



## Clinical Aspects of Central Retinal Vein Occlusion at Yaounde Central Hospital

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### Abstract

**Introduction:** Our work aimed to research the clinical profile of patients diagnosed with retinal vein occlusion, at the ophthalmology department of the Central Hospital of Yaoundé.

**Materials and Methods:** This is a documentary and descriptive study, conducted over a period from 02 January 2015 to 30 October 2020 at the ophthalmology department of the Central Hospital of Yaoundé, over a period of 05 years.

**Results:** We collected 15 files out of 17962 patients consulted, or 17 eyes with retinal vein occlusion which made a prevalence of 0.09%. The median age of patients was 62 years. The sex ratio was 4 males to 11 females or 0.36. High blood pressure was found in 9 patients, or 60%. Four patients (23.53%) had severely reduced initial visual acuity, consistent with blindness. Retinal hemorrhages were found in all patients. Three patients (17.64%) had macular oedema.

**Conclusion:** Central retinal vein occlusions are rare and serious conditions in older females. High blood pressure is the most common comorbidity.

**Keywords:** CRVO; Epidemiology; Clinical; Blindness

### Introduction

Central retinal vein occlusion (CRVO) is the 2<sup>nd</sup> most common retinal vascular pathology after diabetic retinopathy [1].

It is the consequence of an acute circulatory slowdown in the venous compartment. Its mechanisms of occurrence are still controversial and most likely multifactorial, involving parietal abnormalities often associated with blood viscosity disorders and/or coagulation [2-5].

CRVO is one of the leading causes of sudden painless visual acuity decline in adults. And its prevalence worldwide is estimated at 0.8 per 1000 inhabitants [6].

Koki, *et al.* in 2019 in Yaoundé, reported 28 cases of CRVO, out of 5055 patients seen over a period of 05 years [7].

Age is a major predisposing factor for CRVO. Indeed, 90% of affected patients are over 50 years old [8].

Chronic glaucoma, risk factors for atherosclerosis (high blood pressure, smoking, high cholesterol, diabetes...), blood hyper viscosity, coagulopathies and migraine, are the main risk factors [9,10]. The cause is most often unknown.

This retinal vascular pathology is one of the major causes of severe visual impairment and blindness in adults [11].

Our work aimed to research the epidemiological and clinical characteristics of the CRVO in patients received in ophthalmology, at the central hospital of Yaoundé.

### Methodology

This was a cross-sectional and descriptive study, covering the period from 02 January 2014 to 30 October 2020, i.e. a study period of 06 years.

All patients over 15 years of age diagnosed with CRVO were included in the ophthalmology department of Yaoundé Central Hospital during the study period.

The interrogation of patients was looking for one year of glaucoma, hypertension, diabetes, coagulopathies, migraine and tobacco.

Patients were subjected to a complete ophthalmological examination, namely: a measurement of visual acuity from afar on the Snellen scale at 5 meters, an examination of extrinsic and intrinsic ocular motility, a biomicroscope examination (Haag-Streit type) of the anterior segment. The gonioscopy was performed after instillation of a drop of Oxybuprocaine 0.4%, using a glass with 3 mirrors. The fundus examination was performed with a Volk 90D lens, after medicated mydriasis with Tropicamide 0.5%.

Intraocular pressure was measured with a KOWA KT500 air pulsed tonometer (No. 11432, 2003, France).

Retinal angiography was performed using a CANON CF-1 angiograph (No. 3502142150, 2015, India).

The dignosis of CRVO was retained by the presence on examination of the fundus, increased dilation and sinuosity of all retinal veins, disseminated retinal haemorrhages, papillorretinal oedema and/or cottony nodules [12].

Angiographically, the oedematous form was evoked in front of a delay in venous filling associated with a diffusion of fluorescein at late times. The ischemic form was evoked in front of the presence of territories of non-retinal infusion, and the mixed form in front of the simultaneous presence of diffusion at late times and territories of non-retinal perfusion [13].

The variables analysed were qualitative: reason for consultation, sex, occupation, type of retinal lesions, angiographic lesions, diagnosis, and quantitative: age, visual acuity, intraocular pressure.

The statistical analysis was done using Excel 2007, CS Pro 3.3 and SPSS.

