A SURVEY OF UVEITIS

IN

KENYATTA NATIONAL HOSPITAL

BY

Dr E. SING'OMBE ABUNGA, M.B., Ch.B. (NAIROBI)

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fulfilment for the degree of
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DECLARATION

This Dissertation is my original work and has not been presented for a degree in any other University.

.....

E.S. ABUNGA (DR)

.....

DATE

CANDIDATE

DECLARATION

This Dissertation has been

submitted for examination

with my approval.

..... 20.6.82.

DR. V. KLAUSS, M.D.
(Supervisor)

DATE

..... 20/6/82

DR. SCHWENDEMANN, M.D.
(Supervisor)

DATE

....

DR. H.S. ADALA
M.B.,CH.B.,D.O.,M.Med.
(Supervisor)

DATE

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A C K N O W L E D G E N T S

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I N T R O D U C T I O N

Uveal inflammation is called uveitis. The uveal tract is usually affected in most intra-ocular inflammations (1) consideration of specific anatomic areas will lead to more specific terminology and diagnosis e.g. affection of the iris is termed 'iritis'. The ciliary body cyclitis and the two together is 'iridocyclitis' or 'anterior uveitis'. The retina only is retinitis and the choroid choroiditis both chorioretinitis or posterior uveitis.

Causes of ocular inflammation may be divided into:-

1. Infections
2. Non infections

This may be further subdivided into:-

1. Exogenous
2. Endogenous

The basic effect of inflammation produces vascular inflammation, fluid leakage into the extravascular space and migration of leukocytes and other cells into these spaces. These mechanisms give the clinical signs in uveitis.

1.1 SYMPTOMS

Photophobia is due to the irritation of the cornea, iris or ciliary body. Dull spasmodic pain may be referred to the periorbital region and even to the other branches of

the trigeminal nerve. Lacrimation is due to trigeminal irritation and blurred vision is due to clouding of the media because of keratic precipitates, flare and cells in the anterior chamber and vitreous. These symptoms (2,3) are classical symptoms of anterior uveitis in most patients. Occasionally, pain may be minimal and the eye generally white and there may be minimal loss of vision.

In posterior uveitis, decreased vision may be the primary symptom. The site and character of the inflammatory process may however be of more importance in the determination of the type and degree of visual impairment. Lesions near or at the macular may result in profound visual impairment, whereas peripheral lesions may be [illegible] asymptomatic. Metamorphosia, micropsia and macropsia may be associated with macular inflammatory foci (2). Cellular debris in the vitreous cavity may be seen as floaters by the patient and are primary symptoms of peripheral disease. Biomicroscopy may reveal vitreous cells commonly in peripheral uveal inflammations (para planitis) and exudative posterior segment disease e.g. Toxoplasmosis, candita.

1.2. CLASSIFICATION

Uveitis is classified according to various criteria including:-

1. Etiology
2. Site

3. Acute Vs chronic

4. Granulomatous Vs Non granulomatous

A definite diagnosis of the cause of uveitis is rarely found; therefore a detailed history to find out conditions associated with particular types of uveitis will be helpful. Presentation of the disease:- acute or chronic, insidious symptoms e.g. floaters and physical findings will lead to the nature of disease.

Uveitis is also classified according to the inflammatory reaction (3). In this case it is classified into Granulomatous or non-granulomatous uveitis.

The polymorphonuclear leukocyte occurs in both acute suppurative and non-suppurative uveitis. Mononuclear cells are characteristic of chronic non-granulomatous uveitis. Plasma cells are pathognomonic of hypersensitivity uveitis in which antibody formation presumably plays a role in the pathogenesis of the disease. Histopathologic recognition of chronic granulomatous uveitis may help determine the specific diagnosis e.g. Tuberculosis, fungal, leprotic and syphilitic uveitis; which generally evoke a granulomatous response. In most cases, however, the cellular response is non-specific and microscopic examination of uveal tissue fails to provide clues as to the etiology. Some forms of uveitis may present specific and often pathognomonic clinical and/or histo-pathological appearance; such forms usually represent examples of granulomatous uveitis including sarcoidosis, sympathetic ophthalmia, lens induced uveitis, toxoplasmosis and nematode endophthalmitis.

1.3 CLINICAL DIAGNOSIS OF UVEITIS

The diagnosis of uveitis will depend on the symptoms complained by the patient and the signs found during physical examinations.

