

A Clinic-based Survey of Blindness in Kenya

Jerry Harrell MD DTM&H

Ophthalmologist

N Dean Larson MD

Ophthalmologist

Esther Menza

Clinical Officer

Ammon Mboti

Clinical Assistant

Lighthouse for Christ Eye Centre

PO Box 81465, Mombasa

Kenya

Patients and Methods

During the course of a seven-month period in 1998 and 1999, 617 new patients with unilateral or bilateral blindness were evaluated as to the underlying cause. This was done at the Lighthouse for Christ Eye Centre in Mombasa, Kenya. These patients came not only from the Mombasa area, but from the entire coastal region – from the frontier with Somalia in the north to the border with Tanzania in the south. Others were from towns in the interior along the highway to Nairobi. Many of these had been made aware of the medical and surgical care available at the Lighthouse through our mobile clinics.

Upon arrival at the Lighthouse each patient was registered and then a history of vision problems was obtained. Visual acuity was measured using the Snellen E chart at six metres. Patients were then examined with a slit-lamp, an applanation tonometer and either a direct or indirect ophthalmoscope. Where question existed

regarding the degree of vision loss, the patient was referred to the clinic refractionist. With the exception of twelve patients seen by the clinical officer, all others were evaluated by one of the ophthalmologists at the Lighthouse. Patients with visual acuity of less than 3/60 in one eye, but 3/60 or better in the other eye were considered unilaterally blind. Those with less than 3/60 in both eyes were considered bilaterally blind. When compound causes for blindness were present in one eye, the most preventable or avoidable one was selected as the main cause of the blindness. This same principle was applied when different causes led to blindness in both eyes.

Results

During the study, 617 patients were found to be blind in one or both eyes. Of these, 374 (60.6%) were unilaterally blind and 243 (39.4%) were bilaterally blind.

There were 365 male patients (59.2%) and 252 females (40.8%).

The age distribution of the patients is shown in Figure 1. The increase in the number of blind patients after the age of 50 is due to the greater prevalence of cataract and glaucoma in that segment of the population. Of the 153 bilaterally blind patients due to cataracts, 137 (89.5%) were age 51 or above. Likewise, of the 29 bilaterally blind patients due to glaucoma, 22 (75.9%) were 51 or older.

The causes of blindness in both unilateral and bilateral cases are noted in Figures 2 and 3. Cataract (33.4%), trauma (25.1%),



Dr Roberta Walter-Fincke, outpatient clinic, Lighthouse for Christ Eye Centre



Dr Larson and Dr Downing in the outpatient clinic

Photos: Jerry Harrell

retinal disease (9.1%) and leucoma (7.8%) were the most frequent causes of unilateral blindness (Table 1). Cataract (63.0%), glaucoma (12.0%), retinal disease (7.0%) and optic atrophy (3.7%) were the most common causes of bilateral blindness (Table 2).

Discussion

The 3:2 ratio of male to female patients (365:252) is similar to that found in other studies. This probably does not represent actual prevalence rates, but is more likely due to a greater tendency on the part of men to seek evaluation and surgical treatment.

Age-related cataract was the greatest single cause of treatable blindness among patients at the Lighthouse. Unfortunately, treatment is sought late. One indicator of this is the fact that one out of every five bilaterally blind cataract patients over the age of 50 had only light perception in each eye.

In our experience most glaucoma patients are first seen when they seek help because of vision loss, often very profound loss. Among the 29 bilaterally blind glaucoma patients, 13 had lost all perception of light in one or both eyes. Such findings indicate that there is a considerable delay in making the diagnosis of this disease.

Injuries were a major cause of unilateral blindness, especially among younger patients. The most frequent causes of traumatic blindness were injuries from sticks (41%), fists (8%), stones (7%), thorns (5%) and knives or pangas (4%). Other blinding

Table 1: Causes of Unilateral Blindness

	Male	Female	Total	%
Cataract	78	47	125	33.4
Trauma	55	39	94	25.1
Retinal disease	20	14	34	9.1
Leucoma	17	12	29	7.8
Glaucoma	15	11	26	7.0
Corneal ulcer	15	6	21	5.6
Optic atrophy	12	5	17	4.5
Uveitis	6	0	6	1.6
Capsule opacity	1	3	4	1.1
Amblyopia	2	2	4	1.1
Enucleation	1	1	2	0.5
Phthisis	2	0	2	0.5
Ocular tumour	0	2	2	0.5
Other CNS	1	0	1	0.3
Post-operative endophthalmitis	1	0	1	0.3
Uncertain	1	5	6	1.6
Total	227	147	374	100

Table 2: Causes of Bilateral Blindness

	Male	Female	Total	%
Cataract	83	70	153	63.0
Glaucoma	16	13	29	12.0
Retinal disease	10	7	17	7.0
Optic atrophy	3	6	9	3.7
Leucoma	4	3	7	2.9
Trauma	6	0	6	2.5
Aphakia	3	2	5	2.1
Cortical Blindness	4	1	5	2.1
Uveitis	2	0	2	0.8
Microphthalmia/Anophthalmia	1	1	2	0.8
Phthisis	1	0	1	0.4
Ocular tumour	1	0	1	0.4
Pituitary tumour	0	1	1	0.4
Other CNS	3	1	4	1.6
Uncertain	1	0	1	0.4
Total	138	105	243	100

injuries were due to the following: an insect sting, a goat's horn, a kick from a cow, a fall into a fire, a bullet, a crocheting needle, football contusions and a beating with a rifle butt by bandits in Somalia.

