Section of Ophthalmology

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Leprous Affection of the Eyes

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MY contribution to the consideration of this matter is a brief one. I wish to leave to others all description of details and to confine myself to trying to outline a general background into which the detailed account of leprous eye involvement may fit.

Many ancient accounts of leprosy mention the chronic inflammation of the eye, often leading to blindness, which is characteristic of the severer forms of the disease.

Perhaps the first real attempt in modern times at a sound scientific description of leprosy was made by the Norwegian workers Daniellsen and Boëck over a century ago. Their work was illustrated by a magnificent series of coloured plates. Only a few days ago my old mentor and colleague, Dr. Ernest Muir, while on a visit to Norway, was presented with a set of these coloured plates, several of them illustrating the eye lesions of leprosy which he has passed on to me.

SOME GENERAL CONSIDERATIONS

The old conception of leprosy as essentially a skin disease is, or should be, dead; leprosy is to be regarded as a systemic infection.

The disease shows itself in two main forms, now termed "lepromatous" and "tuberculoid", although there are cases which do not fit well into either of these two main groups.

In the lepromatous form of leprosy the infection is widespread in skin, mucous membrane, nerves, bone marrow, some internal organs, and also in the eyes, and there is little or no attempt of the tissues to react or to localize the infection.

In the tuberculoid form of the disease the infection is much more restricted, often being confined to certain areas of skin and to local lymph nodes and certain nerves, although there have been recent reports of some lesions in the internal organs; bacilli in the lesions are few, and tissue reaction to them, with resulting localization, is a marked feature.

Now with these widely differing forms of leprosy, widely differing forms of eye involvement may be seen, and without going into any detail I wish to mention them.

LEPROMATOUS INFILTRATION OF THE EYE

This is seen as part of the generalized systemic infection of lepromatous leprosy, and it constitutes the most serious of the leprous eye infections. I will mention only a few points.

First its frequency. It used to be considered that lepromatous infiltration of the eye was characteristic only of severe generalized lepromatous leprosy. During recent decades the better methods of examination available, particularly the slip lamp, have shown that even in the relatively mild lepromatous cases a degree of lepromatous infiltration of the eye is very common, although it frequently produces no marked symptom.

Secondly, its severity. Those who have seen leprosy in various countries have, I am sure, been struck by the marked regional variations in the severity of leprous eye lesions. On the plains of India and in West Africa, where most of my work has been, severe leprous affections of the eye are seen, but much less commonly than in some other countries which I have visited. For example, I once visited a leprosarium in Kashmir where over 50% of the patients were partly or completely blind. I have noted that in Chinese patients, in Anglo-Indian patients, in South American patients and in European patients, severe leprous eye affections seem to be relatively common. Similar local variation is seen in some of the other serious manifestations of leprosy, for example, involvement of the larynx. There does seem to be a definite racial factor operating in these matters.

Thirdly, I would mention the effect of chemotherapy. First I would mention its effect on leprosy in general. In my experience before the introduction of sulphone therapy, the prognosis of lepromatous leprosy was often bad; treatment could only delay the downward progress, and death was the usual outcome, frequently accompanied by partial or complete blindness. Our present treatment of leprosy has many shortcomings, but the hopelessness of the past should not be forgotten. But I would also stress the value of chemotherapy, particularly in the prevention of serious eye lesions. I quote from my personal experience. In Uzuakoli, in Eastern Nigeria, where I worked from 1947 to 1954, there were in 1947 about 20 patients with severe eye involvement, partly or completely blind. Chemotherapy of leprosy then introduced could control the leprosy, but could not restore

the sight. The value of chemotherapy was seen between 1947 and 1954 in the marked fall in the incidence and in the severity of lepromatous eye lesions. This was very striking. During this time chemotherapy undoubtedly prevented serious eye complications in a considerable number of patients.

I will not discuss treatment in detail. Sulphone treatment (diaminodiphenylsulphone given orally), if necessary in small doses, and cortisone, given either as eye drops or by subconjunctival injection in the acute phases, were the main measures. In some cases, thiosemicarbazone was used instead of sulphone.