SIGNS

1. Ciliary injection

   Due to engorgement of episcleral vessels around the limbus

2. Miosis

   A small pupil in the involved eye, ciliary injection and changes in apparent colour of the iris are suggestive of anterior uveitis

3. Flare and cells in the Anterior chamber

Flare is milkness of the aqueous humor. Uveal vessel inflammation cause protein transudation from the vessels into the aquous causing a homogenous translucency. Normally the aquous has about 11.2% protein (5) and usually the path of a slit lamp beam is not visible through the anterior chamber. Flare of cells may however be seen in normal individuals using a powerful slit lamp, after using acetazolamide and after mydriasis. Minimal flare and cells without any other finding does not therefore indicate intraocular inflammation (5).

Flare and cells in the anterior chamber is frequently used to gauge the severity of the inflammatory response,

but unfortunately the grading and cells has not yet been standardised. Methods suggested to classify flare and cells include grading from 0-4, photography of the cells in the anterior chamber so that the cells in the beam are counted and the density of the flare is recorded for comparison later.

Cells in the vitreous cavity and retrolental space should also be graded after dilatation of the pupil. In acute non-granulamatous types of inflammation, fibrin may be found in the anterior chamber.

VITREOUS CELLS

Cyclitis and peripheral uveitis give more cells in the retrolental and anterior vitreous (6). To study the cells and activity in the posterior part of the vitreous requires dilatation of the pupil, and a contact lens, cells appear as black dots and their position is determined by the amount of movement necessary to focus from the disc to the iris. It is not practicable to determine the degree of flare in the vitreous. Vitreous membrane resulting from leucocytosis (5) should be described not graded.

KERATIC PRECIPITATES

These are collections of inflammatory cells on the back of the cornea by centrifugal forces or convection currents in the anterior chamber; where they adhere to altered endothelium. They are classified as (6):-

1. Fine
2. Medium

3. Large

4. Giant

Their distribution may be graded from 0-4, and the term greasy, or mutton fat may be used to describe their physical appearance.

Mutton fat keratic precipitates are histologically epithelioid and histocytic mononuclear phagocytic cells. Ordinary keratic precipitates are usually lymphocytes and plasma cells. Keratic precipitates usually form a triangular ar[illegible] at the back of the cornea with the base down, but they may be scattered over the entire surface, localised inferiorly simulating a hypopyon or strung vertically like a krunkenberg spindle. With time, keratic precipitates shrink (crenate) and may be dusted with uveal pigment.

1.4 LABORATORY INVESTIGATIONS

The aetiology of uveitis is often not found either from clinical findings or laboratory investigations. Nonetheless laboratory investigations may increase the chances of finding a cause for uveitis. Before doing any test for uveitis, the type of uveitis should be taken into account, e.g. an X-ray of the sacro-iliac joint should not be ordered for a chorioretinitis (6) as ankylosing spondylitis is not usually associated with a chorioretinitis.

TESTS

The following tests may be helpful in an investigation for the cause of uveitis (6):-

1. For Toxoplasmosis

   (a) Sabin - feldman methylene blue dye test

   (b) Hemagluthination test

2. For Syphylis

   (a) FTA - ABS

   (b) VDRL

Other less useful tests include:-

   (a) Routine serological test for syphilis

   (b) Serum calcium

   (c) Erythrocyte sedimentation rate (ESR)

   (d) Rheumatoid factor

   (e) Antinuclear factor

These tests are less specific.

SKIN TESTS

   (a) Toxoplasmic test for Toxoplasmosis

   (b) Kvein test for sarcoidosis

   (c) Toxocara skin test

   (d) Mantoux test for tuberculosis

X-RAYS

   (a) Chest X-ray may aid in diagnosis of Tuberculosis or sarcoidosis

   (b) X-ray of the sacro-iliac joints may aid in the diagnosis of ankylosing spondylitis which may be associated with uveitis

OTHERS

Isoniasid therapeutic test

Isoniasid may be given in cases of suspected uveitis

caused by Tuberculosis. There will be an improvement if the diagnosis of Tuberculosis is correct after a period of Therapy usually two weeks.

1.5 THE MANAGEMENT OF UVEITIS

The management of uveitis consists of :-

(a) specific treatment

(b) non-specific treatment

(a) Specific treatment

If the cause of uveitis is found, then the specific treatment of the disease should be combined with the non-specific treatment (7).

