

Uveitis Cases Referred to Internal Medicine: Clinical, Etiological and Therapeutic Characteristics in Ouagadougou, Burkina Faso

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Abstract

Introduction: Uveitis represents a clinical entity at the intersection of ophthalmology and internal medicine. Due to its highly heterogeneous presentation and wide range of etiologies, it poses a real diagnostic challenge. The objective of this study was to examine cases of uveitis referred to internal medicine departments in the city of Ouagadougou. **Patients and Methods:** This was a descriptive cross-sectional study conducted from November 1, 2024, to May 31, 2025. The source population consisted of patients referred to internal medicine for diagnostic and/or therapeutic management of uveitis in the Yalgado Ouedraogo and Bogodogo teaching hospitals in the city of Ouagadougou. An exhaustive census was conducted. Data analysis was performed using EPI Info software. **Results:** A total of 31 patients were included during the study period. The average age of the patients was 37 years \pm 15.5 years with a female predominance of 58.1% and a sex ratio of 0.72. The most common anatomoclinical classifications of uveitis were panuveitis and anterior uveitis, accounting for 38.7% and 25.8% of cases, respectively. For the etiological diagnosis, ocular toxoplasmosis was identified in 58.1% of cases, the etiology was undetermined in 38.7% of patients, and syphilis was identified in 3.2% of cases. In terms of treatment, systemic corticosteroid therapy and antibiotic therapy were administered to 61.3% of patients in our study population. **Conclusion:** Uveitis poses a diagnostic challenge for internists. Infectious causes predominate in our setting, but more than one-third of uveitis cases referred to internal medicine in our series are of undetermined etiology. Close collaboration between ophthalmologists and internists remains essential for better management of uveitis.

Keywords

Uveitis, Internal Medicine, Ouagadougou

1. Introduction

Uveitis refers to inflammation of the middle layer of the eye (uvea), comprising the iris, ciliary body, base of the vitreous, and choroid [1]. In 2005, a group of international experts established standardized criteria for the classification of these types of inflammation: the Standardization of Uveitis Nomenclature (SUN). These criteria are based primarily on the anatomical location of the inflammation and its progression [2]. Uveitis is a clinical entity where ophthalmology and internal medicine converge [1] [3]-[5]. The difficulty in diagnosing uveitis lies in the multiplicity of etiologies. Collaboration between ophthalmologists and internists is essential for the best management of uveitis. This approach has been supported by a French study which showed that a consultation with an internist improved the effectiveness of the diagnostic procedure for uveitis: the diagnosis rate was 30.3% when the assessment was carried out by an ophthalmologist alone, compared with 60.6% when a consultation with an internist was systematically carried out, with the internist's intervention proving useful in 75% of diagnoses [6]. Currently, the etiological assessment of uveitis is mainly based on expert opinion and appears to vary greatly between centers [3]. In Burkina Faso, few studies exist on the management of uveitis in internal medicine. Bognounou *et al.* reported a series of six patients seen for investigation of uveitis in an internal medicine department in Ouagadougou over a nine-month period [7]. Following this study, we propose to study the characteristics of uveitis cases that warranted joint ophthalmology-internal medicine management in the city of Ouagadougou in order to improve future management of these patients by organizing an optimal and personalized diagnostic and therapeutic strategy.

2. Patients and Methods

Our study was conducted in the internal medicine departments of the Yalgado Ouedraogo and Bogodogo teaching hospitals in Ouagadougou, Burkina Faso. It was a descriptive, prospective cross-sectional study conducted from November 1, 2024, to May 31, 2025. Our study was an exhaustive census of all patients referred to the internal medicine departments of the Yalgado Ouedraogo and Bogodogo teaching hospitals for etiological diagnosis and treatment of uveitis, who gave their consent to participate in the study. During the consultation, a complete clinical examination was performed to collect anamnestic and clinical data. Subsequently, a paraclinical assessment was prescribed for etiological investigation. A standard initial workup was routinely ordered for cases of uveitis: complete blood count, erythrocyte sedimentation rate (ESR), C-reactive protein (CRP), toxoplasma se-

rology (quantitative IgG and IgM titers), syphilis serology (TPHA, VDRL), and HIV serology. The remainder of the workup was ordered only when clinically indicated: tuberculin skin test, chest X-ray, liver function tests, serum creatinine level, VZV and herpes serology, angiotensin-converting enzyme (ACE) assay, autoimmune panel, and antigenic testing (HLA-B27, HLA-B51). The diagnostic criteria and determination of the cause were as follows:

