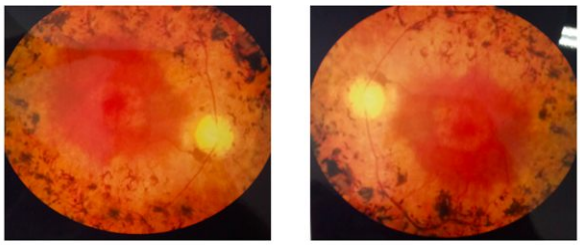


Figure 3: Fundus photograph of both eyes of a case of consecutive optic atrophy (Retinitis pigmentosa)

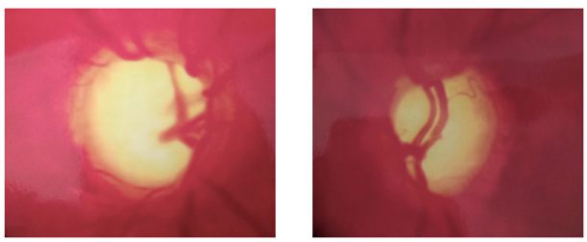
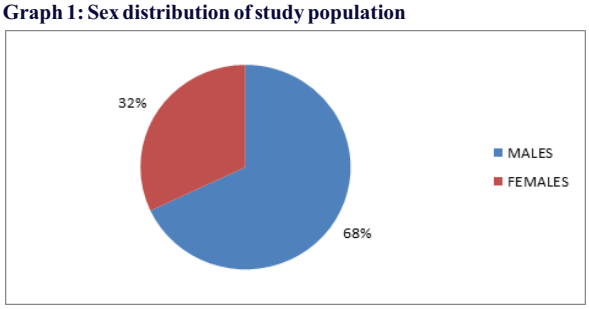


Figure 4: Fundus photograph of both eyes of a case of glaucomat ous optic atrophy

3. RESULTS

Sex distribution

Graph 1: Sex distribution of study population



Age specific analysis: Prevalence of the disease was more in the first five decades of life.

TABLE 1: Age-specific prevalence of optic atrophy

AGE IN YEARS	NUMBER OF CASES	PERCENTAGE
<10	2	2%
11-20	12	12%
21-30	18	18%
31-40	18	18%
41-50	27	27%
51-60	13	13%
>60	10	10%

Laterality

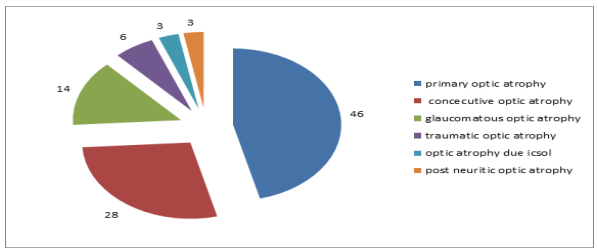
TABLE 2: Distribution of laterality of optic atrophy

Laterality	No Of Cases	Percentage
Unilateral	13	13%
Bilateral	87	87%

Type of optic atrophy

Table 3: Type of optic atrophy in the study population

TYPES OF OPTIC ATROPHY	PERCENTAGE
PRIMARY OPTIC ATROPHY	46%
CONCECUTIVE OPTIC ATROPHY	28%
GLAUCOMATOUS OPTIC ATROPHY	14%
TRAUMATIC OPTIC ATROPHY	6%
OPTIC ATROPHY DUE ICSOL	3%
POST NEURITIC OPTIC ATROPHY	3%



Graph 2: Distribution of cases in each type of optic atrophy (Number)

4. DISCUSSION

This study was undertaken in the Department of Ophthalmology, Government General Hospital, Vijayawada during the period of March 2014 to March 2017. One hundred cases of optic atrophy were evaluated assessing the possible etiological factors giving rise to optic atrophies.

Prevalence of optic atrophy was found to be more in the first five decades in the study. This is in concordance with data published by Olueye et al. (6) Cordes FE surveyed 81 cases of atrophy in children and adoloscents. (7)

In our study bilateral optic atrophy was found in 87% of cases & unilateral optic atrophy was found in 13%. This too was in agreement with the above study which showed 80% bilaterality.
Male to female ratio in our study was found to be 2:1 and this correlated with the above study

H.D Dastoor et al, in their study titled, 'A STUDY OF OPTIC ATROPHY', the defined the following causes of optic atrophy:

- optic atrophy following injury
- optic atrophy following inflammation
- optic atrophy following glaucoma
- optic atrophy following intracranial tumour
- optic atrophy following ingestion of toxins

In the above study they found that glaucomatous optic atrophy was the commonest followed by vascular, toxic and syphilitic. (8) Syphilitic cases of optic atrophy have been described in the past. (9,10) None were found in our study.

Based on the ophthalmoscopic findings we grouped the cases in our study as follows:

- Primary optic atrophy
- Consecutive optic atrophy
- Glaucomatous optic atrophy
- Traumatic optic atrophy
- Atrophy due to ICSOL
- Post neuritic optic atrophy

Out of these cases we found that primary optic atrophy is the most common with 46% of cases followed by consecutive optic atrophy with 28%of cases. Glaucoma is an important cause of optic atrophy. (11, 12)

Conclusion: To conclude, primary optic atrophy was the most common cause and a significant number of cases had consecutive and glaucomatous optic atrophy. A sizeable fraction of the cases (14%) were due to glaucomatous optic atrophy which warrants a regular screening for glaucoma and sequential follow-up in glaucomatous patients.

While may complicated eye disorders are addresses in hospitals,

public awareness of vision care remains low. Rendering effective health education can bring a change in general attitude to consider screening for disease such glaucoma with modifiable risk factors. Primary and primordial prevention of inherited optic neuropathies and retinitis pigmentosa can be achieved through genetic counselling and education. Thus health education and community screening play a major role.

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