(b) Non-specific treatment

Steroids are the mainstay of uveitis treatment (7,8,9). Steroids reduce the inflammatory response and hence reduce the signs and symptoms of uveitis. For anterior uveitis steroids may be given topically, subconjuctivally or as parabulba injections. For posterior uveitis, steroids should be given systemically.

CYCLOPLEGICS AND MYDRIATICS

Cycloplagics help to rest the ciliary body, allay pain from ciliary spasm and prevent formation of posterior synechia (9).

Mydriatics will break up and prevent posterior synechia (7,8,9) miotics may also be used to constrict the pupil occasionally to prevent synechia formation in the dilated position (7).

ANTIGLAUCOMA TREATMENT

Acetozolamide should be used in conjunction with steroid and acycloplagic therapy if there is increased intraocular pressure.

Other anti-inflammatory agents may also be used in the treatment of uveitis. Immunosuppressives e.g. 6-mercaptopurine, cyclophosphamide, and methotraxate have been used with some success in patients with resistant chronic uveitis but they have many toxic effects (7). Salicylates, phenylbutazone, and Indomethacin have also been used but generally steroids are superior to these agents.

1.6 PROGNOSIS

The prognosis of uveitis will depend on early diagnosis and intensive treatment. Close follow up to treat recurrences early will also help in reducing complications of the uveal inflammation which will be mentioned later.

2 SUMMARY

65 patients attending Kenyatta National Hospital eye department who were diagnosed as having uveitis were reviewed by me during a six month period; interviewed and examined. The patients' tribal and regional background was inquired about. Uveitis was graded into chronic or acute depending on the symptoms and findings. It was found that most of the patients presented with chronic uveitis with already established complications. Many such patients either came late or had been on treatment for sometime either at Kenyatta National Hospital or elsewhere.

The age of presentation and the sex was also analysed and

it showed that most of the patients presented with uveitis were between the ages of 10-40 years. There were slightly more males than females. 61.5% of the patients presented with anterior uveitis only compared with 13.8% with posterior uveitis only and 24.7% with both anterior and posterior uveitis.

Complications following uveitis were noted in over 80% of the patients with synechia and cataract formation being the commonest complications. Other complications noted included glaucoma, maculopathy, hypotony, phthisis, corneal opacities and retinal detachment.

Only 50% of the patients had associated findings which would explain the uveal inflammation. The rest of the patients had no associated problems.

Laboratory and other investigations were carried out on some patients; but for most patients this was not possible because of problems that will be mentioned later.

3 AIMS OF THE STUDY

A general survey of uveitis as it occurs in Kenyatta National Hospital is presented. The patients' ages and sex distribution are compared with other studies elsewhere. The type of uveitis, complications following uveitis and affections which are thought to have caused uveitis is specifically looked for. Finally an attempt is made to find out the pathogenesis of uveitis by doing appropriate investigations, though not many of the patients were investigated. In conclusion, suggestions to improve investigations and help in proper management of uveitis specifically when the patient is first seen by clinical officers are made.

MATERIALS AND METHODS

The patients consisted of all the patients that were seen and referred to me at Kenyatta National Hospital eye department with a diagnosis of uveitis between May 1981 and December 1981. All the patients seen were subjected to the same procedure of examination except for some e.g. children where some procedures were not done because the patient(s) could not cooperate.

4.1 METHODS

When the patient was first seen a personal history was taken including region of origin, tribe, age and sex. The history of presenting symptoms was then taken, the duration and any factors which may have precipitated the problem were specifically asked for. A complete medical history was inquired for with particular emphasis on conditions known to cause or associated with uveitis. This included any history of Tuberculosis, chronic cough, history of arthritic affections, chronic infection, diarrhoea, genito-urinary system or any relevant history patients themselves offered was noted. After the personal and medical history was recorded, an examination of the eyes was then done.

Laboratory and other investigations were also done on some patients. The tests that were carried out included VDRL for syphilis, toxoplasma studies, anti-nuclear factor, ESR, serum calcium and Fluorescein angiography. It was not

however possible to do any investigation on most of the patients as in most instances, I could not get specimen bottles often reagents for particular tests were not present and sometimes the results could not be traced in the laboratory after they had been taken there.

4.2 EXAMINATION OF THE PATIENT

4.21 Visual Acuity

Visual acuity was always done using the Snellen's chart. Illitrate patients and children who could not read were tested with the E chart. The visual acuity was repeated on all subsequent follow up to gauge improvement or deterioration during the period of therapy.

4.22 Eye examination

The eye examination consisted of examination of the eye from the anterior to the posterior parts.

