AETIOLOGY OF IRIDOCYCLITIS IN THE AFRICAN*

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WHILST stationed at Mwanza in Lake Province in 1944, I saw 42 cases of iridocyclitis in Africans. As soon as a diagnosis of iridocyclitis was made I attempted to persuade the patient to stay in hospital so that he could be under continuous observation and treatment. I often failed to gain acquiescence, and occasionally the patient took fright at the mere suggestion and I never saw him again. Nevertheless, I was able to investigate and treat 28 cases fairly thoroughly. The other 14 cases were not investigated fully and are not included.

This unwillingness to stay in hospital is readily understood. In the case of a man it means that his wife and family are alone and unprotected, a very real factor in Mwanza where thieving is so common. Moreover, "white" medicine is strange and the native is apt to regard disease as "shauri ya Mungu" (Fate or will of God) so that holding over his head the threat of losing his sight has little effect. Faith in the witch doctor dies hard. "White" medicine is tried only after native medicine has failed. I found one native just after he had been admitted to the ward chewing with great determination and discovered on close questioning that it was native medicine to protect him from harm whilst in hospital.

For the purpose of this article cases which would be diagnosed clinically as iritis or as cyclitis have been included under the one term iridocyclitis for convenience and also because, even when the inflammation appears to be confined to either the ciliary body or the iris, the other is bound to be affected.

Iridocyclitis may be :—

- (1) Secondary to a local injury, inflammation or toxic process *e.g.*, a keratitis or scleritis or an intra-ocular pathological process such as a neoplasm or haemorrhage.
- (2) Due to an exogenous infection such as a perforating injury or intra-ocular parasites.
- (3) Due to an endogenous infection *e.g.*, syphilis, gonorrhoea, relapsing fever or a septic focus.

The aetiology of the first two groups gives rise to no difficulties but the last group of causes is far from being understood and it is with this last group that this article is concerned.

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All the observations on the cases were made with focal illumination, a corneal loupe and an ophthalmoscope. A slit-lamp was not available. The microscopic examinations were carried out as shown in Table II and no negative finding was accepted until several specimens had been examined on separate occasions but it was not possible to make more elaborate investigations such as cultures of the aqueous, urine, septic material from tooth sockets and swabbings from tonsils and sinuses, etc.

Comments on tables of cases

Although in each case I have recorded the period which the patient gave as the duration of the disease before he consulted me, I do not place great reliance upon these statements. The African lives from day to day with little thought for to-morrow or, perhaps it is truer to say, an indifference to the future. He is rarely really well and he is unlikely to notice a slight blurring of the vision of one eye and still more unlikely to come to hospital unless the pain is severe or the vision markedly diminished. Quite often the patient came complaining merely of pain and was most surprised to find during the examination that he was unable to see with the affected eye. I think it is probable, therefore, that the periods given in the table of the duration of the disease before treatment are considerably under-estimated.

The dearth of female cases of iridocyclitis in the above series is most noticeable. There was only one female patient (case No. 7) whom I was able to investigate at all fully, and there were two other female cases amongst the 14 patients who refused to stay in hospital. In one, an adult, the disease was almost certainly due to syphilis, and in the other, a young child, it was probably due to tick-fever since she said she had had a high fever a few weeks before and ticks were later discovered in her house. It is difficult to explain the preponderance of males. Undoubtedly the native woman's fear of leaving her husband and family plays a large part but this would explain the unwillingness to stay in hospital rather than the small number of women with iridocyclitis who were seen.

Notes on treatment

A brief account of the main lines of treatment may prove of interest. All treatment was made as routine as possible to avoid confusion because few of the African dressers were able to read very well and their capacity for forgetting to do any treatment out of the usual routine was extraordinary.

On admission the following treatment was given to every patient until the results of the investigations were received.