- The diagnostic rule for ocular toxoplasmosis was based on a presumptive clinico-biological model. The presence of active or cicatricial chorioretinal foci during fundus examination, regardless of the anatomical classification of uveitis (anterior, intermediate, posterior, or panuveitis), is associated with positive toxoplasma serology (corresponding toxoplasmosis serology results: IgG+/IgM– and IgG+/IgM+). IgG+/IgM+ toxoplasmosis was interpreted as indicative of a recent infection. In our clinical setting, given the lack of a specific test, particularly avidity testing to determine the timing of the toxoplasmosis infection, an IgG+/IgM– serological result for toxoplasmosis is confirmed by a second blood draw two or three weeks later to assess IgG kinetics. If IgG levels remain stable, it is a past infection. If IgG levels increase (2 to 3 times the previous value), the patient is considered to have suspected toxoplasmosis. In the context of a specialized internal medicine referral, this presumptive diagnosis is a validated standard in resource-limited settings where intraocular fluid analysis (PCR or Goldmann-Witmer coefficient) is unavailable. The high clinical probability, combined with the exclusion of other systemic diseases, justified the initiation of specific therapy.
- Syphilis was attributed to patients with clinical uveitis and dual positive treponemal (TPHA) and non-treponemal (VDRL) serology, following the exclusion of other systemic diseases.
- Uveitis was classified as undetermined when the etiological investigation did not identify a specific infectious or non-infectious systemic cause.

After treatment was initiated, patients were reviewed at 1 week, then at 2 weeks, and at the end of treatment to assess progress (more than 6 weeks for toxoplasmosis). Various disease courses may be observed:

- Clinical improvement: resolution of symptoms (decreased pain, improved vision); reduction in inflammatory signs on ophthalmological examination.
- Stable: no clinical improvement despite treatment.
- Recurrence: new inflammatory episode following a clinical improvement.

Our collected data were entered into a computer using Word and Excel 2016 software. The analysis was performed using EPI Info software version 7.1.5.0. For this study, we obtained authorization from the institutional ethics committees of the various teaching hospitals where the study was conducted. Free and informed consent was obtained from patients after they were informed prior to their inclusion in the study. The patient's refusal to participate in this study did not prevent their care and follow-up at the center.

3. Results

3.1. Socio-Demographic Characteristics

During the study period, thirty-three (33) patients were referred to the internal medicine departments of the Yalgado Ouedraogo and Bogodogo teaching hospitals for diagnostic and/or therapeutic management of uveitis. Two (02) patients were excluded from the final analysis as they were lost to follow-up during the etiological investigation, and their paraclinical assessment was not available. Consequently, 31 patients were included to ensure that the reported etiological distribution was based on the availability of diagnostic workup for each patient. The flow chart below illustrates the inclusion pattern of patients in our study population (**Figure 1**).

