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RESEARCH ARTICLE

CLINICAL PROFILE OF UVEITIS IN A CASABLANCA TERTIARY CENTER: A RETROSPECTIVE SERIES OF 203 CASES

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uveitis; Behçet disease; autoimmune uveitis; infectious uveitis; visual outcome

Abstract

Background: Uveitis is a potentially sight threatening intraocular infl ammatory disorder whose clinical and etiological profiles vary accordi ng to geographic,infectious, autoimmune, and socioeconomic contexts. Recent large urban Moroccan series remain limited.

Objective: To describe the demographic, clinical, anatomical, etiologi cal, and visual characteristics of adult patients with uveitis managed at a tertiary university center in Casablanca.

Methods: This retrospective descriptive study included 203 adults diagnosed with uveitis at the ophthalmology department of Ibn Rochd University Hospital between June 2023 and September 2024.Recorded variables included age, sex, laterality, anatomical classification, granul omatous features, synechiae, intraocular pressure, etiology, complicati ons, visual acuity, and delay to specialist consultation.

Results: The mean age was 47 years (range, 18-76 years), and 52% of patients were women. Bilateral involvement was observed in 58.6%, 93% of cases were non-granulomatous, and posterior synechiae were absent in 75%. Anterior uveitis was the most frequent anatomical form (46%), followed by panuveitis (26%), posterior uveitis (16%), and intermediate uveitis (12%). Non-infectious uveitis accounted for 88% of cases; the overall etiological distribution was 50% idiopathic, 38% autoimmune, and 12% infectious. Herpes simplex virus represented 60% of infectious cases, followed by toxoplasmosis (24%), tuberculosi s (8%), and syphilis (8%). Major complications were cataract (16%), recurrence (16%), glaucoma (13%), macular edema (8%), and legal blindness (5%). At presentation, 38% had visual acuity below 1/10; after treatment, 53% achieved at least 4/10.

Conclusion: Uveitis in this Casablanca tertiary center was predominantly non-infectious and frequently bilateral, with anterior uveitis as the leading anatomical form. The substantial idiopathic burden, consultation delays, and

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frequency of vision-threatening complications support broader access to etiological testing, multidisciplinary assessment, and prolonged follow-up.

Introduction:-

Uveitis encompasses a heterogeneous group of intraocular inflammatory disorders involving the uveal tract and, depending on the anatomical form, adjacent ocular structures. It represents a major diagnostic and therapeutic challenge because similar ocular presentations may result from autoimmune, infectious, systemic inflammatory, or unidentified mechanisms. Uveitis accounts for approximately 10-20% of legal blindness, emphasizing the importance of early recognition, etiological orientation, and prevention of irreversible structural damage [8,9].

The epidemiology of uveitis is strongly influenced by geography and population characteristics. In the Mediterranean region, systemic immune-mediated diseases, particularly Behçet disease and spondyloarthropathies, occupy an important place, whereas infectious etiologies remain relevant but are generally less frequent. The balance between these categories may also reflect patterns of referral, availability of diagnostic testing, access to multidisciplinary care, and the characteristics of the population served by each center. Moroccan data remain relatively limited, especially for contemporary adult cohorts from major urban university hospitals. Casablanca combines a large and diverse population with tertiary referral activity, making its clinical experience useful for identifying local patterns of disease presentation and visual morbidity. A clearer description of anatomical forms, etiological categories, consultation delays, and complications may guide diagnostic pathways and help prioritize regional resources. The objective of this study was therefore to describe the demographic, clinical, anatomical, etiological, and visual profiles of adult uveitis patients managed at a university tertiary center in Casablanca, and to place the observed patterns in the regional and international context included in the comparative analysis.

Materials and Methods:-

Study design and setting:-

A retrospective descriptive study was conducted at the Adult Ophthalmology Department of the 20 August 1953 Hospital, Ibn Rochd University Hospital, Casablanca, Morocco. The study period extended from June 2023 to September 2024.

Study population:-

The study included 203 patients aged 18 years or older with a confirmed diagnosis of uveitis and a sufficiently complete medical record. Patients younger than 18 years, patients with ocular comorbidities considered likely to confound the evaluated outcomes, those who had undergone recent ocular surgery within the preceding three months, and patients with incomplete files were excluded.

Data collection and clinical variables:-

Clinical records were reviewed for age, sex, anatomical classification, laterality, granulomatous or non-granulomatous presentation, presence of synechiae, intraocular pressure, etiological classification, major complications, initial and final visual acuity, and the interval before specialist consultation. Visual acuity at presentation was recorded in decimal categories and, for very low vision, as counting fingers, hand movements, positive light perception, or no light perception.

