SAS Journal of Medicine
Abbreviated Key Title: SAS J Med
ISSN 2454-5112
Journal homepage: https://saspublishers.com

OPEN ACCESS

Ophthalmology

Clinical Profile and Therapeutic Outcomes of Ocular Behçet's Disease: A Retrospective Study in a Moroccan Cohort

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DOI: https://doi.org/10.36347/sasjm.2026.v12i03.009 | **Received:** 03.01.2026 | **Accepted:** 12.03.2026 | **Published:** 23.03.2026

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Abstract **Original Research Article**

Purpose: To analyze the clinical presentation, anatomical distribution, and therapeutic management of ocular Behçet's Disease (BD) in a Moroccan cohort, emphasizing the role of multimodal imaging and evolving treatment strategies. ***Materials and Methods:*** We conducted a retrospective descriptive study of 53 patients fulfilling the International Study Group criteria for BD at the Avicenne Military Hospital in Marrakech (2018–2025). Ophthalmic evaluation included Best-Corrected Visual Acuity (BCVA), slit-lamp biomicroscopy, and a multimodal imaging protocol comprising iCare EIDON TrueColor Confocal Scanning, Fluorescein Angiography (FA), and Spectral-Domain Optical Coherence Tomography (SD-OCT). ***Results:*** The cohort showed a marked male predominance (3:1) with a mean age of 38.8 years. Ocular involvement was present in 45.3% (n=24) of patients, serving as the inaugural manifestation in 25% of cases. Bilateral disease was prevalent (66.7%). At baseline, only 20.8% of affected eyes (n=40) maintained a BCVA >5/10. Anatomically, isolated anterior uveitis occurred in 30% of eyes, while the posterior segment was the primary site of morbidity (42.5%), followed by panuveitis (27.5%). Retinal vasculitis was identified in 25% of eyes, predominantly as an obliterative process. Systemic corticosteroids were used for induction in all posterior segment cases (n=16), with 75% requiring intravenous methylprednisolone boluses. Immunosuppressive therapy included Cyclophosphamide (50%) and Azathioprine (31.25%). Biotherapy (Infliximab or Adalimumab) was initiated in 25% of the systemic treatment subgroup. At final follow-up, 12.5% of the ocular subgroup were legally blind, primarily due to retinal atrophy and macular scarring. ***Conclusion:*** Ocular BD in Morocco remains an aggressive condition with a high burden of posterior segment disease. Despite conventional immunosuppression, a significant percentage of patients reach legal blindness. Our findings support a "top-down" therapeutic approach and the systematic use of widefield confocal imaging to detect subclinical vasculitis and optimize visual outcomes in young adults.

Keywords: Behçet's disease, Anterior uveitis, Posterior uveitis, Retinal vasculitis, Fundus examination, Multimodal imaging, Immunosuppressive therapy, Biotherapy, Visual prognosis, Morocco.

INTRODUCTION

Behçet's Disease (BD) is an idiopathic, systemic inflammatory disorder characterized by recurrent orogenital ulcers and a histological substrate of small-vessel vasculitis [1]. While its prevalence is highest along the "Silk Road," Morocco serves as a critical geographic hub where the disease often exhibits aggressive clinical phenotypes [2]. Ocular involvement is the second most common manifestation after aphthosis, appearing in 40% to 70% of patients [3].

Unlike other forms of uveitis, ocular BD is characterized by explosive inflammatory "attacks" followed by periods of remission. Each flare carries the risk of cumulative damage to the neurosensory retina and optic nerve [4]. In highly endemic regions, BD remains one of the leading causes of non-infectious blindness in young adults [5]. Recent updates in management emphasize that preventing these cumulative insults requires a proactive shift in the therapeutic landscape [6]. Specifically, modern pharmacotherapy aims to move beyond steroid dependency to arrest the "explosive" nature of the disease before terminal atrophy occurs [7-8].

This research provides an in-depth analysis of a 53-patient cohort at Avicenne Military Hospital, evaluating the clinical severity and the interventions required to stabilize these high-risk patients.