TABLE I—*Tabulation of Cases*

Name	Sex	Approx. age	Duration before treatment	Eye	V. before treatment	Tension of globe	Ciliary Inj.	Posterior Synchiae	K. P.	Period of treatment	V. after treatment
1. A.M. ...	Male	19	2 weeks	L.	F. at 2 M.	N.	Slight	None	Moderate	5 weeks	6/6
2. B.I. ...	Male	45	1 week	R.	F. at 2 M.	N.	Moderate	Marked	Moderate	3 weeks	6/24
3. B.Z. ...	Male	35	1 day	R.	6/60	+	Slight	Moderate	Slight	Refused admission	
4. C.H. ...	Male	28	2 days	R.	F. at 3 M.	N.	None	None	Marked	5 weeks	6/6
5. D.M. ...	Male	34	2 months	R.	6/6	N.	Slight	Moderate	None	Refused admission	
6. D.S. ...	Male	25	3 days	L.	F. at 4 M.	N.	Slight	Marked	Moderate	3 weeks	6/9
7. G.M. ...	Female	12	2 weeks	R.	6/24	N.	Slight	Slight	Moderate	Refused admission	
8. G.O.A.	Male	21	2 months	L.	6/9	N.	Slight	None	Marked	Ran away after 6 days	
9. H.A. ...	Male	23	1 day	R.	6/12	N.	Slight	None	Slight	Refused admission	
10. H.M. ...	Male	50	5 days	R.	3/60	N.	Moderate	Moderate	Marked	2 weeks	6/24
11. J.K. ...	Male	30	10 days	R.	F. at 3 M.	N.	Slight	Slight	Moderate	Ran away after 4 weeks	6/60
12. J.S. ...	Male	30	1 month	L.	6/36	N.	Slight	Slight	Slight	3 weeks	6/36
13. K.T. ...	Male	50	4 weeks	L.	6/60	+	Marked	Slight	Marked	3 weeks	6/9
14. M.P. ...	Male	30	1 month	R.	6/36	N.	Marked	None	Marked	3 weeks	6/9
15. M.K.	Male	25	4 days	R.	F. at 3 M.	N.	Moderate	Marked	Marked	2 weeks	6/12
16. M.K.	Male	50	5 days	L.	F. at 1 M.	N.	Moderate	Moderate	Slight	3 weeks	6/18
17. M.K.	Male	14	1 day	R.	H.M.	N.	Moderate	Slight	Moderate	3 weeks	6/24
18. M.M.	Male	30	4 days	R.	6/18	N.	Slight	Marked	Slight	4 weeks	6/6
				L.	6/12	N.	Slight	Marked	Slight	Refused admission	
19. M.M.	Male	35	2 months	R.	F. at 4 M.	N.	Slight	None	Slight	4 weeks	6/6
20. P.M. ...	Male	38	1 day	L.	F. at 2 M.	N.	Moderate	Marked	Moderate	2 weeks	6/6
21. P.M. ...	Male	30	2 weeks	R.	6/12	+	Slight	None	Slight	3 weeks	6/9

TABLE I—*Tabulation of Cases—(continued)*

Name	Sex	Approx. age	Duration before treatment	Eye	V. before treatment	Tension of globe	Ciliary Inj.	Posterior Synechiae	K.P.	Period of treatment	V. after treatment
22. P.K. ...	Male	20	2 weeks	R.	F. at 3 M.	N.	Moderate	Slight	Marked	2 weeks	6/12
23. R.B. ...	Male	40	2 weeks	R.	F. at 3 M.	N.	Moderate	Marked	Moderate	Refused admission	
24. S.K. ...	Male	50	5 days?	R.	F. at 3 M.	+	Moderate	Marked	Marked	5 weeks	6/24
25. S.J. ...	Male	25	4 days	L.	F. at 3 M.	+	Moderate	Marked	Marked	"	6/24
26. S.G. ...	Male	20	3 days	L.	6/60	N.	Slight	Moderate	Moderate	1 week	6/9
27. S.M. ...	Male	50	5 days	R.	F. at 1 M.	N.	Slight	None	Marked	3 weeks	6/18
28. S.B. ...	Male	30	1 month	R.	F. at 2 M.	N.	Moderate	Moderate	Moderate	3 weeks	6/9
				R.	F. at 2 M.	N.	Slight	Slight	Slight	3 weeks	6/9

V. = Vision on Snellen's Test Type.
H.M. = Hand movements only.

F. at 1 M., 2 M. = Counted fingers at one Metre, two Metres, etc.
K.P. = Keratic precipitates. N. = Normal tension.
+ = Increased tension.

