

## Research Article

# Patterns of Uveitis at the Tertiary Eye Care Clinic of Kinshasa, Democratic Republic of Congo

Nsiangani LN\* and Kaimbo KD

Department of Ophthalmology, Teaching Hospital,  
University of Kinshasa, Democratic Republic of Congo**\*Corresponding author:** Nadine Nsiangani Lusambo,  
Department of Ophthalmology, Teaching Hospital,  
University of Kinshasa, Democratic Republic of Congo**Received:** August 30, 2021; **Accepted:** October 21,  
2021; **Published:** October 28, 2021**Abstract**

**Purpose:** To describe the clinical characteristics and the etiology of uveitis in a retrospective series of patients referred to the Tertiary Eye Care Clinic of Kinshasa, Democratic Republic of Congo.

**Methods:** We performed a retrospective analysis of the medical records of all patients who presented to consultation between January 2010 and December 2012. The time of follow-up ranged from 6 months to 4 years. Each patient underwent an ophthalmic and general clinical examination, and an etiological assessment according to the diagnostic hypotheses was carried out.

**Results:** 115 cases of uveitis were diagnosed, giving a prevalence of 0.6% of all diagnoses at the hospital. Men represented 51.3% of patients, with a sex ratio of 1:1. The mean age of the patient at presentation  $\pm$  SD was  $42.4 \pm 18.3$  years (Range: 8-80 years). At the initial consultation, 53% of patients had visual impairment (VA  $<6/18$ ). Anterior (50.4%) and posterior (26.1%) uveitis were the most frequent anatomical types of uveitis among patients. The etiology of uveitis could not be determined in 58 patients (50.4%). Uveitis from infectious causes accounted for 44.3% and non-infectious causes 5.2%. During follow-up, 34.8% of patients developed a complication; cataracts (27.8%) and retinal detachment (8.7%) were the most common complications.

**Conclusion:** Infectious causes account for most cases on most studies of uveitis in the Sub-Saharan. Visual impairment and complications are frequent among patients. Limitations in diagnostic techniques and financial resources impose a challenge for etiological diagnosis and patient care.

**Keywords:** Uveitis; Pattern; Etiology; Africa; RD Congo

## Introduction

Uveitis refers to inflammation of the uvea, the middle vascular layer of the eye. It is the most common cause of inflammatory eye disease and is a significant cause of blindness and visual impairment worldwide. Uveitis leads to 5% to 20% of legal blindness in the United States and Europe and approximately 25% in developing countries [1,2]. Because uveitis typically affects young adults in their productive years of life, this sight-threatening disease's personal and populational burden is substantial [2]. Genetic, geographic, social, and environmental factors affect the distribution of the types, clinical associations, and causes of uveitis in different populations [2,3].

There is a lack of studies on uveitis in Sub-Saharan African countries [4-7]. These studies are necessary to determine the distribution of the types and causes of uveitis in order to guide a focused approach to investigation, diagnosis, and management of this condition [1,2].

Therefore, this study aimed to describe the clinical characteristics and etiology of uveitis in a retrospective series of patients referred to the Department of Ophthalmology of the University Hospital of Kinshasa and compare the findings with previously published studies from other Sub-Saharan African countries to identify similarities and differences.

## Materials and Methods

We performed a retrospective analysis of the medical records of all patients who presented to the Tertiary Eye Care Clinic of Kinshasa in the Democratic Republic of Congo from January 2010 to December 2012. The time of follow-up ranged from 6 months to 4 years.

The inclusion criteria were a diagnosis of uveitis. Exclusion criteria were a diagnosis of masquerade syndromes (ocular irritation after surgery, trauma, retinal detachment, posterior vitreous detachment, vitreous hemorrhage, or malignancies).

Each patient underwent an ophthalmological examination that consisted of visual acuity, slit-lamp examination, tonometry, and indirect ophthalmoscopy. We based our diagnostic criteria, anatomic classification, and course of uveitis on the Standardization of Uveitis Nomenclature (SUN) workshop and International Uveitis Study Group criteria [8]. The visual acuity of the patients was classified according to WHO criteria [9].