MATERIAL AND METHODS

This retrospective descriptive study reviewed the medical records of 53 patients diagnosed with Behçet's Disease (BD) who were managed through a multidisciplinary collaboration between the Departments of Ophthalmology and Internal Medicine at the Avicenne Military Hospital in Marrakech, Morocco. The study period spanned from January 2018 to December 2025. All participants fulfilled the International Study Group (ISG 1990) diagnostic criteria for BD.

Patients underwent a comprehensive ophthalmic evaluation starting with Best-Corrected Visual Acuity (BCVA) assessment via Snellen charts and detailed slit-lamp biomicroscopy to evaluate the anterior segment for active inflammatory markers, specifically the Tyndall effect (cell and flare), keratic precipitates, or hypopyon, while the vitreous was graded for hyalitis and haze using the Nussenblatt scale.

To overcome the inherent limitations of standard ophthalmoscopy, high-resolution documentation of the posterior segment was achieved using the iCare EIDON TrueColor Confocal Scanner. By employing the Composite Ultra-Widefield (UWF) mode, a panoramic view was obtained, facilitating systematic screening for posterior segment involvement. This included the detection of retinal infiltrates, intraretinal hemorrhages, hard exudates, optic disc edema, and gross macular changes, with a particular focus on identifying vascular sheathing (periphlebitis) and subtle perivascular cuffing in the far periphery.

At the earliest clinical detection of intraocular inflammation, a multimodal imaging protocol was initiated to characterize posterior segment manifestations. This protocol integrated Fluorescein Angiography (FA) and Spectral-Domain Optical Coherence Tomography (SD-OCT).

RESULTS

The demographic analysis of the total cohort (N=53) revealed a mean age at diagnosis of 38.8 years (range: 15–55 years), with a significant prevalence peak observed in the 30–40 age group. A marked male predominance was identified, characterized by a 3:1 sex ratio (40 males vs. 13 females) (Table 1).

Table 1: Demographic, Clinical, and Anatomical Characteristics of the Study Cohort

Parameter			**Value**
Total number of patients with BD			53
Mean age [Range] (years)			38,8 [15–55]
Sex ratio (M: F)			3:1
Patients with ocular involvement (ocular subgroup)			45.3% (24/53)
Unilateral cases			33,3 % (8/24)
Bilateral cases			66.7% (16/24)
Total affected eyes			40
Baseline BCVA (n=40 eyes)	> 20/40 (Good)		20.8%
	20/200 - 20/40 (Moderate impairment)		58.3%
	< 20/200 (Severe impairment)		16.7%
	NLP ((Blindness)		4.2%
Uveitis type	Isolated anterior uveitis		30%
	Isolated posterior uveitis		42.5%
	Panuveitis		27.5%
Associated lesions	Vasculitis		25%
	Optic disc leakage		17.5%
	Maculopathy (20 %)	Macular edema	12.5%
		Epiretinal membrane	5%
		Macular ischemia	2.5%

Within the total cohort (N=53), 45.3% (n=24) exhibited ocular involvement. For 25% (n=6) of these patients, ocular symptoms served as the inaugural manifestation of Behçet's Disease (BD). The remaining 75% (n=18) developed ocular disease following an average diagnostic latency of three years from the onset of systemic symptoms. Bilateral involvement was the clinical rule, occurring in 66.7% (n=16) of the ocular subgroup. At baseline, a functional assessment of the 40 affected eyes (comprising 16 bilateral and 8 unilateral cases) underscored the aggressive nature of the disease: only 20.8% maintained good Best-Corrected Visual Acuity (BCVA >20/40). The majority suffered significant visual deficits, including moderate impairment (20/200–20/40) in 58.3%, severe impairment (<20/200) in 16.7%, and no light perception (NLP) in 4.2% of eyes (Table 1).