TABLE II—*Investigations*

Name	Kahn	Urethral Smear	Urine	Stool	B.S.	H.B.	Teeth	Tick fever	Remarks
1. A.M. ...	+	—	—	—	MP +	N.D.	Good	3 years ago	
2. B.I. ...	+	PC + + + GC + + +	—	—	—	75 per cent.	Good	None	
3. B.Z. ...	+	PC + + + GC +	PC +	Strongy- loides + Taenia +	MP +	85 per cent.	Pyo +	None	
4. C.H. ...	+	—	—	—	—	80 per cent.	Good	None	Had primary chancre 2 months ago.
5. D.M. ...	+	—	PC + +	—	—	90 per cent.	Good	4 months ago	Generalized enlargement of lymph glands.
6. D.S. ...	+	PC + + + GC + +	SH + +	—	—	75 per cent.	Good	1 month ago	
7. G.M. ...	—	N.D.	—	—	—	75 per cent.	Good	None	

TABLE II—Investigations—(continued)

Name	Kahn	Urethral Smear	Urine	Stool	B.S.	H.B.	Teeth	Tick fever	Remarks
8. G.O.A.	—	—	RBC + + PC + +	—	—	70 per cent.	Good	None	
9. H.A. ...	++	—	—	—	—	80 per cent.	Pyo + +	3 weeks ago	
10. H.M. ...	—	PC + + GC +	PC + +	Strongy- loides +	—	80 per cent.	Pyo +	None	
11. J.K. ...	+	—	PC + + RBC +	Ankyl +	—	45 per cent.	Pyo +	None	Spleen below umbilicus, developed mercury stomatitis.
12. J.S. ...	++	PC + + GC +	—	Ankyl +	N.D.	60 per cent.	Good	None	Generalized enlargement of lymph glands. Syphilis one year ago. Treated with 3 injections.
13. K.T. ...	++	—	—	SM +	—	70 per cent.	Good	None	
14. M.P. ...	++	PC + + GC + +	—	Ankyl +	—	70 per cent.	Pyo +	None	Generalized enlargement of lymph glands. Fauces inflamed, phimosis and dis- charge.
15. M.K. ...	±	—	RBC + +	Ankyl +	MP +	80 per cent.	Good	None	
16. M.K. ...	++	PC + + +	PC + +	—	—	80 per cent.	Pyo +	None	Generalized enlargement of lymph glands.
17. M.K. ...	—	—	—	SM + Ankyl + Ankyl +	Sp + + +	50 per cent.	Good	18 days ago	
18. M.M. ...	+	—	—	Trichuris + SM + Taenia +	MPs +	90 per cent.	Good	None	
19. M.M. ...	++	PC + + GC +	SH + SM +	MPs +	MPs +	45 per cent.	Pyo +	None	Primary chancre and secondary rash present.
20. P.M. ...	++	—	RBC + +	SM +	—	90 per cent.	Pyo +	None	

TABLE II—Investigations—(continued)

Name	Kahn	Urethral Smear	Urine	Stool	B.S.	H.B.	Teeth	Tick fever	Remarks
21. P.M. ...	++	—	—	Ankyl + +	MPs +	80 per cent.	Good	None	Said he had syphilis 3 years ago. Penile scar present. Had relapse of iridocyclitis three weeks later which readily responded to treatment.
22. P.K. ...	++	—	—	SM +	MPs +	N.D.	Good	None	Said he had syphilis 10 months ago.
23. R.B. ...	++	—	—	—	—	75 per cent.	Good	None	
24. S.K. ...	—	PC + + + GC +	—	SM + Ankyl +	MPs + + MPs + +	75 per cent. 70 per cent.	Pyo + Pyo +	None	Primary chancre, almost healed. Generalized glandular enlargement. Mucous papules in mouth.
25. S.J. ...	+	—	—	—	—	—	—	None	
26. S.G. ...	—	—	SH + +	—	N.D.	N.D.	Good	None	He had congenital cleft palate.
27. S.M. ...	—	—	—	—	—	N.D.	Good	None	
28. S.B. ...	++	—	—	—	—	90 per cent.	Good	None	