An Internal Medicine specialist performed a general clinical examination on each patient, and an etiological assessment according to the diagnostic hypotheses was carried out.

## Results

During the study period, 115 cases of uveitis were diagnosed,

**Table 1:** Demographics and clinical characteristics of patients with uveitis.

Characteristics	Frequency (%)
<b>Gender</b>	
Male	59 (51.3)
Female	56 (48.7)
<b>Age (years)</b>	
0-15	6 (5.2)
16-30	33 (28.7)
31-45	22 (19.1)
46-60	38 (33)
>60	16 (13.9)
<b>Presenting VA</b>	
Normal VA	85/163 eyes (52.1)
Visual impairment (VA<0.3)	37/163 eyes (22.7)
Blindness	41/163 eyes (25.2)
<b>Laterality</b>	
Unilateral	67 (58.3)
Bilateral	48 (41.7)
<b>Complaints</b>	
Decreased visual acuity	80 (69.6)
Eye pain	47 (40.9)
Redness	28 (24.3)
Photophobia	25 (21.7)
Tearing	17 (14.8)
Myodesopsia	7 (6.1)

giving a prevalence of 0.6%. Men represented 51.3% of patients, with a sex ratio of 1:1. The mean age of the patients at presentation  $\pm$  SD was  $42.4 \pm 18.3$  years (range: 8-80 years). Children represented 5.2% of patients. Uveitis was unilateral in 67 patients (58.3%). Decreased visual acuity (69.6%), pain (40.9%), and eye redness (24.3%) were the most common complaints. At the initial consultation, 53% of patients (78/163 eyes = 47.8%) had a visual impairment (VA < 6/18); low vision ( $3/60 \leq VA < 6/18$ ) and blindness (VA < 3/60) affecting respectively 37 eyes (22.7%) and 41 eyes (25.1%) (Table 1). The course of the disease was chronic in 66.1% of cases and acute in 28.7%. Anterior (50.4%) and posterior (26.1%) uveitis were the most frequent anatomical types of uveitis among patients. The etiology of uveitis could not be determined in 58 patients (50.4%). Uveitis from infectious causes accounted for 44.3% and non-infectious causes 5.2%. Among the infectious causes, ocular toxoplasmosis (27%) and viral uveitis (14.8%) were the most encountered etiologies. Spondyloarthritis was the most frequent cause of non-infectious uveitis among our patients (4.3%). During follow-up, 34.8% of patients developed a complication. Cataracts (27.8%), retinal detachment (8.7%), and secondary glaucoma (7.8%) were the most common complications (Table 2).

## Discussion

Uveitis is a potentially blinding inflammatory disease that imposes a therapeutic challenge for the general ophthalmologist and the uveitis specialist. The importance of this sight-threatening disease

**Table 2:** Types of uveitis and complications.

	Frequency (%)
<b>Anatomic site</b>	
Anterior uveitis	58 (50.4)
Posterior uveitis	30 (26.1)
Panuveitis	24 (20.9)
Intermediate uveitis	3 (2.6)
<b>Course of disease</b>	
Chronic	76 (66.1)
Acute	33 (28.7)
Recurrent	6 (5.2)
<b>Etiology</b>	
• <b>Unknow</b>	58 (50.4)
• <b>Infectious</b>	51 (44.3)
Toxoplasmosis	31 (27.0)
Viral uveitis	17 (14.8)
Human African trypanosomiasis	1 (0.9)
Filariosis	1 (0.9)
HIV	1 (0.9)
• <b>Non infectious</b>	6 (5.2)
Rheumatic diseases	5 (4.3)
Sinusitis	1 (0.9)
<b>Complications</b>	
Secondary Cataract	32 (27.8)
Retinal detachment	10 (8.7)
Secondary glaucoma	9 (7.8)
Pupillary seclusion	7 (6)
Vitreoretinal traction	4 (3.5)
Band keratopathy	2 (1.7)

is manifested through various validated studies implying uveitis as the cause of 2.8%-10% of all cases of blindness [1].

