FAITS CLINIQUES

Unilateral Optic disc granuloma as initial presenting sign of ocular sarcoidosis

Granulome papillaire unilatéral comme présentation initiale de sarcoïdose oculaire

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Abstract
Sarcoidosis is a chronic systemic disease of unknown etiology. Ocular involvement may be the revealing feature. All ocular structures can be affected. Uveitis is the main ophthalmologic manifestation. Optic nerve infiltration presenting as sarcoid granulomas is a rare phenomenon, even though very suggestive of this pathology. We herein report an unusual case of a unilateral optic disc granuloma secondary to sarcoidosis.

Résumé
La sarcoïdose est une maladie systémique d'étiologie inconnue. L'atteinte oculaire est parfois révélatrice de la maladie. Toutes les structures oculaires peuvent être atteintes. L'uvéite représente la principale manifestation ophtalmologique. L'infiltration directe du nerf optique, se présentant sous forme de granulomes sarcoïdosiques est un phénomène rare, bien que très évocateur de cette pathologie. Nous rapportons un cas atypique de granulome unilatéral de la papille optique secondaire à une sarcoïdose.

Introduction

Sarcoidosis is a multisystemic granulomatous disease, characterized by the formation of non-necrotizing epithelioid granulomas [1]. It mainly affects young women. Lungs and skin are the most affected organs. Ophthalmologic involvement accounts for 25 to 50% of cases and may be the initial form or precede pulmonary signs over several years [2]. Optic nerve infiltration by sarcoid granulomas is an uncommon phenomenon and is probably the most rarely documented manifestation. Algorithms combining ophthalmological and extra-ophthalmological signs have been suggested for isolated uveitis, allowing this diagnosis to be established, based on different probability levels.

Case report

A 62-year-old woman, with medical history of systemic hypertension, presented with a painless, progressive decrease in vision of the left eye (LE) for one week. Ophthalmological examination of the right eye (RE) was unremarkable. Slit-lamp evaluation of the LE revealed a best corrected visual acuity (BCVA) of 6/10, granulomatous retro corneal precipitates , an anterior chamber cell reaction of 0.5 cross, an intraocular pressure of 13mm Hg, a haze of 2 crosses and a vitreous peripapillary condensation. Fundoscopy of the LE showed a yellowish subretinal lesion, of about three papillary diameters, suggesting an optic disc granuloma, with presence of peripapillary subretinal fluid. Several superficial lesions along the inferior temporal vein, were also noted **(Figure 1).** Fluorescein angiography showed hyper fluorescence of the lesion in early stages with leakage in late stages **(Figures 2b and 2c).** Optical Coherence Tomography (OCT) scan showed a hyperreflective domed-shaped retinal lesion with posterior shading **(Figure 3a)** associated to a SRD nasal to the macula **(Figure 3b).** OCT-Angiography of the LE revealed peripapillary flow defect, corresponding to the optic disc granuloma **(Figure 3c).**

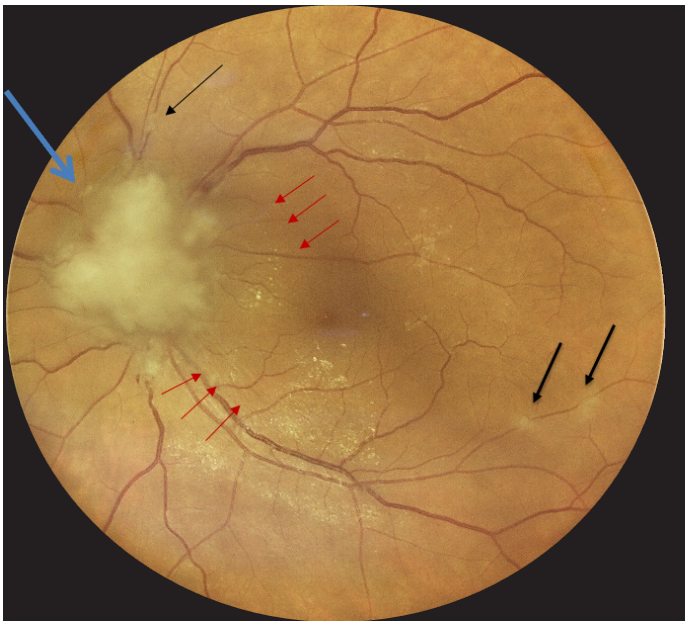

Figure 1. **Fundus photography of the LE revealing three papillary diameter, subretinal yellowish lesion (blue arrow), with subretinal fluid (red arrows), localized in the papillary area. Small superficial lesions were also noted along the inferior temporal vein (black arrows)**

