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Review Article

Epidemio-Clinical Profile of Onchocerciasis in Sambwa in the Democratic Republic of Congo

Lukinga Witanene Jean Paul[1*], Maloba[1], Kisaka[3], Kasamba[3], Mukalayi[2], Ben Monga[2], Bidilukinu[3], Kashind[3], Tambwe[1], Shombo[2], Odile[2], Kyundu[2], Ngalamulume[2], Mutekwa[2], Kyabu[2], Chilundika[2], Chenge[1]

[1]Ophtalmology, Senior Assistant University, Clinics of Lubumbashi Specialty, Department Ophthalmology Service, Congo

[2]Public Health, Senior Assistant University, Clinics of Lubumbashi Specialty, Congo

[3]Biology, Senior Assistant University, Clinics of Lubumbashi Specialty, Congo

***Correspondence author:** Lukinga Witanene Jean Paul, Senior Assistant University, Clinics of Lubumbashi Specialty, Department Ophthalmology Service, Congo; Email: jpwitha@gmai.com

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Abstract

Introduction: Onchocerciasis is the second leading cause of infectious blindness. This condition is serious because of its ocular complications. The sickness is caused through a Nematode specifique of I man Ochocerca Volvulus the transmission se made through a vecteur the Simulie (Mouches blacks circulant autours of the waters at current fast). We have 5 Syndroms: Cutane, Nodulaire, Oculaire, Lymphatique and Neurologique. These complications eyes him at valu the name of cecite of riviere through OMS in 1972. Our objective was to determine the epidemiological profile of onchocerciasis in the Sambwa health area.

Materials and method: We conducted a prospective cross-sectional descriptive study over a period of 5 months (01/01 to 01/05/2023). We included patients whose skin biopsy was positive for onchocerciasis, aged 10 to 90 years old and having lived more than 10 years in Sambwa. The significance threshold was 0.05%. Excel, Word and IBM SPSS 23 software were used for data entry and analysis. One hundred people were examined, 38 of whom were retained.

Results: The frequency of onchocerciasis was 38%, men predominated (57.9%, sex ratio 1.4). The average age was 64.37±11.63 years. Farmers represented 68.4%. Most patients had a stay in Sambwa of 10 to 29 years (42.2%). Ocular syndromes represented 57.6% of cases, of which bilateral cataract (31.6%) predominated, there was an association between age and ocular syndromes (p=0.00011). Blindness represented 31.6% of cases in the right eye while in the left eye mild impairment represented 26.3% of cases. Tonometry between 15.9 and 20.6 mmHg was 81.6% on the right and 76.3% on the left. In most cases the fundus was inaccessible (26.3% on the right and 21.1% on the left). In 47.4% of cases there was a refractive error.

Conclusion: Considering our results, onchocerciasis is a relatively common condition, the Sambwa health area is a Hypoendemic area.

Keywords: Onchocerciasis; Blindness; Sambwa

Introduction

Onchocerciasis is a parasitosis caused by a nematode specific to humans, Onchocerca volvulus, which is found in Africa, the Middle East, South America and Central America [1]. It is the second leading cause of infectious blindness in the world after trachoma. It is transmitted by the female blackfly in places close to fast-moving water. This condition is serious because of its ocular complications which have earned it the name river blindness [2]. The disease manifests itself through particularly disabling skin damage and eye problems which can lead to blindness, depriving patients of their ability to work in the prime of life. Deprived of their most productive population, the villages of the rich fertile valleys were the first to suffer the socio-economic repercussions of the parasitosis. To escape this scourge, people abandoned fertile lands in favor of forest areas that were less infested but barely exploitable. In the 1970s, millions of fertile hectares were deserted [3].

The World Health Organization (WHO) estimates that 120 million individuals are exposed to onchocerciasis and approximately 18 million people are infected, more than 99% of whom live in intertropical Africa, among whom 350,000 are blind [4]. The disease is endemic in 31 countries in sub-Saharan Africa, three countries in Latin America and Yemen. The WHO verified the elimination of parasite transmission in Colombia, Ecuador, Mexico and Guatemala in 2013, 2014, 2015, 2016 respectively and declared these four countries free of the disease (Fig. 1,2) [5].

Rural communities that live near turbulent waterways are the most exposed: this is where blackflies, vectors of the disease, reproduce [3].

Figure 1: Zone de santé de Kafubu.