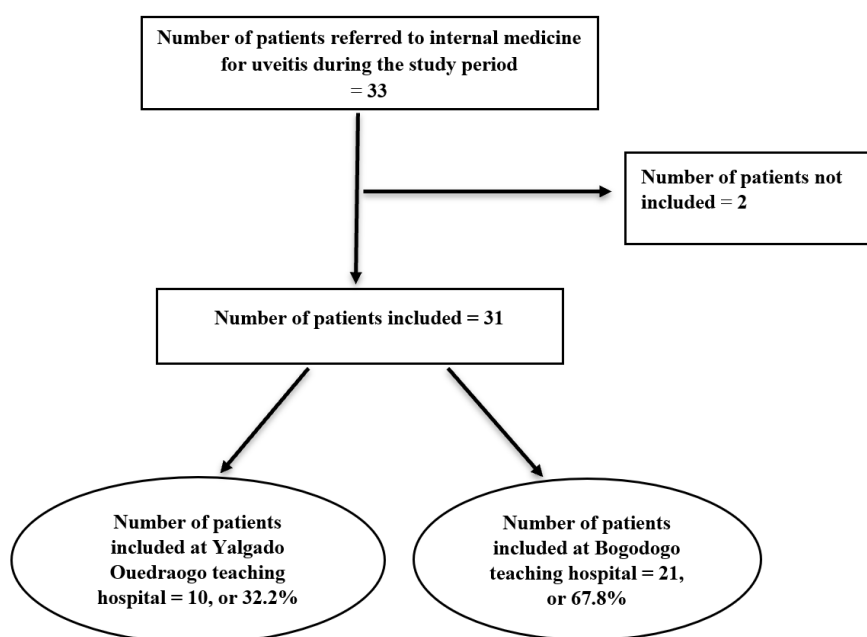


Figure 1. Flow chart.

The average age was 37 years \pm 15.5 years, with extremes of 15 and 76 years. The age group [20 - 40[years was the most represented, accounting for 48.4%. There was a predominance of women (58.1%) with a sex ratio of 0.72. Civil servants and housewives were the most represented occupational groups, at 22.6% (n = 7) and 16.1% (n = 5) respectively. In terms of the origin of our study population, twenty-nine (29) patients, or 93.5%, lived in urban areas.

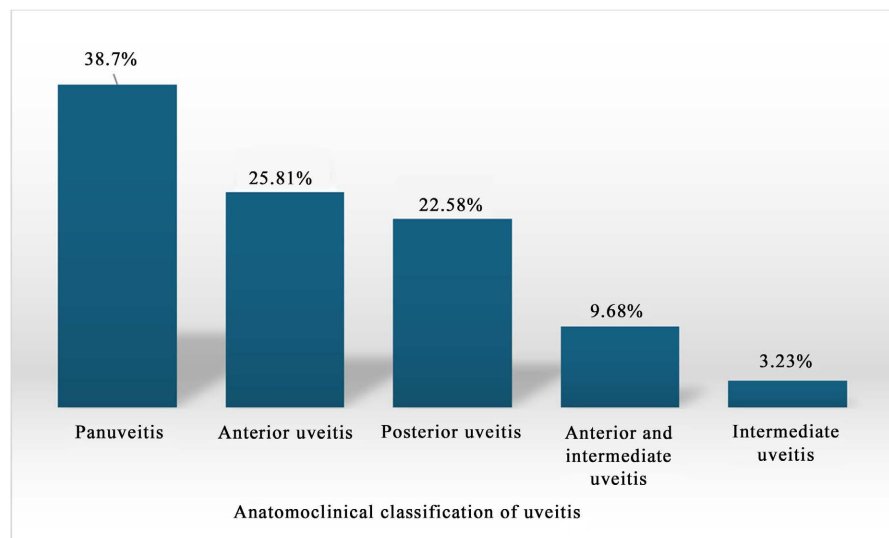
3.2. Clinical Characteristics

Decreased visual acuity, blurred vision, and redness of the eye were the most common reasons for consultation, occurring in 64.5%, 61.3%, and 45.2% of cases, respectively. The frequency of reasons for consultation in our study population is shown in **Table 1**.

Table 1. Frequency of reasons for consultation within the study population.

Reason for Consultation	Number (n)	Frequency (%)
Decreased visual acuity	20	64.5
Blurred vision	19	61.3
Eye redness	14	45.2
Periorbital pain	12	38.7
Myodesopsia	9	29
Photophobia	7	22.6
Watery eyes	5	16.1

Uveitis was unilateral in 87.1% (n = 27) of patients and frequently affected the left eye (45.2%), followed by the right eye (38.7%). It was bilateral in 4 patients, or 12.9% of cases. Sixteen (16) patients, or 51.61%, had chronic uveitis, compared with 15, or 48.39%, who had acute uveitis. The most common anatomoclinical classifications of uveitis in our study were panuveitis and anterior uveitis, at 38.7% and 25.81%, respectively. This distribution is illustrated in **Figure 2**.

**Figure 2.** Distribution of patients according to the anatomoclinical classification of uveitis.

Two (02) patients had granulomatous uveitis. The presence of active or cicatricial chorioretinal foci during fundus examination was reported in 18 patients (58.1%). A complete physical examination of the patients identified signs associated with uveitis, including one case of skin nodules, one case of oral aphthosis, one case of urethritis, one case of inflammatory low back pain, one case of buttock pain, and nine (09) cases of headaches. No cases of fever have been reported.