Anatomical and etiological classification:-

Cases were categorized anatomically as anterior uveitis, intermediate uveitis, posterior uveitis, or panuveitis, according to the classification documented in the clinical records. Etiologies were grouped as idiopathic, autoimmune, or infectious. Etiological distributions were also analyzed within each anatomical subgroup and within the infectious and autoimmune categories.

Outcomes:-

The principal descriptive outcomes were the distribution of anatomical forms and etiological categories. Secondary outcomes included initial and post-treatment visual acuity, cataract, glaucoma, macular edema, recurrence, legal blindness, laterality, intraocular pressure categories, and delay to specialist consultation.

Statistical analysis:-

The analysis was descriptive. Categorical variables were summarized using numbers and percentages where available, while age was reported as a mean with range. No inferential statistical testing was performed.

Ethical considerations:-

This retrospective, non-interventional study was conducted in accordance with the principles of the Declaration of Helsinki. Only data collected during routine ophthalmic care were reviewed. All study data were anonymized before analysis, and no information allowing the identification of individual patients was included. Because the study involved a retrospective review of anonymized medical records and did not modify patient management, individual informed consent was not required.

Results:-

Demographic and baseline clinical characteristics:-

The cohort consisted of 203 adults with a mean age of 47 years and an age range of 18-76 years. Women accounted for 52% and men for 48%. Bilateral disease was more frequent than unilateral disease (58.6% versus 41.4%). Most cases were non-granulomatous (93%), and synechiae were absent in 75% of patients. Intraocular pressure was 21 mmHg or less in 182 patients (89.6%), between 21 and 25 mmHg in 14 (6.9%), and between 25 and 30 mmHg in 7 (3.4%).

Table 1. Demographic and baseline ocular characteristics

Characteristic	Result
Number of patients	203
Age, mean (range)	47 years (18-76)
Women / men	52% / 48%
Bilateral / unilateral	58.6% / 41.4%
Non-granulomatous presentation	93%
Synechiae absent / present	75% / 25%
IOP ≤21 mmHg	182 (89.6%)
IOP 21-25 mmHg	14 (6.9%)
IOP 25-30 mmHg	7 (3.4%)

Visual acuity at presentation:-

The most common recorded visual acuity categories at presentation were 1/10-3/10 (25%) and counting fingers (23%). Forty-one patients (20%) had visual acuity between 7/10 and 10/10. When counting fingers, hand movements, positive light perception, and no light perception were grouped as vision below 1/10, 78 patients (38.4%) fell within this severe visual impairment category.

Table 2. Visual acuity at presentation

Visual acuity category	n	%
Counting fingers	48	23
1/10-3/10	50	25
4/10-6/10	34	17
7/10-10/10	41	20
Positive light perception	22	11
Hand movements	6	3
No light perception	2	1

Anatomical classification:-
Anterior uveitis was the most frequent anatomical form, representing 46% of the cohort. Panuveitis accounted for 26%, posterior uveitis for 16%, and intermediate uveitis for 12%.

Table 3. Anatomical distribution of uveitis

Anatomical form	% of cohort
Anterior uveitis	46
Panuveitis	26
Posterior uveitis	16
Intermediate uveitis	12

Overall etiological distribution:-
Non-infectious uveitis represented 88% of cases, while infectious uveitis represented 12%. The overall etiological distribution was 50% idiopathic, 38% autoimmune, and 12% infectious. Thus, no specific etiology was established in approximately half of the cohort. Among infectious uveitis cases, herpes simplex virus was the leading reported cause (60% of infectious cases), followed by toxoplasmosis (24%), tuberculosis (8%), and syphilis (8%). Expressed relative to the full cohort, these proportions correspond approximately to 7%, 3%, 1%, and 1%, respectively. The principal autoimmune conditions identified were Behçet disease, seronegative spondyloarthropathies, sarcoidosis, systemic lupus erythematosus, Sjögren syndrome, and rheumatoid arthritis.