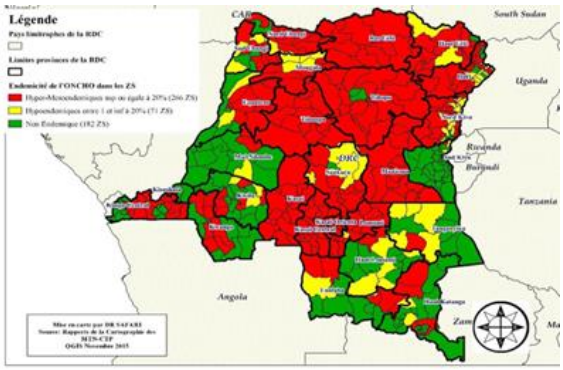

Figure 2: Cartographie épidémiologique /RDC /OMS: 2015.

Material and Methods

Type of Study, Subjects and Study Area

This is a cross-sectional descriptive study with prospective data collection which lasted from January 1 to May 1, 2023, a period of 5 months.

Our study concerned all people aged 10 to 90 living in the Sambwa health area. The cut theoretical d sample tire sure the formule of Cochran n = z^2 x p (1-p) / m^2 $(1 ,96)^2$X 0,48 (1- 0,48)/ $(0,05)^2$= 3,8416 X 0,48 = 1,843968 (1- 0,48) = 0,52. 1,843968 X 0,52 = 0,95886336/0,0025 = 383.

We opted for non-probability convenience sampling following the inclusion and non-inclusion criteria. 100 people were examined during the study period.

Inclusion Criteria

Suffering from onchocerciasis; Undergo a clinical examination and additional investigations having confirmed the diagnosis of onchocerciasis; Freely agree to participate in the study; Be between 10 and 90 years old; Have lived in the Sambwa health area for more than 10 years.

- General objective:
  - Define the epidemiological profile of onchocerciasis in sambwa
- Specific objectives:
  - Update the prevalence of the disease in the Sambwa health area
  - Establish the sociodemographic characteristics of patients
  - Describe the types of ophthalmological lesions in patients

Non-Inclusion Criteria

Patients Not Suffering from Onchocerciasis

Those who have not carried out additional investigations to confirm the diagnosis of onchocerciasis; Those with onchocerciasis but who refused to participate in the study.

Research Team and Meetings with Patients

A team of seven investigators (a Senior Doctor in ophthalmology, A Biological Doctor, A General Practitioner, A laboratory technician, Two Sensitizers and A head of the local onchocerciasis branch) with well-defined tasks was responsible for collecting the data to based on a standardized survey form [3-10].

Method and Diagnosis

Complete Clinical Examination

Questioning: Identity, lifestyle, stay in Sambwa, duration of ivermectin treatment, profession, height, telephone number as well as the patient's complaints [11-22].

Inspection: looking for skin lesions.

Palpation: to assess the number of nodules and their location.

- Parasitology Examination: In order to find the microfilariae in the skin, we performed two bloodless biopsies (Skin Smip) in each patient, each measuring 2.5 mm in diameter, at the level of two iliac crests
- Study Variables: Qualitative variables: Sex, profession, AV, tonometry, Ocular syndrome
- Quantitative Variables: Age, stay in sambwa, number of ivermectin taken, AV
- Independent variables: Age, sex, profession, stay in Sambwa, ivermectin intake
- Dependent Variable: Eye syndrome
- Input and Analysis: Excel, Word and IBM SPSS 23 software
- Univariate Analysis: Mean and standard deviation (quantitative variables) and number and percentage. (Qualitative variables)
- Bivariate Analysis: p-value < 0.05: significant; chi-square when CI=95% (ddl=1≥3.84; ddl=2 ≥ 5.9)
- Ethical Consideration: We obtained approval from the medical ethics committee of the University of Lubumbashi under number: UNILU/CEM/133/2022

Results and Discussion

38 cases of onchocerciasis out of 100 people examined: 38% of cases (Sambwa hypoendemic zone) Chenge B. 47.59%, Kapoli W. in the city of Inga: 58% [3-12].

Sociodemographic Characteristics

Age

Extremes: 43 years to 85 years, average: 64.37±11.63 years. Kapoli W: 39.12 years, IDEM Chenge B and Maertens K.: Decline in disease at extreme ages (Fig. 3,4).