Lids - were examined for inflammation or any other pathological finding.

Conjuctiva - was examined for evidence of infection, injection or chemosis with particular attention to the limbal region for ciliary injection. Any other finding on the conjuctiva was also noted. The examination was always carried out with the help of a biomicroscope.

Cornea - was examined for corneal ulcers, opacity or band keratopathy. If a corneal opacity was found, the cornea was stained with fluorescein to find out any active epithelial defects and their patterns.

This way the nature of the defect was elucitated and a diagnosis made where possible. The cornea and anterior chamber were always examined using the slit lamp microscope.

THE ANTERIOR CHAMBER

The anterior chamber was examined with a slit lamp. Its depth was subjectively assessed. Any anterior chamber activity was subjectively assessed including Keratic precipitates, cells and flare. The nature of the keratic precipitates was noted as to their appearance, (mutton fat, pigmentation, fine). Their distribution, any fibrinous exudates and hypopyon was noted.

Cells - were subjectively graded from $0-4^{+}$ depending on personal impression as to their concentration in the anterior chamber. Other methods like photography and counting of the cells were not employed.

Flare was similarly graded from 0 indicating the slit lamp beam was not discernable through the anterior chamber to 4^{+} indicating marked milkness of the anterior chamber slit lamp beam.

Pupils - size, shape and evidence of posterior or anterior synechia were specifically looked for. Exudates or keratic precipitates on the iris and around the pupillary margin were also noted.

4.25 Iris

The colour of the iris was noted and compared with the univolved eye. Evidence of neovascularisation on the iris surface was looked for especially in those with long standing uveitis, and those who were found to have increased intra-ocular pressure.

Lens - Lens changes were looked for in mydriasis, particular attention being given to known complications of uveitis like posterior subcapsular cataract especially in chronic cases and after treatment with steroids.

Vitreous - Anterior vitreous and retrolental space were analysed for cells using a narrow slit lamp beam. A contact lens was used to analyse activity in the deeper layers of the vitreous on all patients who were co-operative enough for the procedure to be done. This was usually done after funduscopy.

4.26 Fundus Examination

Was always done using the uniocular indirect ophthalmoscope in mydriasis where possible. Direct ophthalmoscopy was done where the media were clear. A 3-mirror contact lens examination was also done on co-operative patients to examine for peripheral fundal lesions if the media were clear and the patient was co-operative. During the same procedure, an assessment of the angle to find out whether it was narrow or not, peripheral anterior synechia and pigmentation was also looked for. Sometimes the 3-mirror examination had to be postponed till the eye was more quiet and also to find

out complications after the uveal inflammation.

4.27 Intra-ocular Tension

Was done using a Goldmann applanation tonometer on all the patients during the first and subsequent visits. For patients with corneal ulcers, this was usually done later when the ulcer was no longer staining.

4.28 Other investigations

As mentioned before, attempts were made to do relevant laboratory investigations, but only a small number of patients were investigated. Fluorescein angiography was done on patients with fundal lesions whenever it was possible.

RESULTS

Table 1: Tribal and Regional distribution of 65 patients with uveitis seen at Kenyatta National Hospital Eye Department, May 1981 - December 1981

Province	Districts			TOTAL	%
CENTRAL	Kiambu	Muranga	Nyeri		
	16	9	2	27	41.5
EASTERN	Machakos	Kitui	Meru		
	8	5	2	15	23.1
COAST	3			3	4.6
WESTERN	Kakamega	Busia			
	5	3		8	12.3
NYANZA	S. Nyanza	Siaya	Kisumu		
	2	2	4	8	12.3
RIFT VALLEY	3			3	4.6
OTHERS	1 (Buganda)			1	1.6
			TOTAL	65	100

The pattern of patients seen reflect their proximity to Kenyatta National Hospital. People from Central Province were the majority with 41.5% and of these over 50% came from

Kiambu District which borders Nairobi. This was followed by Eastern Province in proximity to Nairobi, followed by Nyanza and Western Provinces both of which have a large number of people working in Nairobi. This distribution is expected as it merely reflects the obvious conclusion that most patients treated at Kenyatta National Hospital come from the immediate neighbouring due to easy accessibility. The other patients are mostly drawn from people from far off regions working in Nairobi and perhaps their relatives.