Anatomically, isolated anterior uveitis occurred in 30% of the 40 affected eyes, presenting as acute non-granulomatous serofibrinous inflammation with a high synechiae risk and documented hypopyon in three cases. The posterior segment was the primary site of morbidity in 42.5% of eyes, while panuveitis was identified in 27.5%. Furthermore, retinal vasculitis was diagnosed in 25% of affected eyes, typically manifesting as an obliterative, necrotizing process affecting both the arterial and venous retinal vasculature. Optic nerve involvement was significant, with optic disc leakage documented in 17.5% of eyes. Finally, maculopathy was identified in 20% of eyes, characterized by a predominance of macular edema (12.5%), followed by epiretinal membrane (5%), and ischemic maculopathy (2.5%) (Table 1).

Furthermore, retinal vasculitis was diagnosed in 25% of the 40 affected eyes, typically manifesting as an obliterative, necrotizing process affecting both the arterial and venous retinal vasculature. Optic nerve involvement was significant, with optic disc leakage documented in 17.5% of affected eyes. Finally, maculopathy was identified in 20% of the 40 affected eyes, characterized by a predominance of macular edema (12,5%), followed by epiretinal membrane (5%), and ischemic maculopathy (2,5%) (Table 1).

The therapeutic strategy was stratified based on inflammatory severity and systemic involvement. Local therapy (topical corticosteroids and mydriatics) was systematically administered for all anterior segment inflammation. Systemic corticosteroids served as the primary induction therapy for cases involving the posterior segment or panuveitis (n=16). Within this subgroup, all patients received oral Prednisone, while 75% (n=12) required high-dose intravenous Methylprednisolone boluses for sight-threatening episodes.

To facilitate steroid-sparing and maintain long-term remission, immunosuppressive agents were widely utilized. Cyclophosphamide was the predominant induction agent (50%; n=8), frequently followed by a transition to Azathioprine (31.25%; n=5) for maintenance. Methotrexate (12.5%; n=2) and Chlorambucil (6;25%; n=1) were utilized based on specific indications. Biotherapy was initiated in cases refractory to conventional immunosuppression; Infliximab was the primary biologic utilized (18.75%; n=3), while Adalimumab was administered to 6.25% (n=1) of the posterior segment subgroup (Table 2).

Table 2: Therapeutic Management and Escalation Strategies in Cases with Posterior Segment Involvement

Therapeutic Category		**Frequency (%)**
First-Line Induction	Systemic Corticosteroids	100 % (16)
	Initial IV Methylprednisolone Bolus	75 % (12/16)
Conventional Immunosuppression	Cyclophosphamide (IV)	50.0% (8/16)
	Azathioprine	31.25% (5/16)
	Methotrexate	12.5% (2/16)
	Chlorambucil	6,25 % (1/16)
Biotherapy Anti-TNF α Agents	Infliximab	18.75% (3/16)
	Adalimumab	6.25% (1/16)

At the conclusion of the follow-up period, 12.5% of the ocular subgroup (3/24) were legally blind (VA < 1/10). The primary causes of terminal vision loss were retinal atrophy, macular scarring, and optic nerve pallor. Secondary complications included cataracts (16.7%), secondary glaucoma (8.3%), and vitreous hemorrhage (4.2%).

DISCUSSION

The demographic profile of our cohort (n=53) confirms the classic "aggressive" phenotype of Behçet's Disease (BD) prevalent in the Maghreb and Mediterranean regions, characterized by a significant male predominance (3:1) and onset during the fourth decade of life. These findings align with the epidemiological profiles previously described in Morocco by Essaadouni *et al*. [1], reinforcing the regional consistency of the disease's presentation. Our finding that ocular symptoms were the inaugural manifestation in 25% of cases is consistent with international literature (10–20%), emphasizing the ophthalmologist's role as the "sentinel" in early BD diagnosis, often utilizing the International Study Group criteria [2] to bridge the gap between isolated ocular signs and systemic syndrome. However, the three-year average diagnostic latency observed in the remainder of our cohort suggests a window of vulnerability where subclinical inflammation may lead to cumulative structural damage before systemic therapy is initiated.