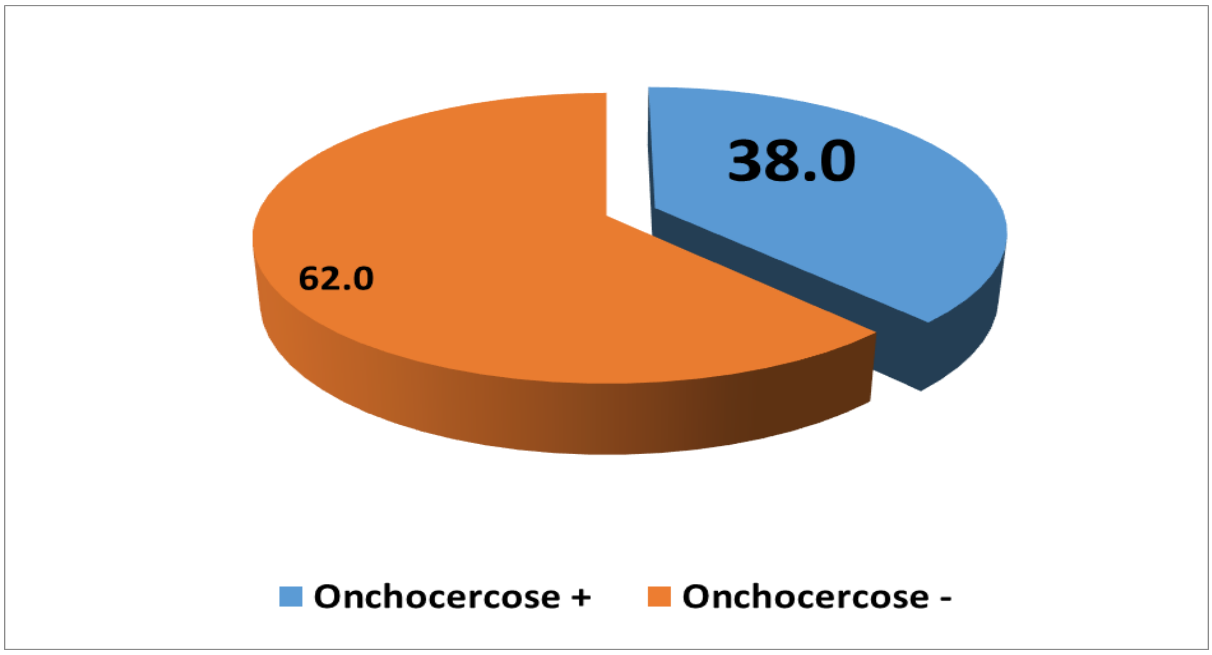

Figure 3: Prevalence of onchocerciasis in the Sambwa health area.

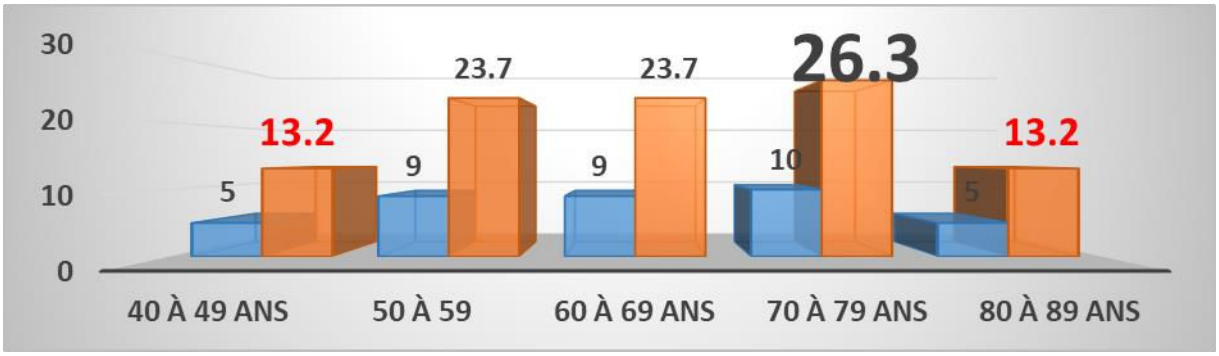

Figure 4: Distribution of patients according to age groups.

Gender

It appears from the figure below that the male gender predominated with 57.9% or a sex ratio of 1.38.

Sex ratio of 1.38 (Fig. 5).