Table 4. Etiological distribution

Level of analysis	Etiology	Reported proportion
Overall cohort	Idiopathic	50%
Overall cohort	Autoimmune	38%
Overall cohort	Infectious	12%
Within infectious cases	Herpes simplex virus	60%
Within infectious cases	Toxoplasmosis	24%
Within infectious cases	Tuberculosis	8%
Within infectious cases	Syphilis	8%

Etiological patterns according to anatomical form:-
Etiological patterns varied by anatomical site. In anterior uveitis, idiopathic disease was the largest category (38%), followed by Behçet disease (21%), herpes simplex virus (17%), spondyloarthropathies (15%), and sarcoidosis (9%). Panuveitis was most frequently associated with Behçet disease (34%), followed by idiopathic disease (25%), sarcoidosis (17%), toxoplasmosis (15%), and tuberculosis (9%). In posterior uveitis, toxoplasmosis predominated (26%), followed by Behçet disease (19%), idiopathic disease (18%), herpes simplex virus (13%), tuberculosis (13%), and syphilis (11%). Intermediate uveitis was idiopathic in 67%, associated with sarcoidosis in 21%, and with spondyloarthropathies in 12%.

Table 5. Etiological distribution within each anatomical form

Anatomical form	Etiology	% within anatomical form
Anterior	Idiopathic	38
Anterior	Behçet disease	21
Anterior	Herpes simplex virus	17
Anterior	Spondyloarthropathies	15
Anterior	Sarcoidosis	9
Panuveitis	Behçet disease	34
Panuveitis	Idiopathic	25
Panuveitis	Sarcoidosis	17
Panuveitis	Toxoplasmosis	15
Panuveitis	Tuberculosis	9
Posterior	Toxoplasmosis	26
Posterior	Behçet disease	19
Posterior	Idiopathic	18
Posterior	Herpes simplex virus	13

Posterior	Tuberculosis	13
Posterior	Syphilis	11
Intermediate	Idiopathic	67
Intermediate	Sarcoidosis	21
Intermediate	Spondyloarthropathies	12

Delay to specialist consultation:-
Twenty-six percent of patients reached specialist consultation within two weeks, 32% between two and four weeks, 24% between one and two months, and 18% after more than two months. Overall, 42% of patients therefore consulted more than one month after symptom onset or referral.

Complications and visual outcome:-
The most frequently reported complications were cataract and recurrence, each affecting 16% of patients. Glaucoma occurred in 13%, macular edema in 8%, and legal blindness in 5%. After treatment, 53% of patients had visual acuity of at least 4/10, suggesting meaningful functional improvement in a substantial proportion of the cohort, although detailed paired visual acuity data and follow-up duration were not provided.

Table 6. Consultation delay, complications, and visual outcome

Outcome	Reported proportion
Specialist consultation <2 weeks	26%
Specialist consultation 2-4 weeks	32%
Specialist consultation 1-2 months	24%
Specialist consultation >2 months	18%
Cataract	16%
Recurrence	16%
Glaucoma	13%
Macular edema	8%
Legal blindness	5%
Final visual acuity ≥4/10	53%

Discussion:-

Principal findings:-
This retrospective series provides a contemporary description of adult uveitis managed in a large tertiary center in Casablanca. The main findings were a slight female predominance, frequent bilateral disease, a clear predominance of non-infectious forms, and anterior uveitis as the most common anatomical presentation. The cohort also carried a substantial burden of poor visual acuity at presentation, consultation delays, recurrent disease, and structural complications.

Demographic profile:-
The mean age of 47 years places most patients within the working-age adult population, which reinforces the potential functional and socioeconomic consequences of recurrent or complicated uveitis. The comparative series showed broadly similar mean ages: 45 years in the Rabat series by Souley et al., 42 years in the French series summarized from Neiter, 45 years in the Turkish comparison, and 42 years in the Jordanian comparison [1,3,5,6]. The female-to-male distribution in the present series (52%/48%) was likewise close to the nearly balanced sex ratios shown in these comparisons.

Anatomical pattern:-
Anterior uveitis represented 46% of cases and was therefore the principal anatomical presentation. This proportion was close to the values reported in the comparative series for Turkey (44%) and Jordan (50%), and higher than the figures reported for Rabat (35%) and the French comparator (30%). Panuveitis accounted for 26%, a clinically important proportion because this form may involve both anterior and posterior structures and may be associated with systemic inflammatory or infectious disease. The relative frequency of panuveitis was lower than the 49% and 52% displayed for the Rabat and French series, respectively, but close to the Turkish and Jordanian values of 28% and 26% [1,3,5,6].

The etiological distribution within anatomical forms was coherent with the clinical spectrum observed in this cohort. Idiopathic disease and immune-mediated entities were prominent in anterior and intermediate uveitis. Behçet disease was the largest reported category in panuveitis, while toxoplasmosis was the leading reported cause of posterior uveitis. These patterns support an anatomical approach to etiological investigation while highlighting that no single diagnostic pathway is sufficient for all forms.