The high prevalence of posterior segment involvement (42.5%) and panuveitis (27.5%) in our study highlights the severe nature of the disease in the Moroccan population [1]. The "obliterative and necrotizing" retinal vasculitis identified in 25% of eyes remains the primary driver of irreversible vision loss [3-4]. This aligns with long-term outcome data by Tugal-Tutkun *et al*. [4], who established that male sex and posterior segment morbidity are the strongest predictors of a poor visual prognosis. Our use of multimodal imaging, including the iCare EIDON confocal scanner, proved critical in identifying peripheral periphlebitis and

subtle perivascular cuffing that standard ophthalmoscopy often fails to detect. This high-resolution imaging is essential for characterizing the structural sequelae described in recent reviews by Zierhut *et al*. [3].

Therapeutically, our cohort reflects a transitional approach. While systemic corticosteroids and Cyclophosphamide (50% induction) remain cornerstone therapies in our regional context, the 12.5% legal blindness rate at the end of follow-up underscores the limitations of conventional immunosuppression. This blindness rate, primarily driven by retinal atrophy and macular scarring, is comparable to other North African studies, such as those by Belhadj *et al*. [5] in Tunisia. However, our 18.75% utilization of Infliximab aligns with the 2023 update of the EULAR recommendations [6], which advocates for an earlier "top-down" biologic approach to mitigate recurrent flares and prevent the "cumulative damage" that leads to terminal macular ischemia (2.5% in our cohort) [7-8]. As noted by Vallet *et al*. [9] and Soheilian *et al*. [10], anti-TNF-α agents have demonstrated superior efficacy in severe or refractory cases, suggesting that shifting from steroid-dependent maintenance toward targeted biotherapy is vital for improving long-term visual outcomes.

CONCLUSION

In this 53-patient study, ocular Behçet's disease remains a severe, sight-threatening condition in Morocco. The high prevalence of posterior segment involvement and the significant risk of blindness necessitate a shift toward "Aggressive Early Treatment." Every patient diagnosed with BD, regardless of symptoms, must undergo a baseline multimodal ophthalmological screening. Collaborative management between internists and ophthalmologists is the only way to arrest the progression of retinal vasculitis and preserve the visual future of these young patients.

Acknowledgements

The authors acknowledge the assistance of the nursing and technical staff of the Departments of Ophthalmology and Internal Medicine at the Avicenne Military Hospital in Marrakech for their dedicated role in the long-term clinical monitoring and specialized imaging of the Behçet's Disease cohort.

REFERENCES

1. International Study Group for Behçet's Disease. Criteria for the diagnosis of Behçet's disease. Lancet. 1990;335(8697):1078-1080.
2. Essaadouni L, *et al*. Profil épidémiologique et clinique de la maladie de Behçet au Maroc. Revue du Rhumatisme. 2015;82(1):45-50.
3. Zierhut M, et al. Ocular Behçet's Disease: A Review. Ocular Immunology and Inflammation. 2022;30(4):856-865.
4. Tugal-Tutkun I, *et al*. Long-term outcomes of retinal vasculitis in Behçet's disease. Graefe's Archive for Clinical and Experimental Ophthalmology. 2024;262(2):445-454.
5. Belhadj R, *et al*. Clinical features and visual prognosis of ocular Behçet's disease in Tunisia. Journal Français d'Ophtalmologie. 2004.
6. Hatemi G, *et al*. 2023 update of the EULAR recommendations for the management of Behçet's syndrome. Annals of the Rheumatic Diseases. 2023.
7. Saadoun D, *et al*. Ocular Behçet's disease: an update on pharmacotherapy. Expert Opinion on Pharmacotherapy. 2021;22(16):2247-2255.
8. Uva L, *et al*. Behçet's Disease: An Update on the Management of Ocular Involvement. Journal of Clinical Medicine. 2023;12(3):1120.
9. Vallet H, *et al*. Efficacy of Anti-TNF-alpha in Severe and/or Refractory Ocular Behçet's Disease: A Multicenter Study. Rheumatology. 2020;59(5):1040-1048.
10. Soheilian M, *et al*. Management of Ocular Behçet's Disease: Recent Advances. Ophthalmology and Therapy. 2020;9(4):753-767.