OPHTHALMIC DISEASE IN HONG KONG*

BY

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Hong Kong

HONG KONG, which lies on the south coast of China just within the tropics, consists of some 193 islands surrounding a mountainous peninsula to the east of the Pearl River. The capital, Victoria, situated upon the island of Hong Kong (Haven of Fragrant Streams), faces the Kowloon (Nine Dragons) peninsula across a perfect natural harbour. At the present, the Colony's population ranges upwards from 2½ million, 98 per cent being Chinese. Some 2 million persons live crammed into the 12 square miles of the urban areas of Kowloon or Victoria, giving in the slum areas a density of 2,000 per acre (Annual Departmental Report of the Director of Medical and Health Services, 1954–56). This multitude due to immigration and a prodigious birth-rate shows an annual increase of 80,000 (Annual Report, 1956). Only 50 of the remaining 380 square miles of the Colony's area are suitable for agriculture, or indeed for any other purpose. Yet some further half million persons make their living either by farming or by fishing the seas surrounding Hong Kong.

ECONOMY

Established some 116 years ago, Hong Kong quickly became one of the principal *entrepôts* of the China Trade—a position retained until 1949. Recent political changes on the mainland of China have resulted in a shift to light industry with emphasis on textile and plastic manufactures. Also the Colony has had to absorb nearly one million refugees in search of security and employment. The majority of the Chinese population hail from the neighbouring provinces of Kwangtung and Fukien. They are only one generation removed from an agricultural society based on fixed traditions, and operating under rules that scarcely have changed in 2,000 years. In consequence, these Cantonese—a generic term which embraces Hong Kong's Chinese—have a completely open mind as to the relative values of the Oriental and Occidental systems of medicine. On the whole they tend to prefer at first instance the ministrations of their own herbalists. But once diseased, being a true race of shopkeepers, they are perfectly willing to visit all available practitioners of either system, “shopping around”, eventually to choose the one who will promise a certain cure at the cheapest fee. In

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ophthalmology, at any rate in the poorest quarters, the balance at the moment is nicely adjusted between the obvious value of western antibiotics and the excellent if erratic knowledge of herbs and simples that the indigenous practitioners have acquired through generations of trial and error at their patients' expense.

INCIDENCE OF DISEASE

In 1953, estimates of the incidence of ophthalmic disease amongst the very poor in the Colony indicated a potential attendance of 150,000 per annum. The small white-collar class were adequately catered for by some fourteen private practitioners of ophthalmology, but their fees were such that a coolie on a basic wage of 3 to 4 \$ a day could never afford to attend their clinics. The Free Hospitals of the Chinese (Tung Wah) Group could offer the poor a choice of either Western or Eastern medicine, but their three part-time ophthalmologists could only deal sketchily with 30,000 attendances per annum, and there were definite limits to the cost of drugs and treatment provided. It was therefore inevitable that the small government ophthalmic service should need considerable expansion as soon as an effective system of out-patient records had been established and certain surveys of ophthalmic disease had been carried out.

The 1953 surveys showed that the principal diseases presenting at the urban clinics were as follows:

- (A) Acute infection of the anterior segment of the globe (ophthalmia), associated with varying degrees of subnutrition.
- (B) Phlyctenular disease.
- (C) Syphilis.
- (D) Trachoma.
- (E) Untreated cataract.
- (F) Glaucoma.

Further factors affecting the incidence of disease were also disclosed by these surveys:

(1) *Overcrowding*.—In the slums of Wanchai or Shamshuipo, the area of bed space that an adult can acquire is only 15 sq. ft—all too often this is not only a place to sleep, but also the space wherein he has to earn his livelihood. In consequence not merely is the epidemic spread of ophthalmia accelerated, but the high racial tuberculosis morbidity is aggravated; although on the whole the Chinese show a low susceptibility to this disease. Hong Kong's weekly notification of deaths from tuberculosis averages well over 45, while the freshly diagnosed cases of the disease are higher than 200 per week. Some 78 per cent. of deaths in the male age group 40–44 years, and 30 per cent. of deaths in infants under 5 years of age are due to tuberculosis (three-quarters of the latter being due to tuberculous meningitis).

In 1954 a series of 440 children with phlyctenular disease aged 8 years or under was tuberculin-tested. Some 85.9 per cent. of these were reported as "T-T positive". All the children in the series had their chests x-rayed, with immediate

reports in 48 cases of active pulmonary tuberculosis. Of the whole, 20.5 per cent. were reported either as being actively tuberculous or else as showing radiological stigmata significant of this disease.

