ACQUIRED OPTIC ATROPHY IN SINGAPORE
A STUDY

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Optic Atrophy is a common enough ophthalmic condition in Singapore. However, as no special studies have been made before on it, it was felt that some useful information could be obtained by delving into the condition in some detail.

MATERIAL AND METHODS

Cases of optic atrophy other than those due to congenital and developmental conditions (including primary pigmentary degeneration of the retina) and glaucoma were included in the series. 160 cases were collected from amongst the patients that attended the Eye Department of the General Hospital, Outram Road in Singapore in the past four years or so. A number of investigations were conducted as a routine in all these cases and these included serological tests, X-rays of the Skull and Sinuses, Ear, Nose and Throat examination and a full opthalmological and neurological examination. Also included, when deemed necessary, were investigations like angiography and cerebrospinal fluid examination.

A study of the sex, racial incidence, and of the aetiological factors involved was made.

RESULTS & DISCUSSION

TABLE I

INCIDENCE OF OPTIC ATROPHY ACCORDING TO SEX

Male	120	75%
Female	40	25%
Total	160	100%

Table I shows the sex incidence and of the 160 cases investigated, 75% were males, 25% were females. This difference was seen in every aetiological group investigated whether it was trauma, inflammatory, vascular or those due to intracranial space occupying lesions.

TABLE II

INCIDENCE OF OPTIC ATROPHY ACCORDING TO RACE

Racial Group	Percentage
Chinese	77·5%
Malay	10·0%
Indian	8·0%
Others	4·5%

Table II indicates the racial breakdown of the cases seen. However, there appeared to be no significant deviation from the racial breakdown of the population of Singapore.

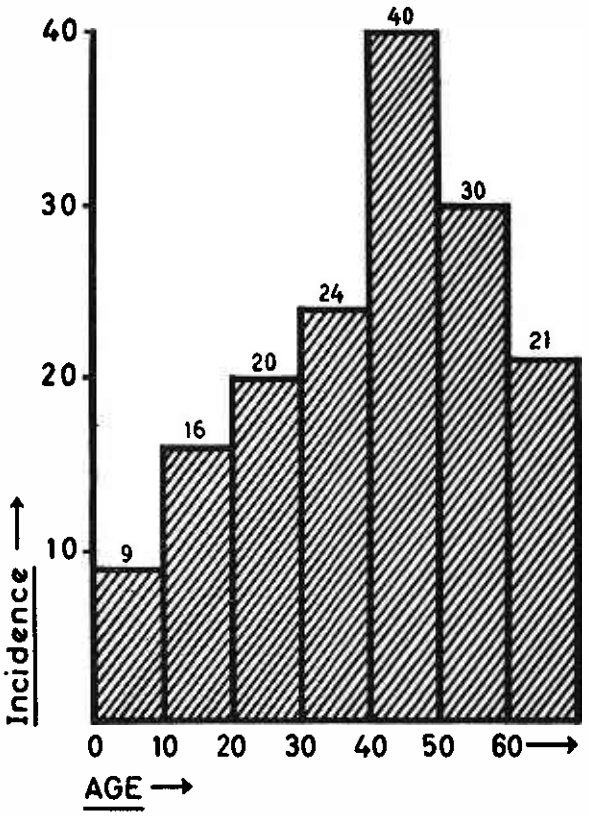

Fig. 1. Incidence of optic atrophy related to age groups.

Figure I shows the incidence in age groups divided into decades. It was seen that highest incidence occurred in the fifth decade followed next by the sixth decade.

TABLE III

CAUSES OF OPTIC ATROPHY

Cause	Number	Brief Details
1. Trauma	26	17 Motor accidents 6 Falls 3 Assaults
2. Inflammatory	49	29 Syphilis 5 T.B. Meningitis 5 Demyelinating Dis. 5 Unknown 5 Others
3. Vascular	28	20 Arteriolar Sclerosis 8 Vascular Occlusions
4. Space occupying Intra Cranial Lesions	33	10 Chromophobe Adenoma 3 Nasopharyngeal Ca. 2 Suprasellar Cyst 2 Deposits from Myeloid Leukemia 2 Meningiomas 2 Acoustic Neuromas 7 (with papilloedema—cause unknown) 5 Others
5. Unknown	24	

TABLE IV

Age Group	Trauma	Inflammatory	Vascular	Tumours	Unknown	Total
0 - 10	2	6	-	1	-	9
11 - 20	7	4	-	3	2	16
21 - 30	9	3	1	7	0	20
31 - 40	3	7	0	9	5	24
41 - 50	4	7	5	13	11	40
51 - 60	1	17	9	0	3	30
60 -	0	5	13	0	3*	21

*including one with myopic degeneration and optic atrophy.