5.21 (a) TYPES OF UVEITIS SEEN

Table 2:

Type	No. of cases	%
Acute	27	41.5
Chronic	38	58.5
TOTAL	65	100

The majority of patients presented with chronic uveitis showing previous signs of uveitis with already formed synechia and chorioretinal scars. Acute uveitis was defined as those with acute symptoms of ciliary injection, cells and flare in the anterior chamber, photophobia, or active lesions in the fundus as diagnosed with fluorescein angiography.

5.26 Table 3: Site of Uveitis

Site	Anterior	Posterior	Both	Total
No. of cases	40	9	16	65
%	61.5	24.7	13.8	100

40 patients (61.7%) presented with anterior uveitis only. (24.7%) had findings of anterior and posterior uveitis and 13.8% had only posterior uveitis.

Table 4: Age and Sex Distribution

Age (years)	Sex		Total	%
	Male	Female		
0 - 9	1	1	2	3.1
10 - 19	5	4	9	13.8
20 - 29	18	7	25	38.5
30 - 39	9	9	18	27.7
40 - 49	3	4	7	10.8
50 - 59	1	-	1	1.5
60 - 69	2	1	3	4.6
70^{+}	-	-	-	-
	39	26	65	100

The majority of patients with uveitis were between 10 - 40 years. There were more males than females.

5.4 Table 5: Complications of uveitis

Complication	No.	% of Total
Glaucoma	2	3.1
Synechiae	24	36.9
Cataract	12	18.5
Maculopathy	6	9.2
Hypotony and Phthisis	2	3.1
Corneal opacities	5	7.7
Retinal Detachment	1	1.5
	52	80

13 patients (20%) had no observable complication. most of the complications (36.9%) were synechiae of one form or other (anterior, posterior, peripheral anterior). 2 patients had hypotony and phthisis bulbi. 12 had lens changes mostly posterior subcapsular cataract. 5 patients ended up with corneal opacities but of these, 3 had characteristic dendritic ulcers. 1 patient had total retinal detachment, 6 had macular changes and poor vision.

5.5 Table 6: Associated findings

Trauma	12
Tuberculosis	1
Dentritic ulcer	3
Leprosy	1
Phacogenic uveitis	1
Spondylitis	1
Diarrhoea (chronic)	1
TOTAL	20

20 patients had an associated finding which could have caused uveitis. Of these 12 had a history of trauma, 4 of which had trauma to the affected eye, 8 had trauma sometime before the uveitis or distant from the eye affected. Of the other patients, one with choroiditis and posterior synechia in both the eyes had been treated for Tuberculosis, another with bilateral occlusion pupillae had been treated for leprosy and skin and iris specimens showed active lepromatous leprosy. One had anterior uveitis with hypermature lens, after removal of the lens, and treatment with steroids, the eye settled. Another patient was on treatment in the orthopaedic clinic and physiotherapy department for ankylosing spondylitis and another had chronic diarrhoea.

5.6 Table 7 : Affected Eye

	Right Eye	Left Eye	Both Eyes
Cases	28	15	22
%	43.1	23.1	33.8

There was almost a 2:1 ratio of Right to Left eye affection; and in about 1/3 (one third) of the patients both eyes were affected.

Of the traumatic causes previously referred to (Table 6), 9 affected the right eye and 3 the left. This may perhaps account for the right eye predominance.

5.7 INVESTIGATIONS

As mentioned before, a number of investigations were carried out on some patients to try and find out the cause of uveitis. However, the results received and patients investigated were too few to place importance on their diagnostic value. The results received from the investigations are enumerated below.

Investigation	No. of Patients	Results	
		Negative	Positive
Kahn	17	16	1
Rheumatoid factor	4	4	0
Antinuclear factor	15	11	4
Toxoplasma studies	15	No result	-
ESR	22	14	8*1
Mantoux	20	16	4*2
Serum calcium	9	9	0*3

1. *1 Erythrocyte sedimentation rate 10 mm or more was considered high

2. *2 Mantoux reaction more than 15 mm diameter was considered positive

3. *3 Serum calcium 11 mg% or more was considered raised

17 patients had serological (Kahn) test for syphilis, only 1 was positive. For Rheumatoid factor only 4 samples were analysed, all of which were negative; for most of the time, there was no reagent for Rheumatoid factor testing so it was not possible to do any more tests. 4 patients out of 15 where results for antinuclear factor were reported, had a positive test, 8 out 22 patients where ESR results were received had a raised ESR, 4 out of 20 patients had a significantly raised mantoux skin reaction and of the 9 patients where results for serum calcium were received, non had a significantly raised level.