On Goldman visual field, an enlargement of blind spot was noted in the LE. Multimodal imaging of the RE was normal. Cerebro-orbital magnetic resonance imaging (MRI) highlighted the presence of an intra-orbital nodular tissue mass, measuring three millimeters, localized at the origin of the left optic nerve, iso-signal intensity on T1-weighted image and T2-weighted image, with intense and homogeneous enhancement following gadolinium injection (Figure 4). Systemic work-up was performed: Ancillary tests including syphilis, toxoplasmosis, rickettsiosis and bartonellosis serologies, were negative. Anergic tuberculin skin test (TST) and negative QuantiFERON test led to

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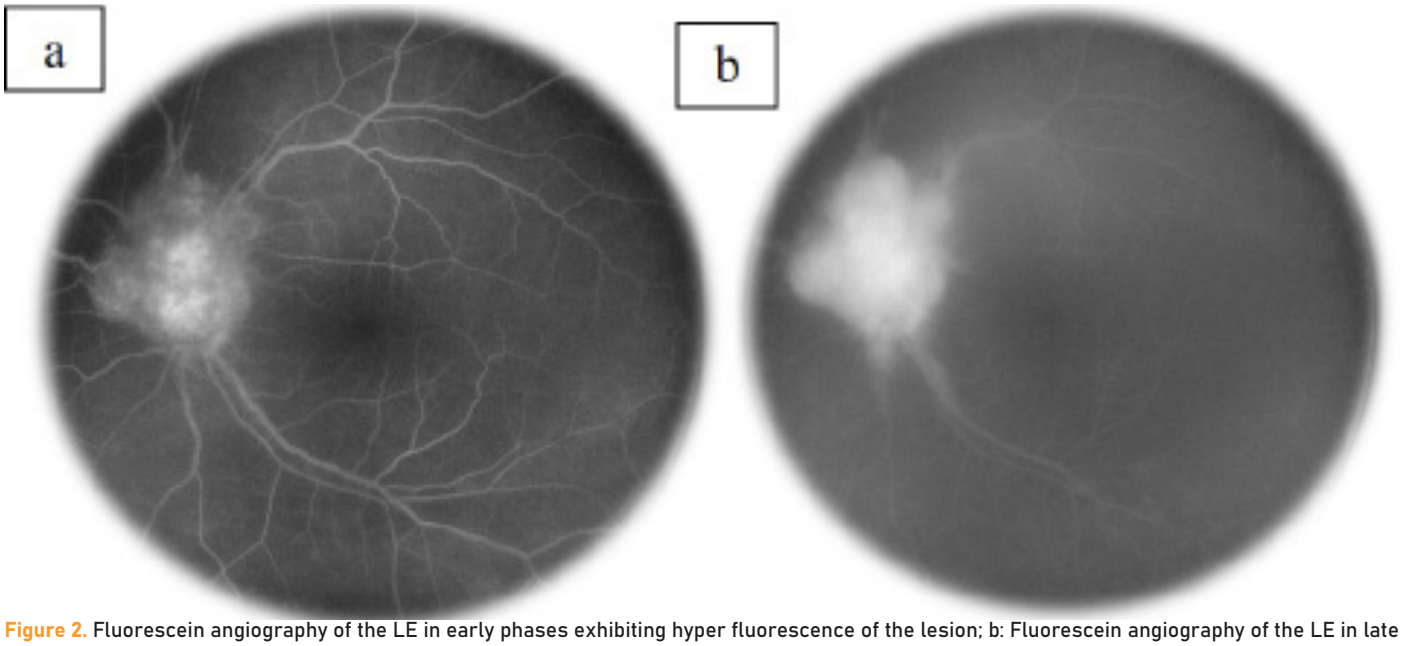

Figure 2. Fluorescein angiography of the LE in early phases exhibiting hyper fluorescence of the lesion; b: Fluorescein angiography of the LE in late stages showing leakage.