+ = Present.
 ++ = Present in moderate numbers.
 +++ = Present in large numbers.
 N.D. = Not done.
 G.C. = Gram negative intracellular diplococci.
 PC = Pus cells.
 RBC = Red blood cells.
 SH = Schistosoma haematobium ova.
 Ankyl = Ankylostoma ova.
 SM = Schistosoma Mansonii ova.
 MP = Subtertian malaria.
 SP = Spirochaeta duttoni.

(1) An eyeshade made from blue paper and tape was worn constantly. Dark glasses were not available.

(2) The eyes were bathed thrice daily with hot water, using cotton wool bound on a wooden spoon.

(3) Atropine ointment (1 per cent.) was instilled at two hourly intervals during the first day and then, if the pupil was widely dilated, thrice daily. If the posterior synechiae were resistant the patient was given a subconjunctival injection of "mydricain" (a mixture of adrenalin, atropine and cocaine).

(4) The following blunderbuss mixture which has a foul and most persistent taste was given thrice daily. In the African's eyes the more "Kali" the medicine the greater its power and this mixture was greatly appreciated.

Re Potassium iodide gr. VII.

Sodium salicylate gr. XX.

Sodium sulphate 3I.

Solution of mercuric chloride M.XXX.

Water to 3I t.d.s.

(5) T.A.B. was injected intravenously on alternate days in doses of 0.5 c.c., 0.75 c.c., 1.0 c.c., and in some cases higher doses were given depending upon the patient's reaction and the condition of the eye.

(6) If the ocular tension was raised or the keratic precipitates were increasing a paracentesis of the aqueous was performed and repeated as often as it appeared necessary.

When the results of the various investigations were known any other diseases found were treated as indicated below. The treatments were occasionally modified when multiple infections were present.

Syphilis.—When the Kahn test was reported to be positive neoarsphenamine 0.3 gramme was given intravenously twice weekly in addition to the mercury and iodides by mouth.

Gonorrhoea.—In addition to the intravenous T.A.B. two tablets of sulphapyridine were given every four hours by day *i.e.*, ten tablets daily for five days.

Schistosomiasis (Mansoni or Haematobium).—Antimony tartrate grain I was given intravenously thrice weekly.

Ankylostomiasis.—For this disease 3 cc. of tetrachlorethylene combined with 1 c.c. of oil of chenopodium was given on an empty stomach in the morning followed by a brisk saline purge two hours later.

The multiplicity of possible endogenous infections

During the middle of the last century it was held that syphilis, tuberculosis and rheumatism were the chief causes of iridocyclitis. In more recent years, however, other diseases such as gonorrhoea, leprosy, bacillary dysentery and relapsing fever have been shown to cause the disease and the rheumatic group is now regarded on the Continent as allergic manifestations of tuberculosis, and by British and American Ophthalmologists as consequences of focal infections.

Duke-Elder, after summing up the evidence concerning this group, states that these cases, in his opinion, "are due to the excitation of a local allergic reaction by bacterial products liberated from some focus of infection in an immune but allergic patient." If this concept is true, then it follows that in any community where infections abound we should expect to find a high incidence of iridocyclitis. In my brief series of cases the multiplicity of infections from which the African in the Mwanza district suffers is in striking evidence and it appears that the incidence of iridocyclitis in this district is correspondingly high.

Comparison of series at three different stations

My figures for comparable series of African eye cases in Tanga, Mwanza and Iringa show an incidence highest in Mwanza and lowest in Iringa.