Although uveitis is the main inflammatory disease of the eye, there are few studies from Sub-Saharan Africa on the subject [4-7,10-12]. Epidemiologic studies on the distribution of the various types of uveitis and their etiology represent a vital resource to the clinician to investigate, diagnose, and manage these pathologies [1].

In our series, uveitis cases represented 0.6% of patients seen during the study period. Other studies carried out in sub-Saharan Africa found prevalence ranged from 0.4% to 1% [4-6,10].

Our patient's mean age  $\pm$  SD was  $42.4 \pm 18.3$  years; patients between 16 and 60 years accounted for 81% of the cases. In the majority of studies on uveitis carried out in Africa [4-7,10,11], Europe [13], Asia [3], and the USA [14], the average age of patients with uveitis commonly varies from 30 to 45 years.

Any age group may be affected by uveitis; however, there is a peak of incidence between 20 to 60 years of age, representing 70%-90% of all cases [1,2,15]. In most patients, uveitis onset presents at an early age that correlates with the most active period of their

**Table 3:** Studies on uveitis in Sub-Saharan countries.

	Ronday, Sierra Leone (1996)	Bella, Cameroon (2001)	Koffi, Ivory Coast (2001)	Ayena, Benin (2017)	Rautenbach, South Africa (2017)	This study DR Congo (2021)
<b>Number of patients</b>	93	38	95	489	198	115
<b>Age (mean±SD)</b>	36±14	33,9±12,9	32	35,7±16,1	38	42.4±18.3
<b>Sex ratio</b>	01:00.7	1.9:1	1.1:1	1.5:1	1:01	1:01
<b>Visual impairment</b>	48.4% of patients	22.3% of patients	41% of patients	67.6% of eyes	45% of patients	53% of patients
<b>Anatomic type of uveitis</b>						
Anterior	18%	51.10%	36.80%	32.30%	40.90%	50.40%
Posterior	23%	17.80%	33.70%	29%	19.20%	26.10%
Panuveitis	55%	24.40%	22.10%	10.60%	37.40%	20.90%
Intermediate	4%	6.70%	7.40%	28.10%	2.50%	2.60%
<b>Etiology of uveitis</b>						
Unknown	47.30%	36.80%	57.90%	85.70%	34.80%	50.40%
Infectious	51.60%	31.60%	37.90%	13.30%	47%	44.30%
Non-infectious	1.10%	31.60%	4.20%	1%	18.20%	5.20%

working life; therefore, this age distribution makes uveitis the cause of significant socio-economic burden [15]. In our series, pediatric uveitis represented 5.2% of cases. The incidence of uveitis in children appears to be lower than in the adult population; pediatric uveitis represents 5-16% of uveitis cases [1-3].

Both sexes were equally represented among our patients with a sex ratio of 1:1. Overall, males and females are approximately equally affected by uveitis in most clinical uveitis series [2]. Our results are similar to those found in Ivory Coast [6] and South Africa [11], while Bella et al. in Cameroon [4] and Ayena et al. in Benin [10] found a predominance of men in their series (Table 3).

Uveitis was unilateral in 58.3% of our patients. Unilateral uveitis appears to be either equal or more common in both high and low-income countries [3]. In the other sub-Saharan African studies, uveitis was unilateral in most patients, with frequencies varying between 60% and 82%.

At the initial consultation, 53% of our patients had visual impairment (VA <3/10). Visual impairment concerns 22% to 48% of patients seen in consultation for uveitis in other African series. Uveitis is recognized as a potentially blinding condition; approximately 5% to 20% of legal blindness in high-income countries is due to uveitis [15]. In Sierra Leone, uveitis was the second cause of blindness, responsible for 23% of cases [16].