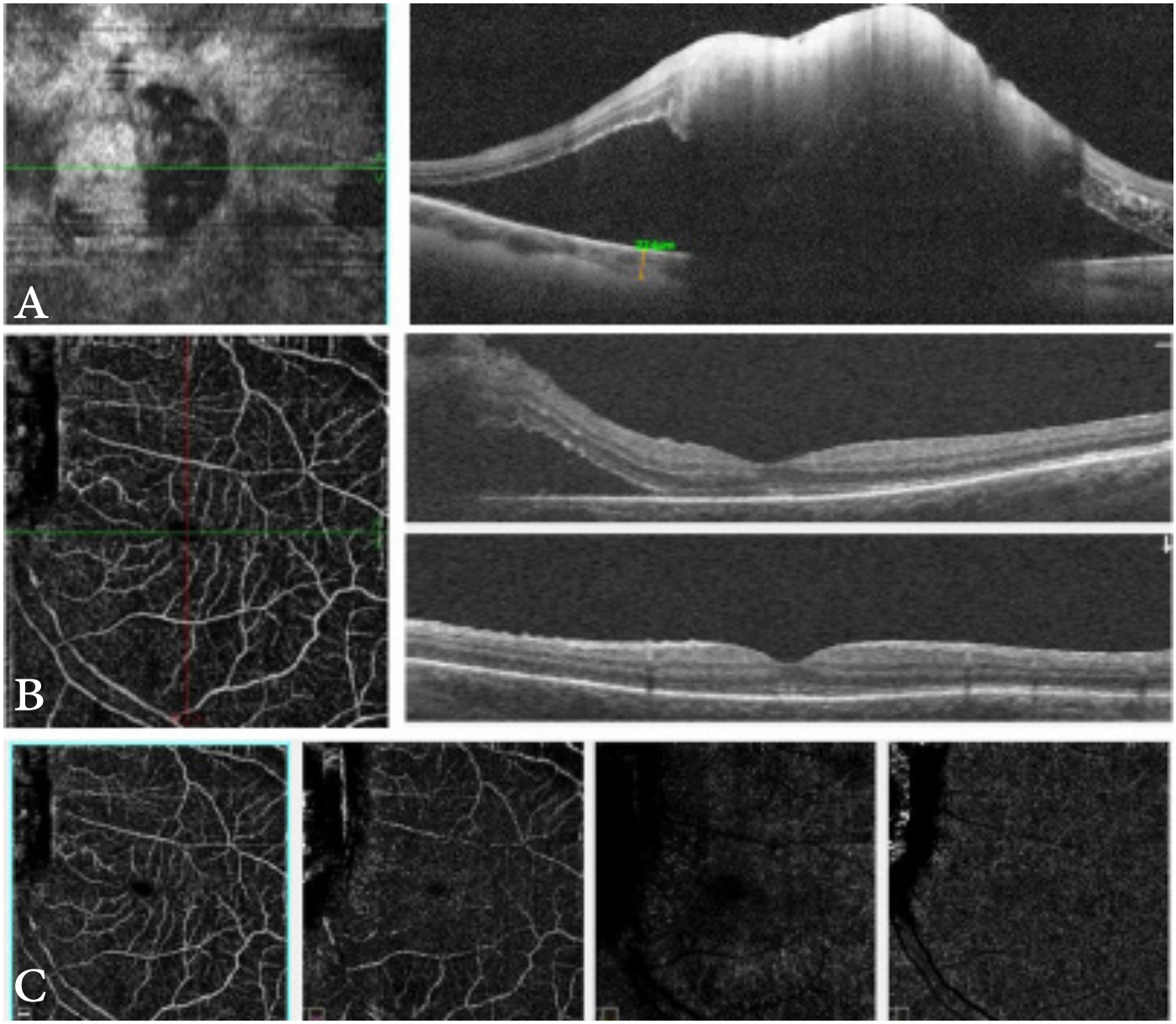

Figure 3. (A) Optical Coherence Tomography scan of the LE passing through the lesion revealing a hyperreflective domed-shaped retinal lesion with posterior shading; **(B)** Macular optical coherence tomography showing a significant serous retinal detachment nasal to the macula; **(C)** OCT-Angiography revealing flow void defect areas, corresponding to the optic disc granuloma.

rule out tuberculosis. Serum ACE level was elevated. Moreover, the chest computerized tomography scan showed a mediastinal enlargement consistent with a diagnosis of sarcoidosis.
In view of the following findings: Ocular signs of granulomatous panuveitis with characteristic optic nerve involvement, bilateral hilar lymphadenopathy, as well as anergic TST, the diagnosis of presumed sarcoidosis was retained. Therapy was started with oral steroids 1 mg per kg body weight along with methotrexate 15 mg per week. At follow-up after 1 month, the visual acuity improved, and the granuloma had decreased in size (Figure5).