3.3. Paraclinical Characteristics

A biological assessment was prescribed for all patients. The completion rates for

these tests were as follows: 96.77% (30/31) for blood count and HIV serology; 93.54% (29/31) for toxoplasmosis and syphilis serology; 61.29% (19/31) for erythrocyte sedimentation rate (ESR), and 58.06% (18/31) for C-reactive protein (CRP). The blood count revealed three (03) cases of anemia and two (02) cases of hyperleukocytosis. CRP returned to normal in 11 patients and remained elevated in 7 patients. ESR returned to accelerated levels in 9 patients. With regard to toxoplasmosis serology, the result IgM-/IgG+ was the most frequently found in 69% (20/29) of cases. The IgM-/IgG+ serological result was confirmed by a second blood draw two or three weeks later to assess IgG kinetics. IgG levels have increased (2 to 3 times the previous value) in 15 patients. The quantitative measurement of toxoplasmosis IgG found an average of 4509.8 IU/ml. The IgM+/IgG+ serological result was reported in 3 patients. HIV serology was positive in two (02) patients, and syphilis serology (TPHA+/VDRL+) was positive in one case. The frequency of serological test results is summarized in **Table 2**.

Table 2. Frequency of serological test results.

Serological Tests		Number (n)	Frequency (%)
Toxoplasmosis	IgM-/IgG+	20	69
	IgM-/IgG-	6	20.7
	IgM+/IgG+	3	10.3
Syphilis	TPHA+/VDRL+	1	3.4
	TPHA-/VDRL+	1	3.4
	TPHA-/VDRL-	27	93.2
HIV	Positive	2	6.7
	Negative	28	93.3

Radiographic examinations were prescribed in 32.26% of patients (n = 10) and performed in 9 patients, representing a completion rate of 90% (9/10). In terms of the types of radiography, chest X-ray was performed in 7 patients, while pelvic and lumbar radiography were each performed in 1 patient. The chest X-ray was normal in 5 patients, while 2 patients had interstitial pneumonia. Pelvic and lumbar radiography were normal. The tuberculin skin test was performed in 25.8% of patients (n = 8) and was positive in one patient. The size of the reaction was 18 millimeters. Angiotensin-converting enzyme (ACE) levels were measured in one patient and were normal. Autoantibody testing was not performed in any of the patients in our study population.

3.4. Etiologies of Uveitis

At the end of the paraclinical investigation, the ocular toxoplasmosis was identified in 58.1% (n = 18) of cases, the etiology was undetermined in 38.7% of cases, and syphilis was identified in 3.2% of cases. Although there was one case with a

positive tuberculin skin test, tuberculosis was not considered because the patient had a history of previously treated and cured tuberculosis. The etiologies of panuveitis were dominated by toxoplasmosis, while undetermined causes were predominant in anterior uveitis. **Table 3** summarizes the frequency of etiologies according to the anatomoclinical classification of uveitis.

Table 3. Frequency of etiologies according to the anatomoclinical classification of uveitis.

Etiology according to the Type of Uveitis		Number (n)	Frequency (%)
Panuveitis	Toxoplasmosis	7	22.58
	Undetermined	5	16.12
Anterior uveitis	Toxoplasmosis	2	6.45
	Undetermined	6	19.35
	Syphilis	1	3.23
Posterior uveitis	Toxoplasmosis	5	16.1
	Undetermined	2	6.46
Anterior and intermediate uveitis	Toxoplasmosis	3	9.68
Intermediate uveitis	Toxoplasmosis	1	3.23

3.5. Therapeutic and Evolutionary Aspects

Oral corticosteroid therapy was administered to 61.3% (n = 19) of patients. The molecule used was prednisolone. The initial dose was 1 mg/kg/day for a median duration of 10 days. Local corticosteroid eye drops prescribed by ophthalmologists were used in 90.3% (n = 28) of patients. The frequency of administration was four times a day in 78.6% (n = 22) of patients. In addition, two patients received a subconjunctival injection of betamethasone. No patients received immunosuppressants. Antibiotics were prescribed to 19 patients, or 61.3%. The most commonly used antibiotic was cotrimoxazole in 84.2% (n = 16) of patients, followed by spiramycin in 10.5% (n = 2) of cases. **Table 4** summarizes the distribution of antibiotics used according to etiology.