Tuberculoid Eye Involvement

By this I mean the direct involvement of the eye in the inflammatory process of tuberculoid leprosy. Tuberculoid leprosy is localized, and usually the eyes escape, but there are cases in which the skin of the face is involved, or the part of the face round the eyes, and thus the eyes may be involved directly with tuberculoid inflammation of the conjunctiva and cornea. This in itself is not very serious; it usually subsides in a few weeks, with little permanent damage. It does become serious, however, when, as is not uncommon, there is an ascending tuberculoid involvement of the V and VII cranial nerves, with subsequent palsy. This is discussed below.

Paralytic Lesions of the Eye

These may arise in two ways. The first way has already been mentioned, the ascending neuritis from tuberculoid lesions of the face, but it can occur in lepromatous leprosy also. In lepromatous leprosy the nerves are involved, but are often little damaged because of the lack of tissue reaction. As the disease dies down, however, either spontaneously or under chemotherapy, the fibrosis of the nerves which accompanies healing may lead to destruction of nerve fibres and paralytic changes in various parts of the body, including the eye.

I will not describe the condition in detail; the characteristic findings are inability to close the eye, ectropion, lagophthalmos, loss of corneal reflex, and, in consequence of these changes, the complete destruction of the protective mechanism of the eye.

Conclusion

I have tried to give some general background to the picture of leprosy of the eye. In conclusion I would state my opinion that practically all serious eye involvement in leprosy is preventable, by early diagnosis, and thorough general treatment of leprosy. In very few cases does the eye become seriously involved in the earlier stages of the disease. If all cases could be promptly diagnosed and thoroughly treated, serious leprous eye lesions would also all be prevented. That is my experience in many hundrds of cases during the last seven years. Unfortunately, I believe that many of the cases seen in this country are relatively advanced when they come here and serious eye troubles are not uncommon.

REFERENCE

Danielssen, D. C., and Boëck, W. (1847) Atlas Colorié de Spedalsked (Elephantiasis des Grecs). Publiée aux frais du Gouvernement Norvégien. Les planches dessinées par K. L. Losting. Bergen.

Ocular Leprosy, with Reference to Certain Cases Shown

By D. P. Choyce, F.R.C.S.

I should like to record my thanks to Sir Neil Hamilton Fairley, Sir George MacRobert and Professor A. W. Woodruff for permission to demonstrate their cases.

I have had experience of two contrasting types of case: first, the detailed and repeated observation of 30–40 cases of leprosy in this country; about half of these have ocular involvement. Also, having been fortunate enough to travel fairly extensively abroad, I have superficially examined several thousand inmates of leprosaria in Malaya, India, Pakistan, Egypt and East Africa. It is more difficult to draw conclusions about this type of case, partly because there has never been a corneal microscope with which to examine them, and partly because so many of them have had other ocular disease. An interesting feature of many of these cases was corneal and conjunctival anæsthesia due to involvement of the V nerve, so that the trichiasis caused no symptoms and the patients, therefore, refused to submit to surgical correction of the trichiasis, with continuation of the damage to the cornea: an interesting example of the difficulties confronting the tropical ophthalmologist.

(1) *Nerve involvement.*—(*a*) The upper division of the VII nerve is not uncommonly involved in non-lepromatous leprosy, leading to myo-atrophy of the superior part of the orbicularis oculi. This leads to characteristic loss of "winking" and blinking, lagophthalmos, ectropion of the lower lid, and later, to exposure keratitis. In this connexion it is interesting to observe how much exposure the cornea can stand in these cases, and it is wise to delay tarsorrhaphy as long as possible.

(*b*) Branches of the V nerve may also be thickened and palpable, and corneal anæsthesia may be pronounced. Under these circumstances corneal ulcers readily form, cause remarkably few symptoms, and take a long time to heal.

(2) *Lids and lacrimal apparatus.*—In lepromatous leprosy madarosis (loss of eyebrows and lashes)