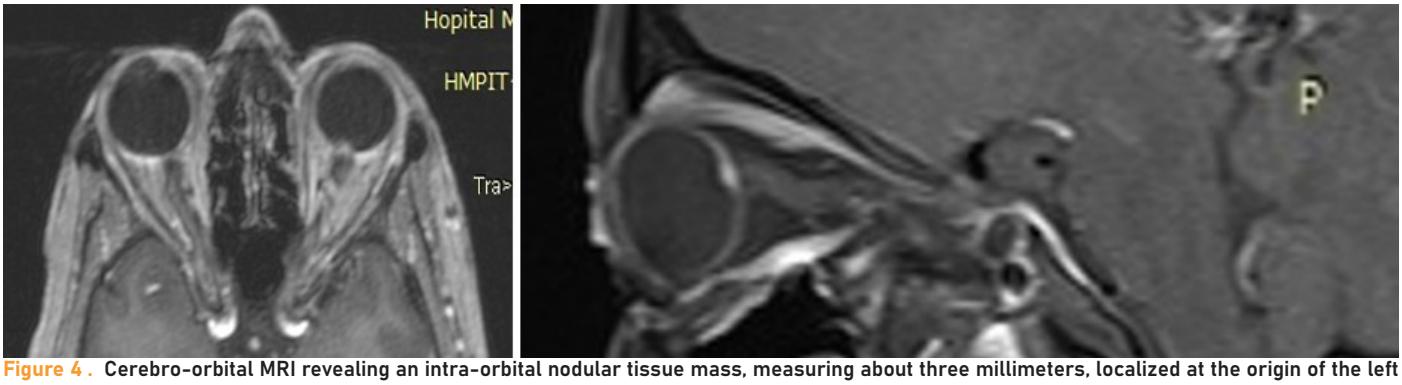

Figure 4 . Cerebro-orbital MRI revealing an intra-orbital nodular tissue mass, measuring about three millimeters, localized at the origin of the left optic nerve, iso-signal intensity on T1-weighted image and T2-weighted image, with intense and homogeneous enhancement following gadolinium injection.

Discussion

All ocular structures can be involved in sarcoidosis. Classical ophthalmological presentation consists of a granulomatous uveitis associated with segmental and focal peri phlebitis as well as peripheral multifocal choroiditis lesions[3,4]. Diagnosis of ocular sarcoidosis is challenging and is often presumed in the absence of histological evidence. Optic nerve involvement occurs in 1% to 5% of cases [5]. This damage ought be recognized and treated rapidly in order to prevent visual field defect and visual deterioration. Optic nerve manifestations are subdivided into five different categories: papilledema secondary to posterior uveitis, papilledema of stasis due to neurosarcoidosis, optic neuritis, optic atrophy resulting from compression or infiltration, and finally primary granuloma of the optic nerve head [6,7]. Indeed, sarcoidosis may affect the optic nerve anywhere along its path up to optic chiasm. Optic disc granulomas can rarely present as the only clinical sign of sarcoidosis. This clinical feature usually presents as a yellowish-white poly-lobed pseudo tumoral mass that can reach the intracranial portion of the optic nerve and the cavernous sinus. It is often associated to exudative signs and venous stasis [8-10]. The CT scan could help in diagnosis, revealing a localized enlargement of the optic nerve with characteristic T2 hyper signal intensity on MRI [11]. The diagnosis is often straightforward in patients with a previous diagnosis of sarcoidosis. One should keep in mind that other infiltrative optic nerve pathologies ought to be ruled out, especially tumoral causes such as lymphomas, achromatic melanomas, and ocular metastases [12], as well as infectious pathologies including tuberculosis, syphilis, toxoplasmosis, and rickettsiosis. Although multimodal imaging plays an important role in establishing this diagnosis, biopsy remains the most accurate means of confirmation. However, intraocular or neural tissue biopsy is usually not performed due to its invasiveness and deleterious effect on the optic nerve. In Hickman's series of 34 optic nerve head granulomas, only two patients had histological confirmation: one after enucleation, and one postmortem [13]. In our case, papillary malignancies were eliminated based on clinical and radiological findings. Likewise, systemic work-up allowed to rule out infectious etiologies.
Based on the revised criteria of the international workshop on ocular sarcoidosis (IWOS), the presence of bilateral hilar lymphadenopathy, mutton-fat retro corneal precipitates, granuloma of the optic nerve head, and anergic TST, the diagnosis of presumed sarcoidosis was established [14]. In posterior uveitis, systemic corticoids are recommended. Corticosensitivity is often the rule in ocular inflammation. In case of cortico-resistance or cortico-dependence, immunosuppressants or even biological agents can be used [15]. Several authors suggest intravitreal dexamethasone implants to improve visual acuity and macular thickness in various ocular conditions such as uveitis [15], including sarcoidosis with posterior involvement.