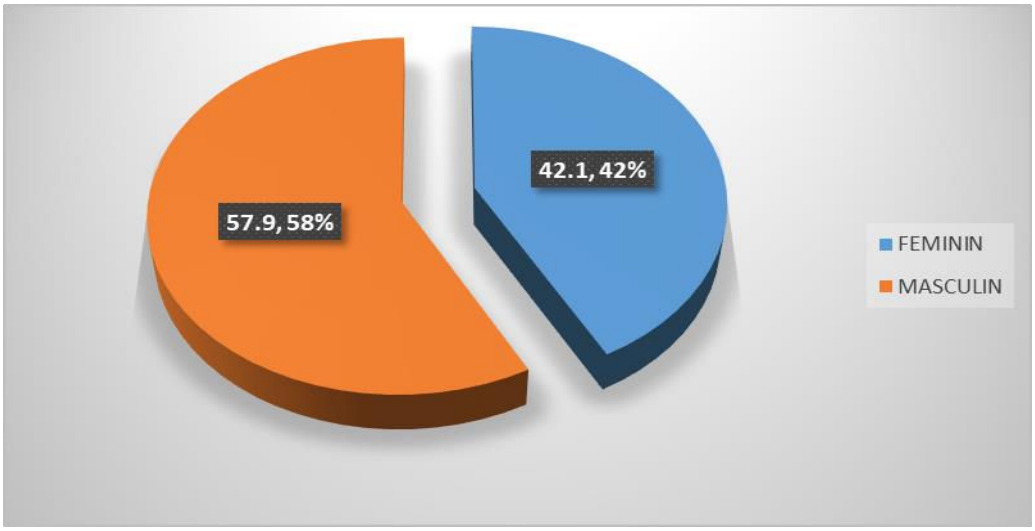

Figure 5: Distribution of patients by gender.

Masc Predominance: Chenge B; Kapoli

Size

The average height of our patients was 165.45 ± 5.49 cm, most had a height ≥ 159 cm (Fig. 6) [13].

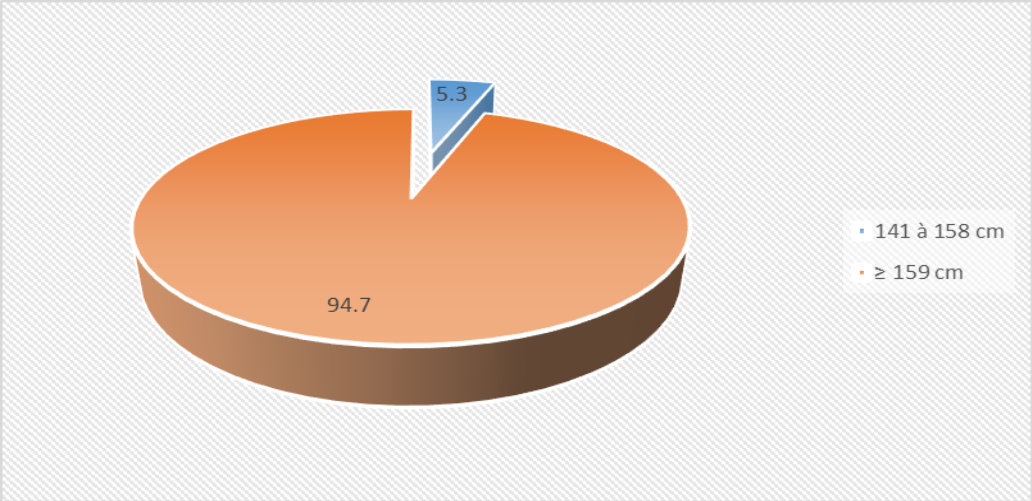

Figure 6: Distribution of patients according to Talle.

Profession (Table 1)

Profession	Effective	Percentage
Farmer	26	68,4
Fisherman	5	13,2
Others	7	18,4
Total	38	100,0
Others: priest, teachers, carpenter, shoemaker; Farmers predominated with 68.4% of cases		

Table 1: Distribution of patients according to profession.

Stay

It appears from this table that patients aged 10 to 19 years, 20 to 29 years and 60 to 69 years were in the majority with 21.1% of cases for each group. The average length of stay was 36.26 ± 19.71 years (Table 2,3) [24-50].

Stay Sambwa	Effective	Percentage
10 to 19 years old	8	21,1
20 to 29 years old	8	21,1
30 to 39 years old	4	10,5
40 to 49 years old	7	18,4
50 to 59 years old	3	7,9
60 to 69 years old	8	21,1
Total	38	100,0

Table 2: Distribution of patients according to stay in Sambwa.

C		Effective	%	Littérature	Littérature
Profession	**Agriculteurs** Pécheurs Autres	26 5 7	**68,4** 13,2 18,4	Chenge B : 52,8% agricult et pecheur Kapoli W: 44, 85 % pêcheurs et 20, agriculteurs.	Chenge B : 52,8% agricult et pecheur Kapoli W: 44, 85 % pêcheurs et 20, 75% agriculteurs.