(2) *Diet*.—The key to the whole problem of effective mass treatment of ophthalmic disease, not merely in Hong Kong but throughout South East Asia, lies in the dietary idiosyncrasies of the inhabitants. During the first year of life, the Cantonese infant is kept at the breast, and a recent survey shows that during this period the weight-growth rates closely parallel those for infants of other races. However, directly the Chinese infant is weaned the weight-growth rates slow up. In Hong Kong, when artificial feeding has to be resorted to, the economics of poverty bring it about that infants receive only unfortified tinned milk or a rice-mush known as *congee*. The Cantonese dislike bread and avoid all forms of dairy-produce in their diet. Throughout the year the poor exist upon bowls of polished rice garnished with a few vegetables and a little salt-fish, except for the traditional feast of pork or chicken at the Lunar New Year. The majority of our series of phlyctenular disease showed a heavy infestation with *Clonorchis sinensis*; this trematode has as an intermediary host the fresh-water carp—a staple of the Cantonese diet—and it is held by some authorities to affect over 65 per cent. of the population of Kwangtung.

The school health scheme operating in the Colony reports that 31.8 per cent. of its entrants are found to be of poor or subnormal nutrition, and that a further 20.6 per cent. are noted at this time as border-line cases meriting further observation. 18.2 per cent. of these entrants required immediate remedy of physical defects—the ophthalmic service providing spectacles for approximately 10 per cent. of the whole entry.

Dietary factors are responsible for the lack of resistance to ocular infection amongst our patients, reaching in extreme cases to pure keratomalacia, and assisting in the production of a high incidence of phlyctenular disease. In 1955, an analysis of 300 children on their first attendance at our urban clinics showed 44.6 per cent. to be suffering from ophthalmia/subnutrition and a further 17.0 per cent. from phlyctenular disease. Like the English the Chinese believe that to be “good” all medicine must be “nasty or searching”. In consequence, the salves and powders that the local necromancers, herbalists, acupuncturists, and the like instil into the eye are in all essentials abrasive, and the excoriations so produced are all too often difficult to differentiate from massive crops of phlyctenules.

(3) *Syphilis*.—The Chinese claim that this disease is purely a “foreign-devil” importation of the last 150 years. Be that as it may—in 1954 some 6 per cent. of all pregnant women in Hong Kong were found to be suffering from unsuspected syphilis, and in the same year an analysis of blindness in males showed serologically that 10 per cent. were due to syphilis. The ophthalmic clinics that year referred some eighty cases of proven syphilitic optic atrophy to the Social Hygiene Clinics—not one of which had previously received any form of anti-luetic treatment. Curiously enough, the Cantonese are convinced that blindness is the inevitable result of the sins of the sufferer, and the above findings may be held to give support to this belief; this has been one of our principal stumbling blocks in the struggle to enlist public support for blind-welfare.

(4) *Trachoma*.—Hong Kong has always had an inadequate water supply for its large community, and in the tropics this poses many public health problems, not the least of which is the facility with which communicable eye-disease spread. To aggravate matters, the Chinese, whilst fastidious in their personal hygiene, are completely oblivious of the necessity for communal measures. Conservancy is regarded as a western-fad; expectoration at all times and in all places is a general habit; the communal face towel wrung out in tepid water is used by all the company attending eating houses and places of entertainment to refresh the face and hands. Our urban clinics in consequence show a constant 15–17 per cent. attendance for trachoma, but the incidence is considerably higher in the rural clinics held for farmers and fisherfolk for whom hygiene does not exist. The children attending the middle-class schools show very little trachoma, but in the orphanages, rural schools, and institutions, the incidence amongst the inmates is about 11 per cent.

(5) *Less Common Diseases*

(a) Peculiar to this region and held by some authorities to be bound up with the hot humid climate is the Cantonese disease. Each year the ophthalmic clinics expect some fifty or more patients in early middle age to report with a paralytic strabismus or other ophthalmic signs that on investigation prove to be a hitherto unsuspected but by now intractable neoplasm: naso-pharyngeal carcinoma.