6. DISCUSSION

6.1 Regional and Tribal Distribution

(Table 1)

Most of the patients with uveitis who were seen (41.5%) were Kikuyu mostly from districts neighbouring Nairobi. It was also found that patients from further away from Nairobi were fewer though patients from Nyanza and Western Provinces were more than can be expected from the distance of their home areas to Nairobi. This was explained from the relatively high number of people from these two provinces who live and work in Nairobi.

These results were not surprising as it is presumed people who come to Kenyatta National Hospital are mostly those who live nearby and those who live in the City as workers and their relatives.

6.2 (a) Classification of Uveitis

(Table 2)

Most patients presented with chronic uveitis (58.5%). Acute uveitis was defined as those patients with acute symptoms or signs like ciliary injection, flare and cells in the anterior chamber, photophobia and active lesions in the fundus. Chronic uveitis was defined as lesions showing previous signs of uveitis with synechia and chorioretinal scars.

6.2 (b) Site of lesion

(Table 3)

61.5% of the patients had findings of anterior uveitis. 24.7% had signs of both anterior and posterior uveitis and 13.8% had only posterior uveitis. Schlaegel (6) found a 12:3 ratio of anterior to posterior uveitis. Duke Elder (2) finds similar findings in his series and in a large number of patients in Nigeria, Ayanru (10) reports that 56% of his patients had posterior uveitis, 15.1% had both anterior and posterior and 21.5% had anterior uveitis only. Ayanry further reports that acute anterior uveitis is rare in Nigeria because of the absence of HLA - B27 in Africans and altered immunological states from malaria and other parasitic infections.

Division of uveitis into anterior and posterior has been found to have a diagnostic value (6). Specific antigenic differences between the anterior and posterior portion of the uveal tract has been found. The same source also suggests that certain common courses of uveitis have an anatomic predilection.

6.3 Age and Sex Distribution

(Table 4)

It was found that most of the patients with uveitis were between 10-40 years. There is a progressive decrease of incidence towards the older age groups and no patient presented over 70 years in this study. This finding is shifted slightly towards the younger age compared to the findings of Schlaegel (5) who found most of his patients with uveitis to be between 20-50 years with a marked decline in the older age groups. Ayanru (10) in his Nigerian series finds peak incidence between 19-29 years. Jeffrey Freeman (11) found 225 patients out of a total of 355 patients with uveitis studied in South Africa were between 15-45 years.

It would appear uveitis is most common between 10-50 years with series from African series showing occurence in slightly younger groups. This may be due to the population age pattern differences between developed and developing countries; with the developed countries having more people in the older age groups and vice versa for most developing countries. Schlaegel (5) reports that specific types of uveitis are more prevalent in certain age groups with Toxoplasmosis, herpes zoster and aphakic uveitis being more common in the elderly and congenital toxoplasmosis, toxocariasis and peripheral uveitis being more common among the younger age groups.

SEX

Table 2 shows more males than females. Other sources (5) find no marked differences of uveitis affections in different sexes. However, it has been noted that certain types of uveitis may be more prevalent in males and others in females. For example, sympathetic ophthalmia has been found to be slightly more common in males and this has been attributed to the higher incidence of penetrating injuries in males than in females. Acute anterior non-granulomatous uveitis is also more common in males and this has been attributed to the relatively higher incidence of ankylosing spondylitis and Reiters syndrome in males. Chronic anterior uveitis has been found to be more common in females than in males.

6.4 Complications

(Table 5)

From Table 5, it can be deduced that a high rate of uveitis patients develop one form of complication or other. In this survey, 80% of the patients examined developed complications attributable to their uveal inflammation.

6.4 (a) Glaucoma

2 patients, 3.1%, developed high intraocular pressure which was seen to be controlled with control of the inflammation reaction. One patient with generalized chorioretinal lesions developed a glaucoma which was difficult to control and there was a relapse with increased intraocular activity;

and she had to have prolonged courses of acetazolamide. She also developed marked cupping in both eyes and had profound visual loss which was however attributed to macular lesions. The other patient had lepromatous leprosy with bilateral occlusio pupillae and high intraocular pressures which were controlled with acetazolamide and steroids. later she developed hypotony after optical iridectomy though she gained useful vision (HM to 6/18) in one eye.

Glaucoma may develop during the acute inflammatory stage (2,4) due to mechanical obstruction of the intraocular circulation or intraocular fluids either by organised exudates at the pupillary aperture or by granulation, hyline or fibrous tissue blocking the angle of the anterior chamber, particularly if peripheral anterior synechia is present.