Place	No. of eye cases	No. of cases of iridocyclitis
Tanga	102	9 or 9 per cent.
Mwanza	252	42 or 16.1 per cent.
Iringa	323	6 or 1.85 per cent.

At both Mwanza and Tanga, malaria, syphilis, gonorrhoea, filariasis ankylostomiasis, schistosomiasis and relapsing fever are common. In Iringa, however, these diseases are much less frequently seen although trachoma is relatively more prevalent. Furthermore, in both Mwanza and Tanga, despite the greatest care in investigating and treating coincident infections, cataract extraction was a disheartening operation because so many eyes developed post-operative iridocyclitis and other complications and were lost. In Iringa, on the other hand, despite the fact that trachoma has usually been present I have had but one severe case of post-operative iridocyclitis in 34 cases to date. This is no doubt partly due to the cooler climate, but I am inclined to think that the chief cause is the relative absence of parasitic infections.

The Kahn reaction

Of my series of 28 cases, 20 showed a positive Kahn reaction, but the meaning of this seropositivity in the African is debatable. It is not proposed in this paper to enter into a discussion of the meaning of a positive Kahn reaction in the African, but the spirochaetal diseases are naturally considered largely if not entirely responsible. In Mwanza district, relapsing fever is common and appears to be on the increase, Weil's disease probably occurs, but florid yaws is now rarely seen in the locality. Primary and secondary syphilis are very common and I think that it can be assumed that most of the positive reactions in this series were due to syphilis.

Syphilis

Duke-Elder classifies syphilitic iridocyclitis into four groups:—

1. The commonest, occurring early in the secondary stage.
2. Recurrent, occurring as a relapse following inadequate treatment.
3. A form of Jarisch-Herxheimer reaction.
4. Late or tertiary manifestation.

Moore and Gieske have published a table of 249 cases of early, relapsing and late cases of syphilitic iritis which passed through their hands. This table shows that 95.5 per cent. of the early cases were associated with other manifestations of secondary syphilis. In the relapsing cases, 11.2 per cent. were accompanied by mucocutaneous relapse and 14.8 per cent. showed some form of neurosyphilis, but in 74 per cent. no associated lesions of any kind were discovered. Another table shows that the optic nerve was involved in 15.3 per cent. of the early cases, 24.1 per cent. of the relapsing and 8.2 per cent. of the late.

Parsons states that iridocyclitis occurring in the course of syphilis is an indication of a severe infection and quotes Trousseau who found that thirty-four of a group of forty such patients ultimately developed grave sequelae such as tabes dorsalis and general paralysis of the insane. It is interesting to note in this connection that tertiary syphilis in general and neurosyphilis in particular are not very common among the Africans despite the prevalence of syphilis.

In his book "The Modern Treatment of Syphilis" Moore stresses that the treatment of early and relapsing iritis must be designed to cure the syphilis completely, and it should be continued for a full year after the serological tests are negative and the eye has recovered. It is extremely difficult to reach this

standard with our African patients because they fail to understand the necessity for such prolonged treatment after the symptoms have gone, but we should keep this standard in mind. It seems inevitable at the present time that the great majority of Africans pass into a latent phase which might at any time relapse.

In my series only three cases presented with unequivocal signs of secondary syphilis (cases 4, 19, 25) but in five other cases there was a generalised enlargement of lymphatic glands or other evidence suggestive of syphilis. This leaves twelve cases with serological evidence as the only definite indication of syphilis although one of these (case 22) stated that he had had syphilis ten months previously. These figures suggest that many of my cases were in the latent phase.

None of my cases appeared to be a manifestation of the Jarisch-Herxheimer reaction and in this connection Moore considers that a reduction in the early dosage of neoarsphenamine is necessary only in those cases in which the optic nerve is affected.