Although not a direct injury to the eyes, a 28 year old Somali male related his bilateral blindness to the bite of a viper (the 'aweso'). Following the bite on his left hand he developed haematuria and noted decreasing vision. Ten months later he had become totally blind. Visual acuity testing at our clinic showed no light perception (right eye) and light perception without projection (left eye). Slit-lamp examination revealed an opaque, vascularized membrane immediately posterior to the lens in both eyes. Presumably, membrane formation occurred secondary to vitreous haemorrhage. While we generally see one or two spitting cobra injuries each year, this was the first case of blindness related to envenomation by a viper.

Leucomata accounted for 7.8% of unilateral blindness and active corneal ulcers were responsible for another 5.6%. If considered together, corneal disease was the third most common cause of unilateral blindness. Among bilateral cases, corneal leucomata constituted 2.9% of the total number of the blind. Severe xerophthalmia was evident in two small children with corneal perforations and, based on histories, was most likely the cause of other leucomata.

Retinal pathology accounted for 9.1% of the cases of unilateral blindness and 7% of those with bilateral blindness. Among the varied entities were retinal detachment (9), diabetic retinopathy (6), retinitis pigmentosa (2) and retinopathy of prematurity (1).

There were five cases of cortical blindness in children. In each there had been a preceding febrile illness which was stated to have been malaria. Cortical blindness does occur in about 4% of the cases of cerebral malaria. Professor Kevin Marsh of the Malaria Research Institute at Kilifi stated in February, 1999 that there is quite often some recovery of vision after a period of several months.

Treatment for malaria was a likely cause

of optic atrophy and blindness in at least four adults. In only one case was the identity of the medication known, although the exact quantity was not recalled. This patient was a 35 year old Swahili female who lived in 'Old Town', Mombasa. She described an attack of malaria, accompanied by delirium, which took place a little over two weeks prior to her clinic visit. Three days after the onset she received an injection of chloroquine and then took quinine tablets. A few days later she noted a marked loss of vision over a period of several hours. When seen at the Lighthouse she had no perception of light (right eye) and light perception without projection (left eye). There was an afferent pupillary defect of the right eye and pallor of both optic nerves (right > left).

Conclusion

There needs to be a greater awareness on the part of the public concerning:

1. The benefits of cataract surgery. Hopefully, this will lead to the restoration of good vision prior to incapacity through blindness.
2. The need for early detection of glaucoma. By the time vision loss has occurred it is often too late for any effective treatment.
3. The need for the addition of vitamin A containing fruits and vegetables to the daily food intake. The staple cornmeal 'ugali' is all too often supplemented by inadequate quantities of such foods.
4. The potential dangers of antimalarials. These are easily obtained and most often taken without the guidance of a physician.

The main patient waiting room at the central clinic and the patient assembly areas on mobile clinics should be utilized to a much greater degree for educational purposes.

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Fig. 1: Age Distribution for Blindness



Fig. 2: Major Causes of Unilateral Blindness

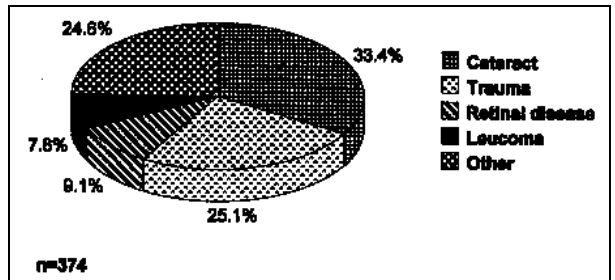
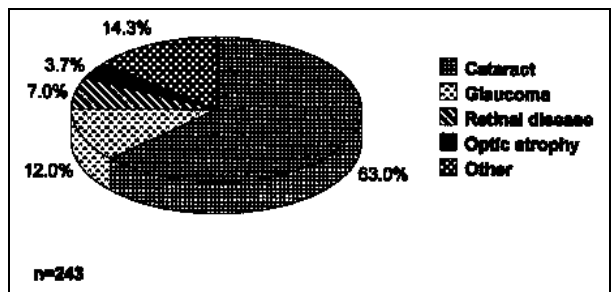


Fig. 3: Major Causes of Bilateral Blindness



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Mobile clinic examination, Kenago

Photo: Jerry Harrell



Dr Ingrid Gralle in the operating room

Photo: Jerry Harrell