Other factors in the causation of glaucoma include trabeculitis, rubeosis iridis, hypersecretion and sclerosis of the trabecular network, (1).

6.4 (b) Synechiae

Were the commonest finding and included peripheral anterior synechia, posterior synechia and in some cases total posterior synechia (seclusio pupillae or occlusio pupillae). The inflammatory process and exudates make the iris to stick to the lens (posterior synechia) or cornea (anterior synechia). This is a common complication which may also result in secondary glaucoma by mechanical blockage.

6.4 (c) Cataract

18.5% of the patients developed cataract after the uveal inflammation. One patient developed uveitis with posterior synechia following a hypermature cataract. The cataract was successively removed. The other patients developed a posterior subcapsular type of cataract after uveitis, most of the patients developed the cataract after prolonged treatment with steroids so possibly the cataract was a complication of treatment. Other types of cataract e.g. cortical were also seen.

Prolonged anterior or peripheral uveitis has been cited as a cause of posterior subcapsular cataract (1) Duke Elder (2) mentions complicated cortical cataract as sequel of uveal inflammation. The histopathology of cataract in uveitis has been said to be due to liquefaction of the cortex, posterior migration of the lens epithelium and occasionally formation of anterior subcapsular cataract (4). Schlaegel (6) mentions cataract as a common finding with cyclitis and advocates early removal of the cataract with steroid and cycloplagic cover as the cataract itself may feed the inflammatory process.

6.4 (d) Maculopathy

Macular changes were seen in 6 of the patients. Mostly the macular was affected in the patients with generalised chorioretinal scars.

Severe iridocyclitis is known to cause macular oedema associated with cysts (2,3). The maculopathy is thought to

result from diffusion of exudative toxic fluid seeping through to the retina causing generalised oedema of the retina including the macular. Later, exudative cells find their way into the retina causing fusion of the retina and choroid into a mass of organised fibrous tissue.

6.4 (e) Hypotony and Phthisis Bulbi

Developed in two patients. Both of the patients were children (11 and 14 years) who had a fairly short history of eye disease. Both had seclusio pupillae with cataract. One of the children had retinal detachment detected by ultrasonography.

Hypotony following uveitis may result from early ciliary body damage (3), ciliary body detachment (4) for which sclerotomy and drainage of fluid has been suggested. Other causes of phthisis bulbi include reactive proliferation of retinal pigment epithelium, extensive proliferation of ciliary epithelium causing formation of cyclitic membrane (4).

6.4 (f) Corneal Opacities

5 patients developed corneal opacities, but 3 of these patients had associated dendritic ulcers, and subsequent scarring. The other 2 had deep opacities with no obvious surface scarring of the cornea.

Uveitis may be accompanied by a descemititis (2) causing haziness of the cornea. Severe uveitis may also cause

endothelial damage and some degree of deep keratitis especially in the cetral area due to toxic action especially in syphilis or herpes. Granulomatous uveitis may also involve the cornea peripherally by direct spread through the angle of the anterior chamber.

6.4 (g) Retinal Detachment

1 child already mentioned came with retinal detachment and seclusio pupillae. The fundus was not visible and the retinal detachment was detected by routine ultrasonography. In this case, the affected eye was phthsical after a two month history and there was no evidence of inflammation in the good eye.

Uveitis may cause retinal detachment by several ways (1,3):-

1. As part of the Vogt Harada Moyanagi Syndrome
2. Shrinkage of vitreous and tears of the retina
3. Rhegmatogenous retinal detachment itself may cause severe anterior uveitis

In this case there was no associated evidence to suggest the first syndrome so No. 2 and 3 may have been the cause.

7. INVESTIGATIONS

Laboratory tests were done on a few patients but because of various constraints, it was not possible to carry out intended investigation on most of the patients.

One patient out of 17 had a positive Kahn test for syphilis. None of the 4 patients tested for Rheumatoid factor had a positive result. 4 out of 15 patients where antinuclear factor test was done had a positive result, 8 out of 22 patients had a raised ESR, 4 out of 20 patients had a significantly raised mantoux skin reaction and of the 9 patients where results for serum calcium was received, none was significantly raised.