(b) Leprosy in Hong Kong provides 11,000 annual attendances in the government clinics, approximately 500 new cases being diagnosed each year. In the main, the ophthalmic signs are either paresis affecting the orbicularis oculi or uveitis in the tuberculoid type of Hansen's disease. We have only seen one case of the classical lepromatous pannus in the last 4 years, but a retino-choroiditis the initial appearance of which is extremely difficult to differentiate from diabetic retinopathy is frequently seen.

(c) The Chinese in Hong Kong are firm believers in vaccination (red-bean-sowing) and in consequence the amount of blindness due to smallpox (the heavenly red-bean flower disease) is negligible. However, after the acute infectious fevers and in particular after measles, tradition has it that the child should not receive a full diet for one month, and such patients are all too often rescued just upon the brink of keratomalacia.

PUBLIC HEALTH MEASURES

Preliminary surveys of the Colony's blind population indicated that nearly 50 per cent. of these unfortunates claimed that they had lost their sight before the age of 10 years. United Kingdom surveys state that only 6.2 per cent. of blind persons are so disabled before the age of 15 years, and 82.3 per cent. are reported to have lost their sight after the age of 50 (Sorsby, 1953). In 1954, the government eye clinics of Hong Kong freed all children of the age of 10 and under from any charges for treatment, drugs, hospitalization, etc. Otherwise a fee-for-service is charged of \$1 per patient. The overall value of this to a family of seven or ten children existing on a coolie's pay cannot be exaggerated. Immediately, instead of seeing children in the last

stages of keratomalacia, we were able to treat acute infections of the eye in the earliest stages. By the middle of 1953, all government clinics, closely copied by outside practitioners, started to treat trachoma with Aureomycin/Terramycin/sulphonamide therapy under strict W.H.O. classification and discipline. At the same time, in all cases of disease in children, we reinforced topical therapy with systemic antibiotics and nutritional supplements (mainly vitamins A and D) to get rapid initial response to treatment. The results have been most gratifying, and now we boast that we only get "blind babies" from Kwangtung, and we know that our "yellow trachoma ointment" has a wide reputation throughout South China. Unfortunately Hong Kong's prolonged therapeutic honeymoon with the antibiotics shows signs of being on the wane, and there is also a noticeable increase in the photo-sensitive reactions to sulphonamide therapy similar to that now occurring in the Mediterranean area.

All too often in ophthalmology, the role of welfare as a most vital weapon in our armamentarium is forgotten. The ophthalmic almoners here have to deal with approximately one in 25 of all our fresh cases; they achieve the most excellent results, giving advice on economic problems. Gifts of food parcels and home-visits to deal with problem parents help to reduce the numbers of our "chronics" and speed the pace of cure.

BLINDNESS

Mackenzie and Flowers (1947) estimated that there were nearly 2 million blind persons in China. Such figures may seem quite fantastic, but there can be no doubt that the numbers must be astronomical in a population recently stated to approach 600 million persons.

We base our estimates of Hong Kong's blind population upon United Kingdom surveys, which would indicate that the number of persons with visual acuity of hand movements, perception of light, or less would be about 3,000. Some 551 of these were surveyed in 1953 (Table I).

TABLE I
MAJOR CAUSES OF OPHTHALMIC DISEASE

Cause	Percentage of Cases
Ophthalmia/Subnutrition	44
Untreated Cataracts	16
Trachoma	11
Injury	10
Syphilis	5
Congenital or Hereditary Disease	5
Glaucoma	3.5
Uveitis or Optic Atrophy of Unknown Aetiology	2.5
Smallpox	1
Leprosy	1
Degenerative Disease	1
Total	100

This preliminary survey, whilst leaving unanswered many questions, clearly emphasized the fact that three-quarters of the blindness in Hong Kong was preventable. The major discrepancies with the United Kingdom figures lay in the different ages at onset, and in the figures for untreated cataract and glaucoma (30.4 and 14 per cent. respectively in the United Kingdom; Sorsby, 1953).

In the survey of 800 blind adults, summarized in Table II, the incidence of cataract and glaucoma in Chinese and European adults clearly approximated. The characteristics of male blindness in Hong Kong appear to be the high incidence of syphilis (as against 1 per cent. in the United Kingdom; Sorsby, 1953), and of injuries consequent on nearly 50 years of civil war, flood, and famine. In Hong Kong, as indeed throughout the Orient, there is no idea that heavy work is unsuitable for women, hence the parity between the sexes in "peace-time" traumatic causes of blindness. Furthermore, the Colony is only lightly industrialized, so that the summation of all types of trauma does not approach the 24.7 per cent. of traumatic blindness encountered in the figures for the heavily industrialized United Kingdom. In fact, the textile and plastic factories of Hong Kong are generally of recent construction, rivalling the best in other countries in layout, equipment, and employee-welfare services. Yet side by side with these exist concerns in which the employees live and work in conditions and under an apprenticeship system analogous with those of Tudor London.