Gonorrhoea

In nine cases there were numerous pus cells found in urethral smears and in eight of these Gram-negative intra-cellular diplococci were seen. These smears were obtained by a thorough massage of the bulb and shaft of the penis in the early morning. Prostatic massage was not done except in a few cases because I found that the natives objected strongly to this procedure and it usually frightened them away. I preferred to be less scientific and to keep my patients. Thus there is no doubt that many others had a gonococcal prostatitis or vesiculitis which was unfortunately missed. No cases were seen in the acute stage of gonorrhoea.

It seems to me that in these few cases gonococci were found in a relatively high number of patients. It is true that great care was exercised in searching for organisms under the microscope, but this is not an adequate explanation. I am inclined to think that the extreme drunkenness, sexual excess, and promiscuity which is so common in African towns like Mwanza, results in frequent reinfections and leads to a chronic gonococcal discharge which is not met with in British practice. In fact some African communities regard a moderate urethral discharge as an indication of manhood.

Two types of gonorrhoeal iridocyclitis may occur. One type appears characteristically about six weeks after the onset of the urethral discharge often in association with arthritis. It is usually severe and is believed to follow a gonococcal septicaemia. The second type is a late complication. It is less severe but tends to recur and is probably an allergic manifestation. None of these

cases was associated with arthritis, and I am inclined to think that the majority of them were of this latter group.

The treatment of gonorrhoea in an African is disappointing because no African will attend outpatients regularly when his pain or symptoms have disappeared. Prostatic massage and bougies are forms of treatment of which he strongly disapproves. In addition to this, there is the ever-present certainty of re-infection, so that I do not feel at all certain that any of these gonorrhoeal cases were really cured.

Tick fever or relapsing fever

Iridocyclitis is not a frequent complication of tick fever but when it occurs, it commonly does so towards the end of the disease or within three or four weeks of the last relapse when the blood is usually free of parasites.

If inquiry elicits a history of fever a native is ever ready in reply to a leading question to volunteer the information that his hut is tick infested and to agree that the fever was tick fever, but there is no means of confirming this. Indeed, in five cases only was it possible to prove from hospital records that the patient really had suffered from tick fever previously. In one of these cases it had occurred three years before and was therefore of no significance, and in another case it was four months earlier and so was of doubtful significance. Nevertheless, the disease is so common in Mwanza district that it may have been the cause of a few other cases in this series.

None of these patients developed optic atrophy which occasionally follows iridocyclitis in relapsing fever.

Dental sepsis

It is established that septic foci, such as infected teeth and nasal sinuses, give rise to iridocyclitis, the streptococcus being the commonest organism. Ten of these series had pyorrhoea alveolaris but unfortunately it was not possible to culture the organism or to give the patients any definite treatment.

In Africa no teeth lost can ever be replaced by false ones and consequently a native can be persuaded to part with teeth only if they are very painful. Thus apart from the removal of an occasional tooth and frequent phenol mouth washes, little was done for these cases.

Malaria

The blood slides of nine of these cases showed subtertian malaria parasites, but it must be borne in mind that every native in the

Mwanza district has a chronic malaria from constant re-infections which maintains his immunity at a high level. It is therefore not surprising that parasites were found in the blood of a few cases. Elliot quotes Smith, who had a few cases of low-grade iritis, and Duke-Elder quotes several other authors who have recorded cases of serous iridocyclitis which they thought to be of malarial origin. Both authors, however, are very sceptical of the importance of malaria in causing iridocyclitis. Elliot points out that malaria is such a common disease in tropical and sub-tropical countries that it is surely of significance that in the voluminous literature upon malaria there is such scant reference to ocular complications and sequelae. It is, therefore, doubtful whether malaria was a factor in causing the iridocyclitis of these cases except possibly by reducing the general resistance of the body.

Other possible aetiological factors

In three cases *Schistosoma haematobium* eggs were found in the urine, in six cases *Schistosoma Mansoni* ova were seen in the stool, eight patients had ankylostomiasis and two patients had taeniasis. How often, if ever, do these diseases give rise to iridocyclitis?