Table 4. Distribution of anti-infectives used according to etiology.

Molecules		Number (n)	Frequency (%)
Cotrimoxazole	Toxoplasmosis	16	84.2
Spiramycin	Toxoplasmosis	2	10.5
Ceftriaxone	Syphilis	1	5.3
Total		19	100

With the collaboration of an internist-infectious disease specialist and an ophthalmologist, the duration of treatment was 6 weeks for toxoplasmosis and 2 weeks for syphilis. Patients were reviewed at 1 week, then at 2 weeks, and at the

end of treatment to assess their progress. The evolution of the 31 patients was marked by 80.6% (n = 25) clinical improvement, followed by 16.1% (n = 5) stable condition. One (01) patient had a recurrence.

4. Discussion

4.1. Socio-Demographic Characteristics

The average age of our patients was 37 years, the age group [20 - 40[years was the most represented, accounting for 48.4% of cases. This finding that young people account for the majority of uveitis cases referred to internal medicine is consistent with data from the literature. Ben Achour *et al.* in Tunisia [8], Atik *et al.* in Morocco [9] found average ages of 38.73 and 35.8 years, respectively. Neiter *et al.* in France reported an average age of 49 years [10]. Uveitis can occur at any age, with a peak incidence in young adults. The average age at which uveitis first appears varies from 33 to 44 years, with lower incidence rates in children and the elderly [11]. The female predominance noted in our study was a sex ratio of 0.72. This result is consistent with that of certain authors, notably Neiter *et al.* [10], Guillaud *et al.* in France [12], who also reported a female predominance, each with a sex ratio of 0.68. However, Chaabene *et al.* in Tunisia [13] and Atik *et al.* [9] reported a male predominance with sex ratios of 1.8 and 1.21, respectively. These differences reflect the great epidemiological heterogeneity of uveitis. Furthermore, the relationship between uveitis and gender has not yet been clarified in the literature.

4.2. Clinical and Paraclinical Characteristics

Decreased visual acuity was the most common reason for consultation in our study (64.5%). In the study of Atik [9], decreased visual acuity was also found in the majority of patients (88.5%). In fact, decreased visual acuity is the first thing to look for in all ophthalmology patients and requires further investigation to determine the true cause. Unilateral involvement was predominant in our series, affecting 87.1% of cases. Souley *et al.* [14], Mezane *et al.* [15] in Morocco found 60.95% and 59.6%, respectively, of unilateral uveitis. Elbachiri *et al.* in Morocco [16], Hassan *et al.* in Egypt [17] reported a predominance of bilateral involvement for 59% and 60.6% respectively. In fact, the extent of uveitis is most often influenced by its etiological distribution. Unilateral uveitis is often infectious or associated with specific syndromes, whereas bilateral uveitis is frequently associated with systemic diseases [18]. Chronic uveitis accounted for 51.61% of cases in our study. This result could be explained by the fact that patients in our context delay seeking medical advice, consulting traditional healers before resorting to modern medicine. The most common anatomical types of uveitis in our series were panuveitis and anterior uveitis, accounting for 38.7% and 25.81% of cases, respectively. These results are similar to those of Neiter *et al.* [10] in France, who found a predominance of panuveitis (52%) followed by anterior uveitis (30%). Atik *et al.* [9] also found a predominance of panuveitis (63.9%). However, some authors found different results, with a predominance of anterior uveitis (Chebil *et al.* [19];

Ben Achour *et al.* [8]). Mezane *et al.* [15] found a predominance of intermediate and posterior uveitis in a series of cases of infectious uveitis. The anatomical distributions of uveitis in the literature differ considerably from one another due to the great epidemiological heterogeneity of uveitis depending on geographical areas around the world.