TABLE II
ANALYSIS OF 800 BLIND ADULTS IN 1954

Ophthalmic Cause						Percentage of Cases	
						Female	Male
Major (More than One per cent.)	Ophthalmia/Subnutrition					29	24
	Cataracts	Simple Complicated	25.0 5.4	} 30.4	12.0 8.0	} 10	
	Trachoma						14.5
	Glaucoma	Simplex or Narrow Angle Secondary	8.0 1.5	} 9.5	5.0 0.7	} 5.7	
	Injury	Peace-time .. .. . War-time	4.5 0.1		} 4.6		4.0 13.0
	Syphilis	Congenital .. .. . Acquired	0.1 2.5	} 2.6		0.2 10.0	} 10.2
	Non-specific Uveitis					2	
	Non-specific Optic Atrophy					1	1
All Other Minor Causes (Less than One per cent.) ..						100	100

Nearly 90 per cent. of all adults who had lost their sight because of ophthalmia/subnutrition claimed that this had occurred before the age of 10 years.

The survey of 200 blind children summarized in Table III, reflects the points noted elsewhere regarding the age at onset of blindness, and the high birth-rate. Tuberculous meningitis and epidemic encephalitis are in the main responsible for the figures for optic atrophy.

Most of the children surveyed came from institutions in the Colony, the slight bias towards females being due to the fact that the female child is of little economic value to a Chinese family, and in consequence readily discarded in times of disease and stress. One of the more interesting causes of uniocular blindness in children cannot feature in this Table. At the period of the Chinese New Year, Hong Kong is ablaze for 48 hrs with the explosion of fireworks, and we normally expect to see fourteen to twenty cases of grave ocular damage amongst children. Fortunately not many eyes progress to enucleation, but it is of interest that the casualty figures at this season approach those in London on the evening of Guy Fawkes Day.

TABLE III
ANALYSIS OF 200 BLIND CHILDREN IN 1954

Ophthalmic Cause				Percentage of Cases	
				Female	Male
Major (More than One per cent.)	Ophthalmia/Subnutrition			71	60
	Congenital Defects	Cataracts .. .. Other than Cataracts		12 } 10 } 22	9.5 } 8 } 17.5
	Non-specific Optic Atrophy			5	6
All Other Minor Causes (Less than One per cent.) ..				100	100

In 1955, the case histories of some 1,071 blind persons were examined to find out how much blindness was due to a combination of several diseases, and 154 were found to come into this category.

Amongst eighty females, glaucoma with secondary cataract (10), trachoma with senile cataract (9), senile cataract with the other eye blind from peace-time trauma (9), non-specific uveitis with subsequent cataracts (9), and senile cataracts with secondary glaucoma (8), were the main combinations.

The 74 males on the other hand presented non-specific uveitis with subsequent cataract (11), acquired syphilis with subsequent cataract (7), glaucoma with subsequent cataract (7), and senile cataract with the other eye blinded by peace-time trauma (7) as the main combinations.

OPHTHALMIC ARRANGEMENTS

The government eye clinics have now expanded rapidly to deal with over 85,000 attendance in 1956, and the figures reached 100,000 during 1957. Two

large well-equipped ophthalmic centres cater for the urban areas, and from them a staff of twenty, including five ophthalmologists, provides 28 clinic-sessions monthly at eight out-stations to cover the whole of the Colony. Our beds are only ten in number, with a turn-over of 32 patients each during the year, but the majority of our major and intermediate operations (2,500–2,900 cases per annum) is carried out as “office-surgery” at the major centres. The patient is securely stitched and sent home after operation, and we feel that the complication rate appears to be no greater than in those who were fully hospitalized. Over 75 per cent. of our cataract surgery is perforce carried out as “office-surgery”.

SUMMARY

Surveys of ophthalmic disease and of blind persons in Hong Kong are described. The expansion of the government ophthalmic service as a result of these surveys shows the development of the role of preventive ophthalmology.

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