### Results

A total of 15 files were collected out of 17962 patients consulted, or 17 eyes with retinal vein occlusion, which made a prevalence of 0.09%.

The average age was 61.6 years ± 7.6 years with extremes ranging from 46 to 72 years.

Female subjects were the most affected, with 66.66% (n = 10) compared to 33.33% (n = 05) of men. This made a male/female sex ratio of 0.5 (Figure 1).

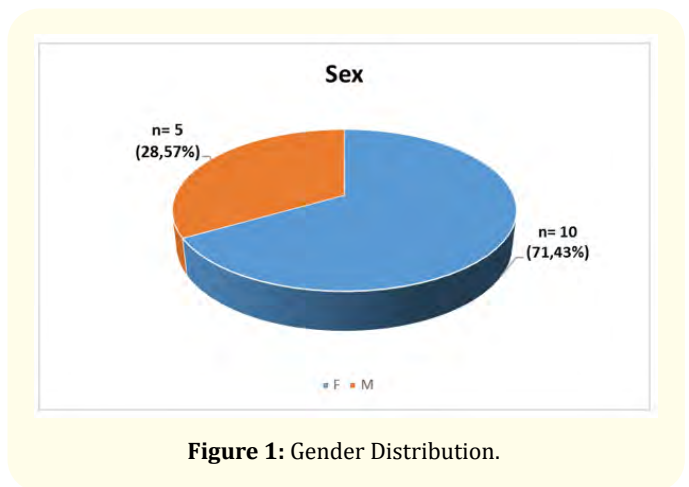


Figure 1: Gender Distribution.

Seven patients (46.666%) professionally were retirees.

The sudden drop in acuity was the main reason for consultation, found in all fifteen patients.

The year of high blood pressure was found in 9 (60%) patients. Four (26.66%) patients had type 2 diabetes. Chronic glaucoma was found in 01 (6.66%) patient, and 01 (1.47%) patient had breast cancer (Table 1).

Background	N	%
High blood pressure	9	60%
Type 2 diabetes	4	26,66%
Chronic glaucoma	1	6,66%
Breast cancer	1	6,66%
Total	15	100

Table 1: Medical History.

The CRVO was unilateral in 13 patients and bilateral in 2 patients, giving a total of 17 affected eyes.

At diagnosis, 29.41% (n = 05) of eyes had visual acuity of far less than 0.05/10 and 17.64% (n = 3) had visual acuity of far between 0.05/10 and 1/10 (Table 2).

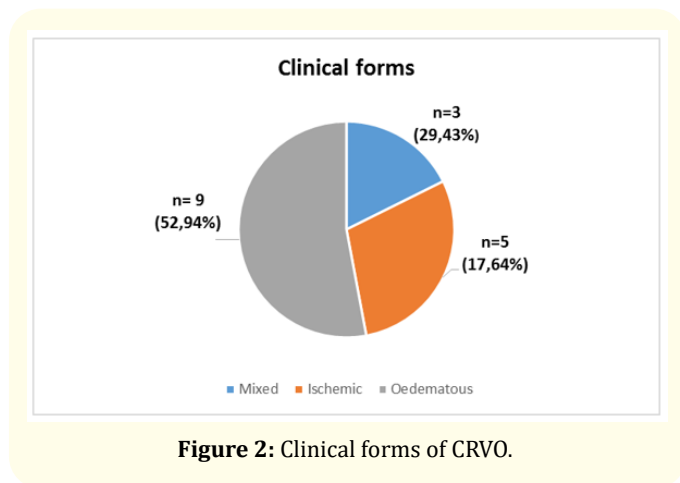
Initial distance visual acuity	N	%
< 0.05/10	5	29,41%
0,05- 1/10	1	5,88%
1/10- 3/10	1	5,88%
> 3/10	10	58,82%
Total	17	100%

**Table 2:** Initial distance visual acuity.

The mean intraocular pressure was 16 mmHg with extremes ranging from 11mmHg to 24 mmHg.

Diffuse retinal haemorrhage was present in all 17 eyes. Cotton wool spots were found in 06 (35.29%) eyes.

The oedematous form was the most frequent with 52.94% (n = 9), followed by the ischaemic form 29.41% (n = 5) and the mixed form 17.64% (n = 3) (Figure 2).