Laboratory tests for investigation of a patient suffering from uveitis should be geared to the differential diagnosis of that particular patient (12). In this respect, the morphology and nature of the lesions may provide important leads towards the diagnosis e.g. ocular toxoplasmosis usually gives fundal lesions, therefore a search for Toxoplasmosis in a patient suffering from anterior uveitis only will not be realistic. After taking into account the type of lesion, complaints of the patients and examination of the patient, the following investigation for uveitis may be useful:-

1. Blood Tests

(a) For Toxoplasmosis

Useful tests to aid in diagnosis of Toxoplasma choroiditis include (6)

(i) Sabin - Feldman methylene Blue dye test

(ii) Toxoplasma Hemaglutination test

(b) For Syphilis

The most useful test for syphilis is the:-

FTA - ABS - Fluorescent Treponema antibody

Absorption Test

Other useful tests for syphilis are:-

The VDRL - Veneral disease reference laboratory. Other tests are less specific. These include the serum calcium which may be raised in sarcoidosis.

Erythrocyte Sedimentation Rate may be raised in various inflammatory conditions. The Rheumatoid factor is rarely positive in ankylosing spondylitis but may be positive in lupus erythromatosis which is rarely associated with uveitis. Anti-nuclear factor is positive in upto 80% of patients with Juvenile Rheumatoid arthiritis, 5-10% of which may develop an iridocyclitis.

A more useful test for patients with uveitis and Rheumatoid disease is the HLA-B27 (Human leukocyte antigen). This antigen has been found to be positive in upto 90% of patients with ankylosing spondylitis (13,14,15). However, it has not been found to be raised in black people, (10,13). In HLA-B27 positive patients, it has been suggested that infective agents can trigger anterior uveitis (16). Iridocyclitis in Black Americans has been associated with a raised level of HLA-B8 suggesting an autoimmune aetiology (17).

2. Skin Test

   1. Toxoplasma skin test for Toxoplasmosis
   2. Kveim test for sarcoid
   3. Toxocara skin test
   4. Mantoux test for tuberculosis

The first 3 tests are not routinely carried out in our hospital. The mantoux test is commonly done for all patients suspected of having tuberculosis. Most people in our situation would give a positive result but a skin reaction in excess of 15 mm diameter should be considered significant.

3. X-rays

   1. A chest X-ray should be done for all those giving a positive mantoux reaction and those suspected of having sarcoidosis

   2. X-ray of sacro-iliac joints may help in diagnosis of those with ankylosing spondylitis which may be associated with uveitis.

8. CONCLUSION AND SUGGESTIONS

8.1 Conclusion

In the foregoing survey, a six month survey of the uveitis problem as seen in Kenyatta National Hospital has been presented. It was found that most of the patients came from the surrounding Districts. Chronic uveitis was more common than acute and anterior uveitis was seen more commonly than the posterior type. It was found that the majority of patients affected with uveitis were between 10-40 years which was in agreement with series from African studies (10,11) but generally the age groups affected were younger than series from developed countries (2,3). This was interpreted to reflect the population patterns in the developed and developing countries whereby it is found that developing countries have more people in the younger age groups. There was no significant difference between males and females affected with uveitis.

Over 80% of patientes affected developed complications of one type or other and about 30% of the patients had findings which could have caused uveitis.

A few patients had investigations done to aid in diagnosis of uveitis, but for the majority of the patients it was not possible, for lack of reagents and specimen. bottles in some cases.

8.2 Suggestions

Though the causes of uveitis can be suspected, laboratory and other investigations are sometimes invaluable in the aid of the diagnosis.

In our situation it was found difficult to carry out laboratory investigations because of minor problems already mentioned. For these reasons it seems necessary, that before one starts investigating an uveitis patient it will be necessary:-

(a) to involve laboratory staff so that the specimens are dealt with promptly and results kept safely

(b) to make sure all necessary accessories e.g. bottles, syringes, needles are easily available so that the patient will not have to come again merely to have specimens taken which should have been taken on the first visit

The high rate of complications may imply either a mis-diagnosis or inadequate treatment at the beginning when the patient is seen. Perhaps proper diagnosis and intensive therapy may reduce the rate of complications and improve the visual prognosis. This will need teaching the staff who see the patient first, mainly the clinical officers in the proper treatment and early recognition of uveitis. This way, many of the preventable complications may be avoided.

Finally a new study could be started on the specific African causes of uveitis especially in Kenya. This may

involve going into specific places like isolation wards and hospitals where patients on treatment for tuberculosis and leprosy are treated and examining all the patients there with eye problems. This will reveal the amount of visual disability these diseases which are common in our country contribute and thereafter ways of preventing them will be suggested.

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