Non-infectious and autoimmune uveitis:-

Non-infectious disease accounted for 88% of the cohort, a proportion close to the regional and international values reported in the comparative series: 85% in the Rabat series and 87% in the French comparator [1,3]. The autoimmune spectrum included Behçet disease, seronegative spondyloarthropathies, sarcoidosis, systemic lupus erythematosus, Sjögren syndrome, and rheumatoid arthritis. Behçet disease and spondyloarthropathies were the two most prominent entities in the autoimmune spectrum, consistent with the relevance of systemic inflammatory disease in Mediterranean uveitis cohorts [5,6].

The clinical implications of this profile extend beyond etiological labeling. Immune-mediated uveitis often requires coordination with internal medicine, rheumatology, or other relevant specialties for systemic assessment and for the selection and monitoring of corticosteroids, conventional immunosuppressive agents, or biologic therapy. These findings support multidisciplinary collaboration and improved access to targeted investigations such as HLA-B27 testing, interferon-gamma release assays, and polymerase chain reaction testing in selected cases.

Infectious uveitis:-

Infectious uveitis represented 12% of all cases. Herpes simplex virus was the largest infectious category, accounting for 60% of infectious cases, followed by toxoplasmosis at 24%, while tuberculosis and syphilis each represented 8%. This distribution was similar to the comparative data, in which herpes-related disease was consistently the leading infectious category and toxoplasmosis ranked second [1,3,5,6].

The anatomical analysis also illustrates the need to interpret infectious risk according to ocular presentation. Herpes simplex virus was prominent in anterior uveitis, whereas toxoplasmosis was the largest posterior uveitis category. Tuberculosis appeared in both panuveitis and posterior uveitis, and syphilis was represented among posterior forms. These observations support directed infectious investigations before intensifying immunosuppression when the clinical phenotype or epidemiological context raises suspicion.

Idiopathic disease and diagnostic limitations:-

An idiopathic rate of 50% was observed, indicating that no specific cause was established in approximately one patient out of two. This finding highlights the complexity of uveitis diagnosis in routine tertiary practice. Potential contributors within the limits of the available retrospective data include restricted access to specialized tests, variable completeness of systemic assessment, retrospective documentation, and referral at different stages of disease.

The high idiopathic proportion should not be interpreted as a fixed diagnosis in all patients. Reassessment during follow-up may reveal systemic manifestations or additional ocular findings that were absent initially. These findings support local diagnostic pathways, wider access to multimodal imaging and laboratory testing, and the creation of national uveitis registries.

Visual morbidity, complications, and consultation delay:-

Visual impairment was substantial at presentation: approximately 38% had visual acuity below 1/10. Cataract and recurrence were each reported in 16%, glaucoma in 13%, and macular edema in 8%. These complication rates were close to those reported in the comparator series, where cataract generally ranged from 14% to 18%, glaucoma from 10% to 15%, and macular edema from 7% to 10% [1,3,5,6].

The post-treatment result of visual acuity at or above 4/10 in 53% suggests that treatment and follow-up were associated with useful visual recovery in many patients. Nevertheless, the absence of patient-level paired data, treatment details, and standardized follow-up duration prevents a formal estimate of treatment effect. The recurrence rate of 16% further supports prolonged surveillance, particularly for chronic or systemic forms.

Consultation delays may have contributed to disease severity. Forty-two percent of patients consulted after more than one month, including 18% after more than two months. Earlier recognition and referral may help limit synechiae, macular damage, pressure-related complications, and irreversible visual loss.

Clinical and organizational implications:-
The study findings support several practical priorities: strengthening collaboration between ophthalmology, internal medicine, and infectious diseases; expanding access to specific laboratory tests and polymerase chain reaction; equipping regional centers with optical coherence tomography, fluorescein angiography, and multimodal imaging; creating national registries; developing Moroccan context-adapted protocols; improving access to anti-TNF therapy in severe or resistant immune-mediated forms; and reinforcing continuing education and patient adherence.
These proposals are consistent with the patterns observed in the cohort. A tertiary-center strategy should combine rapid anatomical classification, targeted exclusion of infection, systematic screening for systemic inflammatory disease, early detection of cataract, glaucoma, and macular edema, and structured long-term follow-up for recurrent disease.

Strengths and limitations:-
The study's principal strength is the inclusion of 203 adult patients from a major university referral center, with description of demographic, anatomical, etiological, pressure-related, visual, and complication profiles. The subgroup etiological distributions also provide clinically relevant insight into the relationship between anatomical form and probable cause.