Table III demonstrates the causes discovered. The cases were divided into five categories for simplification. These categories were trauma, inflammatory, vascular, tumours (or space occupying lesion) and unknown.

Table IV shows the causal relationship to each age group.

GROUP A—TRAUMA

16·2% of all the cases of optic atrophy were due to trauma. 26 cases in all were seen and 17 of them due to motor accidents. 4 were from falls from heights and 5 from assaults. The majority of cases were seen in the second and third age decade. 25 out of the 26 cases were males.

GROUP B—INFLAMMATORY

There were 49 cases which were caused by inflammation, *i.e.* 30·6% of the total. 29 of these were due to syphilis and the aetiology was arrived at because of serological tests and the presence of associated clinical evidence of syphilis. The youngest case seen was aged 38 and

the oldest over the age of 60. The biggest number occurred in the sixth decade and the majority had evidence of tabes dorsalis. Disseminated sclerosis is practically unknown in Singapore but other demyelinating conditions did occur *e.g.* Devic's and Schilder's in a total number of 5 cases. T.B. meningitis was also seen in 5 cases. A typical picture of optic neuritis but without any aetiological evidence was found in 5 cases. Torula meningitis with resultant optic neuritis was seen in one case. One case demonstrated osteomyletis of the parietal bone.

GROUP C—VASCULAR

In this group there were 28 cases forming 17·5% of the total. In 7 cases the cause was a central retinal artery occlusion. In one, it was an occlusion of the Sup. Temporal branch. In the other 20, arteriolar sclerosis was marked and 14 of them were associated with hypertension. Only one case of vascular optic atrophy was seen below the age of 40. The rest were seen in the over 40 age groups and increasing with each successive decade.

GROUP D—TUMOURS AND SPACE OCCUPYING LESIONS IN THE CRANIUM

33 cases were seen forming about 20% of the total number. 10 of these were proved cases of chromophobe adenoma and 3 were due to naso-pharyngeal carcinoma. Secondary (post oedema) optic atrophy was seen in 7 cases in which it was not possible to say what the exact lesion was. These were labelled intra cranial space occupying lesions of unknown pathology. Meningiomas, Glioma, Aneurysms, Acoustic Neuroma and Suprasellar cysts made up the rest including 2 cases with secondary deposits in the skull from myeloid leukemia. One interesting point to note is that the majority of these cases occurred within the third, fourth and fifth decades.

GROUP E—UNKNOWN

There were 24 cases or 15% of the total in which it was not possible to place the causal factor.

A study of those cases which have become blind from optic atrophy in the above series is depicted in the next Table No. V. 70 cases of the blindness were seen. The only comment to be made here is the extraordinary number of those blind due to syphilis. Out of 29 cases of Syphilitic Optic Atrophy, 24 have been registered blind. Accidents (trauma) does not produce blindness as frequently as inflammatory or vascular conditions. As syphilis is generally being controlled it is quite likely that cases of syphilitic optic atrophy leading to blindness will become less frequently seen. Optic Atrophy has taken pride of place over the years as a cause of blindness. Approximately 25% of all blindness in Singapore is due to optic atrophy (excluding glaucomatous optic atrophy). Glaucoma as a cause of blindness lies second. However, recent studies in Glaucoma as a cause of blindness and as a problem in Singapore do seem to indicate that Glaucoma will probably supplant optic atrophy as the premier cause of blindness within the next few years. Whilst no doubt this will be partly due to the fact that more cases of Glaucoma are discovered each year, it is also probable that inflammatory form of optic atrophy, especially that due to syphilis will be on the decrease with better social hygiene facilities in Singapore.

TABLE V

BLIND STATISTICS (70 CASES) DUE TO OPTIC ATROPHY

Cause	Number
Trauma	4
Inflammatory	32 (24 syphilis)
Vascular	11 all arteriolar sclerosis with hypertension
Tumours	7
Unknown	15
Myopic degeneration with optic atrophy	1

SUMMARY

A study of the sex, racial incidence and the aetiological factors of optic atrophy in Singapore is presented.

Inflammatory causes, of which syphilis was the most prominent, formed the highest aetiological group.

70 cases of the 160 had to be registered blind. The biggest single cause was syphilitic optic atrophy.

REFERENCES

1. Duke Elder, Sir Stewart (1945): Text Book of Ophthalmology Vol. 3. by Henry Kimpton.
2. Register of the Blind: Ministry of Health, Singapore.
3. Loh, R.C.K. (1967): Problem of Glaucoma in Singapore—in print.