Séjour à Sambwa	**Moy: 36,26 ± 19,71 ans.**				
Prise Ivermectine	**1 à 3 ans**	**23**	**60,5**		

Table 3: Distribution of patients according to profession in Sambwa.

Types of Ophthalmological Lesions

Eye Syndromes (Fig. 7, Table 4)

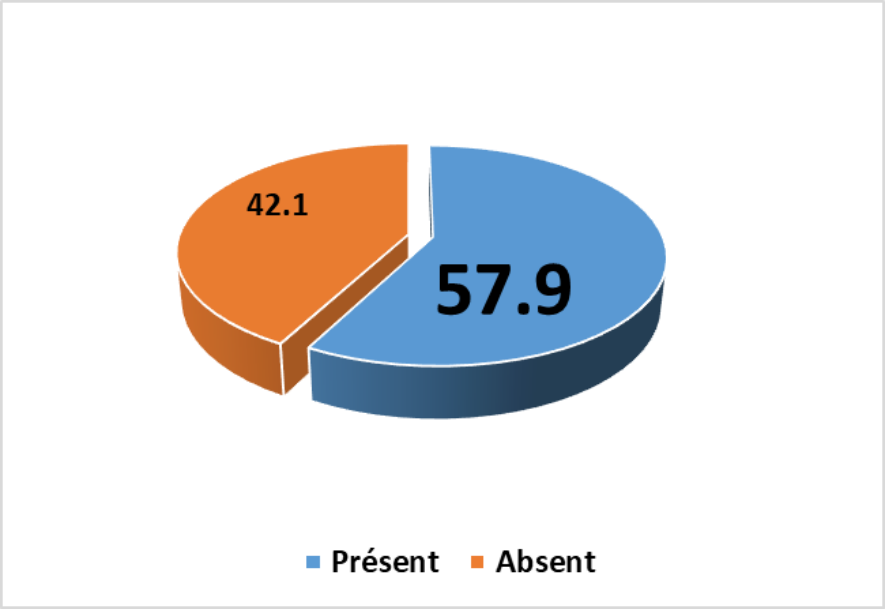

Figure 7: Above image tells us that ocular manifestations were present in 22 patients or 57.9% of cases.

Paramètres	Effectif	%	Littérature
Cataracte	**12**	**31,6**	Chenge B: 67%; Kapoli W: 67,2%. Maertens K: 16%; Kanke **N:** 21%.
Conjonctivite	4	10,5	
Kératite sclérosante	4	10,5	
Choriorétinite	4	10,5	
KPS	2	5,3	
Uvéite	2	5,3	
Glaucome	2	5,3	

Table 4: Distribution of patients according to disease in Sambwa.

Age and Eye Syndrome Bivariate Analysis (Table 5)

Age	Syndrome oculaire			
	Non	**%**	**Oui**	**%**
≤64,37	13	81,3	4	18,2
>64,37	3	18,8	**18**	**81,8**
Total	16	100,0	22	100,0
(p=0.00011; X^2=14.9). Small p being ≤ at our significance level of 0.05, the difference is statistically significant. That is, there is an affinity between age and ocular syndrome				

Table 5: eye syndrome patient details.

Profession and Eye Syndrome (Table 6)

Profession	Syndrome Oculaire			
	Non	%	Oui	%
Agriculteur	11	68,8	15	68,2
Pécheur	1	6,3	4	18,2
Autres	4	25,0	3	13,6
Total	16	100,0	22	100,0
(p=0.37; X^2=0.796). Small P being ≥ our significance level of 0.05, the difference is not statistically significant				

Table 6: Distribution of patients with eye syndrome as per profession in Sambwa.

Conclusion

Prevalence: 38% (hypo-endemic zone) This result can be explained by the effectiveness of the fight devoted to CDTI/MMA for 11 years already. This result also illustrates the participation of the different actors (Government, WHO, APOC, PNLO, MTN) including the community itself in the CDTI/MMA process in this Sambwa home. These results allow us to talk about the control and not the elimination of Onchocerciasis in the Sambwa focus. Ages 70 to 79 years, male, farmers, Stay in Sambwa Average: 36.26 years. Ocular syndromes 57.9%, cataract +++, also: Conjunctivitis, Sclerosing keratitis and Ridley's chorioretinitis. Visual acuity, tonometry and fundus examination were within normal range in the majority of patients. refractive errors were less frequent.

Conflict of Interests

The authors have no conflict of interest to declare.

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