The limitations arise from the retrospective single-center design and the available retrospective clinical information. Referral bias may limit generalizability to the broader Moroccan population. Diagnostic investigations and treatment protocols were not described in sufficient detail to assess uniformity. The duration of follow-up, recurrence definition, criteria for legal blindness, and patient-level paired visual acuity outcomes were not reported. No multivariable or inferential analysis was provided, and the study cannot establish causal relationships or treatment effectiveness.

Conclusion:-
In this retrospective series of 203 adults managed at a Casablanca university tertiary center, uveitis was predominantly non-infectious, frequently bilateral, and most often anterior. Panuveitis remained common, infectious causes accounted for a clinically relevant minority, and a large proportion of cases remained idiopathic. Cataract, glaucoma, macular edema, recurrence, delayed specialist consultation, and poor visual acuity at presentation demonstrated the continuing burden of uveitis-related morbidity. Improved access to etiological testing, multidisciplinary assessment, regional diagnostic capacity, standardized follow-up, and national collaborative registries are needed to refine diagnosis and reduce preventable visual loss.

Declarations:-
Ethics approval and consent to participate: This retrospective, non-interventional study was conducted in accordance with the Declaration of Helsinki. The analysis was based exclusively on anonymized data collected during routine clinical care, without any additional procedure or modification of patient management. Patient confidentiality was maintained throughout the study; therefore, individual informed consent to participate was not required.

Consent for publication:-
Not applicable. The manuscript contains no identifiable personal data or identifiable patient images.

Availability of data and materials:-
The anonymized data supporting the findings of this study are available from the corresponding author upon reasonable request, subject to institutional authorization and compliance with patient-confidentiality requirements.

Competing interests:-
The authors declare that they have no competing interests.

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Authors' contributions:-
A.A. conceived the study, collected and analyzed the data, and drafted the manuscript. K.S.I., Y.H., M.A.H., and M.R.B. contributed to data collection, clinical interpretation, and revision of the manuscript. A.M., L.B., and R.R.

supervised the study, validated the clinical interpretation, and critically revised the manuscript. All authors read and approved the final manuscript and agree to be accountable for all aspects of the work.

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References:-

1. Souley AS, Abdellahi HOM, Khmamouche M, Naji AA, Narjis EO, Elasri F, et al. Profil épidémiologique des uvéites: à propos de 105 cas. Pan Afr Med J. 2016;24:97.
2. Saadouli D, Belhassen A, Loukil I, Ben Mansour K, El Afrit MA. Profil épidémiologique, clinique et étiologique des uvéites. Rev Med Interne. 2021;42(Suppl 2):A364.
3. Neiter E. Caractéristiques épidémiologiques et étiologiques des uvéites dans un Centre Hospitalier Universitaire [thesis]. Université de Lorraine; 2018.
4. Perez-Roustit S, Chamard C, Daien V, Villain M, Mura F, Konate A, et al. Épidémiologie, caractéristiques cliniques et étiologiques des uvéites prises en charge au CHU de Montpellier. Presented at: Société Française d'Ophtalmologie; 2019.
5. Tugal-Tutkun I, Onal S, Altan-Yaycioglu R, Huseyin Altunbas H, Urgancioglu M. Uveitis in Behçet disease: an analysis of 880 patients. Am J Ophthalmol. 2004;138(3):373-380.
6. Al-Dhibi HA, Al-Mahmood AM, Arevalo JF. Ocular manifestations of Behçet disease. Middle East Afr J Ophthalmol. 2013;20(4):297-302.
7. González-González LA, Molina-Prat N, García-Aparicio AM, Doctor P, Mesquida M, Adán A. Epidemiology of uveitis in a referral hospital in Madrid. Ocul Immunol Inflamm. 2016;24(3):211-217.
8. Nussenblatt RB. The natural history of uveitis. Int Ophthalmol. 1990;14(5-6):303-308.
9. Rothova A, Suttorp-van Schulten MS, Treffers WF, Kijlstra A. Causes and frequency of blindness in patients with intraocular inflammatory disease. Br J Ophthalmol. 1996;80(4):332-336.
10. Gueudry J, Wechsler B, Terrada C, Gendron G, Cassoux N, LeHoang P, et al. Long-term efficacy of infliximab in severe and refractory uveitis associated with Behçet disease. Ocul Immunol Inflamm. 2008;16(4):279-284.