Anterior uveitis was the most frequent anatomic type among our patients, representing 50.4% of cases, followed by posterior, diffuse, and intermediate uveitis. Most reports published to date have suggested the same findings, with anterior uveitis as the most common form of intraocular inflammation followed by posterior, diffuse, and intermediate uveitis [3,15]. The other African authors have also found this predominance of anterior uveitis in their series [4,6,10-12], except for Ronday et al. in Sierra Leone, which found panuveitis the most frequent anatomical type among his patients [7].

The etiology of uveitis was undetermined for 50.4% of our patients. In other African studies, the etiology of uveitis was undetermined in 35% to 86% of cases. For a sizable proportion of

patients, the cause of uveitis remains unknown despite appropriate investigation, regardless of age, gender, or anatomical location. Previous surveys have suggested that the cause of uveitis remains unknown in approximately 30-60% of patients [3].

Infectious causes of uveitis accounted for a minority of cases in most surveys reported from high-income countries, with a frequency of 11% to 21% of cases. Studies show it is far more common in lower-income countries, being responsible for 11.9% to 50% of all cases of uveitis [3].

Our study showed infectious causes as the most prevalent, representing 44.3% of cases. Infectious causes were the most frequent etiology of uveitis in several African studies, with 13% to 52% of cases. In Cameroon, Bella et al. found an equal frequency of infectious and non-infectious causes in their series (Table 3) [4].

The most frequent infectious etiologies of uveitis in low-income countries are comprised of onchocerciasis, toxoplasmosis, herpetic uveitis, tuberculosis, leprosy, leptospirosis, and other parasitic diseases [3]. Ocular toxoplasmosis (27%) and viral uveitis (14.8%) were our series's most frequent infectious causes of uveitis, which is consistent with the findings of the majority of studies done in Sub-Saharan Africa [4,6,10]. In Sierra Leone, onchocerciasis was the first cause of infectious uveitis, followed by toxoplasmosis [7]. In South Africa, syphilis was the first infectious cause of uveitis before toxoplasmosis; however, 40% of the patients included in the South African study were HIV positive [11].

Non-infectious causes of uveitis are rare in the Sub-Saharan African series. Our study found they represented only 5.2% of cases; other authors reported frequencies varying between 1% and 31.6% (Table 3). Findings regarding the etiologies of non-infectious uveitis are heterogeneous between authors. We reported rheumatic diseases as the most frequent in our patients, as did Ronday et al. in Sierra Leone [7]. Sinusitis was the most frequent etiology of non-infectious uveitis in Ivory Coast [6] and Cameroon [4]. In South Africa, Rautenbach et al. found HLA-B27 uveitis as the most frequent non-infectious uveitis [11].

In our series, 34.8% of patients with uveitis developed complications; Ronday et al. in Sierra Leone [7] and Ayena et al. in Benin [10] found complications in 31% and 21% of their patients, respectively. Cataracts (27.8%), retinal detachment (8.7%), and secondary glaucoma (7.8%) were the most frequent complications found among our patients. Similarly, Ronday et al. found cataracts as the most common complication [7], while papillary edema was the most common complication in Benin [10].

## Conclusion

In Sub-Saharan Africa, as in other regions, uveitis mainly affects young patients with anterior uveitis as the most prevalent anatomical form of the disease. Infectious causes are predominant, with ocular toxoplasmosis as a common etiology in most African studies. Visual impairment and complications affect a large number of African patients with uveitis.

Laboratory tests to identify the etiology of uveitis are limited in most African studies; some techniques such as analyses of ocular samples or HLA typing, among others, are not widely available in Sub-Saharan countries and could explain the rarity of some pathologies in these studies.

In a context where medical care is not subsidized, there are financial barriers to perform a precise etiological diagnosis and appropriate eye care, the latter claiming paramount importance in light of the long-lasting disease process and need for long-term follow-up.

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