Blood counts and HIV serology were performed in 96.77% of patients, while toxoplasmosis and syphilis serologies were performed in 93.57% of patients. This finding can be explained by the fact that these tests are part of the first-line etiological assessment for all cases of uveitis in our context. The tuberculin skin test was performed in 25.8% of patients and was positive in one case. This case occurred in a patient with a history of treated and cured tuberculosis, in the absence of other arguments in favor of a diagnosis of ocular tuberculosis. In our series, 61.3% of cases were due to infectious causes (ocular toxoplasmosis was present in 58.1% of cases and syphilis in 3.2% of cases). In Europe and the Maghreb countries, the identifiable causes of uveitis referred to internal medicine are predominantly non-infectious (sarcoidosis, Behçet's disease, etc.) [9] [10]. This can be explained by the fact that in sub-Saharan Africa, limited resources are focused on infectious diseases, which remain major causes of mortality. Furthermore, the lack of specialized laboratories limits the screening and diagnosis of these systemic diseases. The infectious causes in our series were characterized by toxoplasmosis (58.1%) and syphilis (3.2%). Mezane *et al.* [15] reported that infectious uveitis accounted for 13.8% of cases, with a variety of infectious causes including tuberculosis in 33% of cases, followed by toxoplasmosis (22.8%), herpes (17.5%), and CMV (8.7%), EBV (7%), syphilis (5.26%). Furthermore, in Zoubeidi's study [20], the two most common etiologies were tuberculosis (22.72%) and toxoplasmosis (22.72%). This difference is likely related to the location of the study and the type of sampling. The undetermined etiology in our series was 38.7%. This finding is typical in the literature, with idiopathic origin or the inability to identify a known cause of uveitis being the most common situation, with percentages varying between 25% and 77% [21]. Neiter *et al.* [10] reported that uveitis referred to the center of excellence for etiological investigation was idiopathic in 52% of cases. In our context, this result could be explained by the fact that some patients abandoned the etiological investigation due to a lack of financial resources, and the inadequacy of technical facilities also limits etiological research.

4.3. Therapeutic and Evolutionary Aspects

Oral corticosteroid therapy was administered to 61.3% of patients in our study. Local corticosteroid therapy (eye drops) was used in 90.3% of patients. Nineteen (19) patients, or 61.3%, received antibiotic treatment. No patients received immunosuppressants. These results are similar to those of Nouhou Diiori *et al.* in Niger [22], who found that corticosteroid therapy was used in 70.08% of cases, antibiotic therapy in 69.29%, and immunosuppressants and antivirals in 0.79% each. In their study, Mezane *et al.* reported that corticosteroid therapy was used in conjunction

with specific treatment for infectious uveitis in 90% of cases. Indeed, the therapeutic profile found in the literature is strongly linked to the etiologies involved. In our context, given the unavailability of first-line treatments, particularly sulfadiazine and pyrimethamine, cotrimoxazole (sulfamethoxazole + trimethoprim) was used as an alternative treatment for toxoplasmosis. For syphilis, ceftriaxone was available and was used as an alternative to aqueous penicillin G. These alternative treatments are in line with certain recommendations [23] [24]. The clinical course of the 31 patients was marked by 80.6% of clinical improvement, followed by 16.1% of stable condition. One of the main factors contributing to this high rate of clinical improvement lies in the nature of the identified causes. Unlike European series, where causes are often immunological and chronic, our study shows a clear predominance of infectious causes. These etiologies respond well to antibiotics, leading to rapid resolution of inflammatory signs once the diagnosis is made. In addition, treatment was optimized through collaboration between the ophthalmology department (for anatomical diagnosis) and the internal medicine department (for determining the cause). This collaborative approach suggests that consulting an internist could improve the efficiency of the uveitis diagnostic process.

5. Limitations and Constraints

Our study has limitations and constraints, including the small sample size, the unavailability of certain paraclinical tests in our context, and the lack of financial resources to carry out biological tests due to the absence of universal health insurance.

6. Conclusion

Our study, which focused on the clinical, etiological, and therapeutic aspects of uveitis cases referred to internal medicine in the city of Ouagadougou, revealed that uveitis poses a real diagnostic challenge for internists. The epidemiological profile of patients with uveitis referred to internal medicine was that of young adults living in urban areas. Most of them consulted for decreased visual acuity. The main causes found were toxoplasmosis and syphilis in our context. However, more than one-third of uveitis cases referred to internal medicine in our series were of undetermined etiology. Treatment was most often medical, involving corticosteroid therapy and antibiotic therapy. Close collaboration between ophthalmologists and internists remains essential for the best management of uveitis.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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