Conclusion

Sarcoidosis is a systemic pathology with various clinical pictures. Its diagnosis requires collaboration between ophthalmologists and internists. Optic nerve involvement in this condition may result from granulomatous infiltration, along its entire pathway. Papillary granulomas represent a characteristic feature on fundus examination. Treatment is based on rapidly started systemic corticosteroids, with a variable clinical response.

Disclosure of interest

The authors declare that they have no competing interest.

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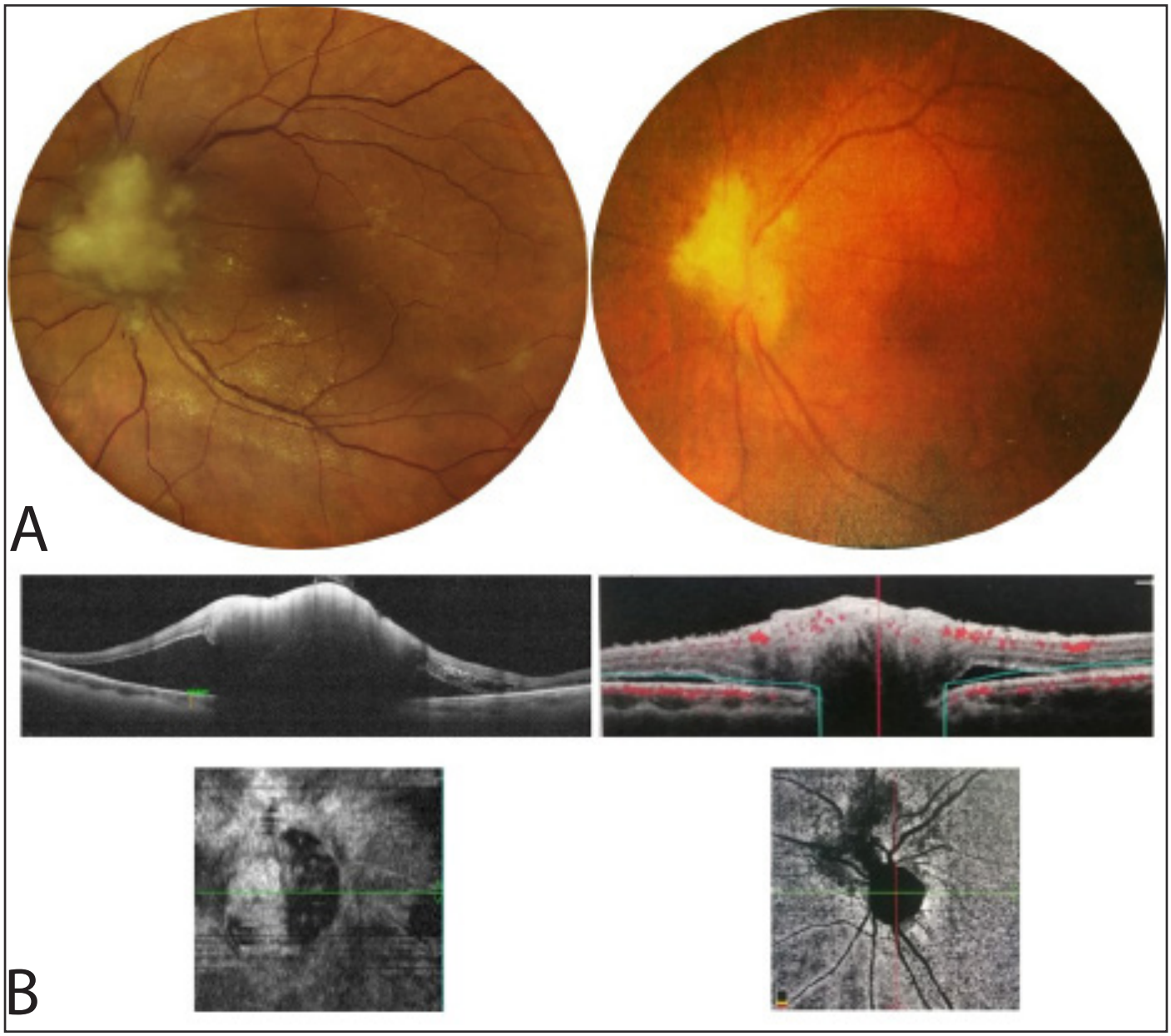

Figure 5. (A,B) Clinical and tomographic evolution at one month follow-up (B) marked by a decrease in the lesion size and regression of the SRD.

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