**Figure 2:** Clinical forms of CRVO.

**Discussion**

We collected 15 files out of 17962 patients consulted, or 17 eyes with retinal vein occlusion which made a hospital prevalence of 0.09%.

Our results contrast with those of Koki., *et al.* in 2018, who reported 28 eyes with CRVO, out of 5055 patient records received, a prevalence of 0.55% over a period of 5 years [7].

This disparity can be explained by the difference in denominators between the two studies. Indeed, our case series was reported on the total number of patients received in ophthalmology consultation, while for Koki., *et al.* it was all patient files received at the Center for Prevention and Management of Diabetic Retinopathy of Yaoundé. Hence the higher proportion of CRVO cases among the latter, their study population being at higher risk of this condition.

CRVO prevalence figures in the literature are 0.1 to 0.7%14, with other studies giving prevalence rates ranging from 0.04 to 1.59 [15]. This contrast may be related to the socio-demographic characteristics of the populations studied.

Indeed, the CRVO is a pathology of the subject aged over 50 years [11]. Populations in developing countries like ours are younger than those in developed countries, hence probably the higher prevalence rate of CRVO in the literature than that found in our series.

The average age of our patients was 61.6 years ± 7.6 years. This is consistent with the results of Koki., *et al.* who reported an average age of 61 ± 5.6 years in their series of cases of retinal vein occlusions [7].

This result also corroborates with the literature that, 90% of CRVO patients are over 50 years of age [8].

The female sex was the most affected in our series, with 66.66% (n = 10) against 33.33% (n = 05) of men, i.e. a sex ratio M/F of 0.5. Koki., *et al.* on the other hand, found 40 men and 30 women with a sex ratio M/F of 1.33. There is a discrepancy in the literature, some studies show a predominance of the male sex [14], while for others there is no difference in prevalence of CRVO between the sexes [15].

Arterial hypertensive (9 patients ) and type 2 diabetes (4 patients), were the most common medical history in our series of 15 patients with CRVO. Indeed, arterial hypertension, found in 50 to 60% of patients, is themain risk factor for retinal vein occlusions (RVO) in all forms [16].

Although diabetes is not defined as a risk factor for retinal vein occlusion, it is an aggravating factor. Unbalanced diabetes exposes to a high risk of neovascular glaucoma, even in the absence of prior diabetic retinopathy [17].

Glaucoma and/or ocular hypertonia are found in 10% and 20% of CRVOs, respectively. This history was found in 01 patients in our series.

We did not find a history of hemostasis disorders in our series. It is reported that the involvement of hemostasis disorders in the pathophysiology of RVOs is not yet defined. They do not seem to play a preponderant role and should not be sought systematically [19].

The CRVO was bilateral in 2 of the 15 patients in our series.

Bilaterality has been found in familial cases of retinal vein occlusion, identified in the literature [20].

Five (29.41%) eyes had visual acuity of far less than 0.05/10 and in 3 (17.64%) eyes, visual acuity ranged from distance to 0.05/10 and 1/10.

In CRVO, the decrease in visual acuity can be abrupt and severe. A gradual, variable decrease during the day is suggestive of macular edema [21]. However, the level of visual acuity is a good reflection of clinical severity, visual acuity below finger count is very suspicious of a high-risk form of neovascular glaucoma [17]. As the patients in our series were mostly lost to follow-up after diagnosis of CRVO, we could not assess the occurrence of neovascular glaucoma in them.

The oedematous form was the most common in our series, with 52.94% (n = 9), followed by the ischemic form 29.41% (n = 5).

These results corroborate those of Koki, *et al.* in whom the oedematous form was the most frequent 38/70 (54.90%) cases, followed by the ischemic form 27/70 (37.59%) [7].

Indeed, the oedematous form is the most common, representing 70% of CRVO cases. The ischemic form is less common, with 30% of cases, often associated with a poorer visual prognosis [8].

## Conclusion

The occlusion of the central vein of the retina in the Cameroonian hospital environment is a serious pathology. It affects middle-

aged people aged 60. It is more found in people with high blood pressure, and or diabetes. It is a pathology that is associated with a severe decrease in visual acuity. The edematous form is the most common in our context.

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