

Children in Blind Schools: What Conditions Should be Treated?

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During our team's routine screening of children in blind schools in Madurai, we find a considerable number of children every year who can benefit by being given spectacles, simple magnifiers or by surgery. This situation can be attributed to the fact that many of these children were not seen by an ophthalmologist before admission to these schools.

Children who have vision better than counting fingers (CF) should be investigated thoroughly and this includes anterior segment examination, refraction and funduscopy. With the preliminary diagnosis in hand, the examination of refraction should be given more importance. It may be practically difficult but every effort should be made to achieve the best corrected visual acuity with appropriate glasses. Many times we come across children with high myopia, macular dystrophy, congenital nystagmus, microphthalmos, albinism, coloboma, cone dystrophies, and sometimes even optic atrophies showing significant improvement for both distance and near vision or sometimes with near vision alone. Apart from doing routine refraction, steps should be taken to ascertain the acceptance of simple low visual aids.

Often these children show very good improvement with telescopes. The improved visual acuity (telescopic) could even be 6/6. Near vision also can be improved in the same way with simple magnifiers. It needs a lot of motivation from parents, teachers and the children to use these devices later in childhood. Reluctance is always experienced particularly since most of these children are trained in the use of Braille.

The children who show minimal improvement or no improvement at all, even with low visual aids, are often those with uncorrected aphakia because of dense stimulus deprivation amblyopia.

The most important and significant pathology causing blindness which was untreated has been congenital cataract. In

this category of children are those who have had no treatment or had treatment but were not followed up properly or ended up with complications. Under the 'Seeing 2000' programme sponsored by the International Eye Foundation, 245 children admitted into blind schools in the city were examined by us in 1998. The main objective was to identify children who could benefit by surgery. Of the 245 children, 16 were found to be blind due to unoperated cataracts in both eyes. Thirteen were uncorrected aphakics. Among the unoperated children with cataract, nine had surgery. The remaining seven did not have surgery mainly because of less motivation by their parents. The minimum vision gained by those who had surgery was CF and the maximum vision was 6/60 (Table 1). Among these, three had intraocular lens (IOL) implants. Most children had only cataract extraction, either extracapsular cataract extraction (ECCE) or lensectomy, depending on the nature of the cataract (partially absorbed or calcified). Nystagmus was present in almost all cases. The number of children showing improvement post-operatively even at this late stage of



Surgery for congenital cataract

Photo: Clare Gilbert

childhood is encouraging and justifies the undertaking of surgery after proper investigation. The visual improvement was less when the child had associated microcornea, microphthalmos or coloboma.

Among the 13 children who had already had surgery but were uncorrected, only a few showed visual improvement with aphakic correction (Table 2). Only patient no.12 showed significant improvement with a telescope. Others were either not co-operative or unable to 'fix' because of nystagmus. Most were densely amblyopic and the visual acuity ranged from CF to 6/60. This strongly supports the fact that bilateral childhood cataract in South India is a significant cause of childhood

Table 1: Children with Cataract Showing Visual Improvement after Surgical Intervention

No.	Age	Surgical Procedure	Pre-op. VA	Post-op. VA
1	14	ECCE	PL	2/60
2	14	ECCE	PL	3/60
3	8	ECCE + IOL	HM	CF
4	15	PCIOL	HM	6/60
5	6	Lensectomy	PL+	1/60
6	6	Lensectomy	PL+	2/60
7	12	ECCE + IOL	PL	1/60
8	9	Lensectomy	PL	1/60
9	9	Lensectomy	1/60	3/60

Table 2: Aphakic Children Showing Improvement with Correction

No.	VA (without correction)	VA (aphakic with correction)	NV	DV (telescope)	NV (hand magnifier)
1	1/60	1/60	-	-	-
2	2/60	2/60	-	-	-
3	2/60	2/60	-	-	-
4	CF	CF	-	-	-
5	CF	CF	-	-	-
6	2/60	2/60	-	-	-
7	1/60	5/60	-	-	-
8	1/60	5/60	N5	-	-
9	1/60	3/60	-	-	-
10	4/60	4/60	N12	-	N10
11	CF	CF	-	-	-
12	1/60	6/60	-	6/12	N12
13	1/60	4/60	-	-	-



Microcorneas and corneal scarring

Photo: Murray McGavin

blindness and accounts for 12% of admissions to blind schools.

One more condition which could be treated surgically is corneal opacity of late onset due to acquired pathology such as

keratomalacia. Either keratoplasty or optical iridectomy before dense amblyopia develops is worth trying.

Conclusion

To conclude, we would like to emphasize that all the children who are likely to be admitted into blind schools should be thoroughly examined by an ophthalmologist. The eye specialist should have a background of working with children and a knowledge of amblyopia and the use of low visual aids. With this approach, and if simple low visual aids are introduced early in life, the quality of education and life can be significantly improved.

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Review article

Examination of a Child with Visual Loss

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Ophthalmic examination of a child with visual loss aims to confirm the impairment, establish the diagnosis, identify the treatment required and describe the prognosis for the disorder(s) causing visual loss. The examination by ophthalmic professionals is an important component of the broader assessment of visual function and educational needs of the child, which form the basis of the plan of management of that child and her/his family. The benefits of evaluation by a multi-disciplinary team, comprising ophthalmic and paediatric professionals together with educationalists and psychologists, are recognised.¹ Therefore, where the necessary resources exist, visual assessment teams are being increasingly established.

The ophthalmic examination of a child is essentially the same as that of an adult but with the techniques adapted according to the child's age, personality, ability to co-operate, and level of responsiveness. Any other non-ophthalmic disorders the child may have will also need to be taken into account. Thus, the precise content and sequence of the components of the exami-

nation will vary from child to child. Most children can be successfully examined without anaesthesia or sedation, which are generally only necessary on clinical grounds.

Taking a History

It should be remembered that the mother of the child is the person who knows the child better than anyone, and if she suspects that her child may not be seeing normally then this should be taken very seriously. It is usually possible to assess the overall level of visual function through a detailed history, taken from the parents, and possibly from other relatives and teachers, as well as from the child, if appropriate. The interview also provides the first opportunity to assess the parents' response and adaptation to their child's visual problems and to establish a relationship between the family and the ophthalmic team.

Information on the age at onset, duration and level of visual loss should be sought. The presence or absence of specific symptoms and signs should be determined: these include eye-poking, photophobia, significant worsening of vision in dim or very bright light, or nystagmus. It is also important to enquire about any family history of ocular or systemic diseases. Questions should be asked about the mother's pregnancy, the birth, including gestation and birth weight, and the neonatal period. It should be established whether the child's

general development is normal or whether there are concerns about hearing, speech, motor or learning abilities. Finally, as appropriate, it may be necessary to ask about specific aetiological agents, such as drugs, infections, nutritional deficiencies or trauma.

The Ophthalmic Examination

Observing the child

The clinical examination starts during the history taking, through assessment of the child's visual alertness and behaviour: for example, her reaction to changing the lighting, or if someone unknown approaches her. The child should also be observed for any external ocular



Matching test (Sheridan-Gardner) to measure visual acuity

Photo: David Taylor