Ophthalmologists are agreed that septic absorption from the alimentary canal may sometimes cause anterior uveitis, and in this connection streptococcal oral sepsis, gastro-enteritis especially in children, non-dysenteric amoebiasis, cholecystitis and appendicitis have been cited as aetiological agents. Iridocyclitis is a well known complication of bacillary dysentery and it usually occurs about three weeks after the onset of the disease often in association with arthritis. It has also been recorded as a complication of amoebic dysentery. *Schistosoma Mansoni* infections often present with symptoms resembling those of bacillary dysentery and it is possible that bilharzial dysentery may occasionally give rise to iridocyclitis. The pathology of ankylostomiasis has not been fully worked out, but many clinicians believe that the anaemia and debility of this disease are due not only to loss of blood but to a continuous absorption of both specific toxins elaborated by the worms, and to toxins passing from the alimentary canal through the damaged intestinal mucosa. Thus ankylostomiasis may act as a factor in producing disease of the anterior part of the uveal tract.

Infections of the genito-urinary tract play some part in the aetiology of uveitis and, although gonorrhoea is the most common cause, streptococcal infections of the prostate and posterior urethra have been proved to be aetiological agents in some cases. *Bilharzia* may attack any part of the genito-urinary tract and thus give rise

to cystitis, prostatitis and pyelitis, so one is tempted to wonder whether this disease may be a factor in causing iridocyclitis in Africans.

In any case all the above mentioned diseases give rise to the absorption of toxins and, even if they do not cause iridocyclitis directly by sensitizing the uveal coat so that a later escape of toxins gives rise to allergic inflammation, there is the possibility that they may act indirectly by reducing the body's general resistance. It must be conceded, however, that this series gives no grounds for the belief that these parasitic diseases are common causes of uveal affections, for in two cases only, *viz.*, case Nos. 4 and 26 did any of these diseases occur alone.

It should be mentioned that leprosy, trypanosomiasis and onchocerciasis may cause inflammation of the uveal coat although none of these diseases was seen in my series of cases.

The incidence of typhoid fever in a community is considered to be a good index of its standard of sanitation, and it may be that the incidence of iridocyclitis in a tropical community is an index of the extent to which it is disease-ridden. Much work will need to be done before the part played by tropical diseases in the aetiology of iridocyclitis can be properly assessed, but it is hoped that this paper will draw some attention to this subject even though it does little to elucidate the problem.

Summary

Twenty-eight African cases of iridocyclitis seen in Mwanza, Lake Province, were investigated with the following results:—

Kahn reaction	...	...	20 cases positive
Urethral smear	...	...	9 showed pus cells of which 8 showed gonococci
Tick relapsing fever	...	...	3 definitely associated with iridocyclitis
Dental sepsis	...	...	Present in 10 cases
Malaria	...	...	Subtertian parasites present in 9 cases
Schistosoma Haematobium	...	...	Eggs present in urine of 3 cases
Schistosoma Mansoni	...	...	Eggs present in stools of 6 cases
Ankylostomiasis	...	...	Present in 8 cases
Taeniasis...	...	...	Present in 2 cases

The importance of the above diseases in the causation of iridocyclitis in the African is discussed.

In conclusion I wish to record my especial thanks to the Senior Specialist, Dr. W. A. Young, for the encouragement he has given me in this work, for much constructive criticism and in particular for his help in supplying the references quoted in the section dealing with syphilis.

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AMNIOTIC MEMBRANE GRAFTS IN CAUSTIC BURNS OF THE EYE*

(Burns of the second degree)

BY

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and

H. M. SYMONS

TUNBRIDGE WELLS

THAT caustic burns of the eyes produce more ultimate damage than the immediate reaction would suggest and that recovery is always protracted is a common experience. To overcome corneal damage developing during the course of the affection, and to avoid conjunctival complications as exemplified by symblepharon, a variety of procedures have been suggested. Neutralization of the caustic appears to be of little use, whilst for severe burns immediate excision of the damaged conjunctiva, as advocated by Denig, seems to be valuable. The pathology of caustic burns, is, however, far from clear. How much of the damage is produced instantaneously and irreversibly is not known, nor is it known how

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