



# Enfermedades Infecciosas y Microbiología Clínica

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Diagnosis at first sight

## An unusual presentation of uveitis in a HIV-infected late presenter patient

Presentación inusual de uveítis en un paciente HIV late presenter

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### Case description

A 41-year-old woman from Colombia was recently diagnosed with HIV-1 infection. A co-formulated antiretroviral treatment started when her CD4+ count was 13 cells/mm<sup>3</sup> (1.4%) and the HIV-1 viral load was 2,800,289 copies/ml.

In March 2017, the patient was admitted to the Emergency Department (ED) because she had dyspnea, fatigue and fever (39 °C). Thorax radiography revealed a multiple bilateral pulmonary interstitial and nodular pattern. A polymerase chain reaction (PCR) in plasma for cytomegalovirus (CMV) with 26,485 copies/ml and culture for *Mycobacterium avium* (MAC) in bone marrow aspirate were found positive. Therapy with gancyclovir, ethambutol, rifabutin and clarithromycin was started showing good clinical response. Nevertheless, the patient developed a unilateral peripheral CMV retinitis, and intravitreal foscarnet was therefore associated. The patient has a favorable clinical outcome and she was discharged after 45 days.

In October 2017, the patient was seen in the Ophthalmology ED for sudden bilateral blurring of vision, eye redness and ocular pain in both eyes. At this moment her CD4+ count was 165 cells/μl and her plasma viral load was undetectable (<50 copies/ml). The ophthalmologic exploration revealed a bilateral vitritis with no focus of chorioretinitis or vasculitis. The rifabutin based treatment for MAC was stopped and topical therapy with dexamethasone plus cycloplegic was started. After 24 h, visual acuity decreased in patient's right eye and bilateral hypopyon was appeared with increased vitritis in both eyes (Fig. 1).

### Evolution

Anterior chamber (AC) paracentesis was performed and samples were sent to the Pathology and Microbiology Department. Bacteriological and mycological cultures were negative after 48 h and 30 days of incubation respectively. In the Pathology Department two cytospin preparations were stained with Papanicolaou and Giemsa stain respectively. In both smears, numerous polymorphonuclear leukocytes and macrophages were observed, but only in the Papanicolaou stain a significant amount of spores consistent with microsporidia were observed (Fig. 2). These findings were compatible with the acute infectious/inflammatory process.

A second AC paracentesis was performed for the detection of *Toxoplasma gondii* by PCR (RealCycler *T. gondii*, Valencia, Spain), which yielded negative result. A specific PCR for microsporidia (aqueous humor "in house" PCR) was positive, reinforcing the presence of microsporidia spores. Thereafter, albendazole 400 mg/12 h was administered for 7 days regressing both redness and ocular pain. However, visual acuity did not improve because of anterior segment inflammation and dense vitritis; therefore, oral and topic steroids were administered. After 6 weeks of albendazole plus dexamethasone and cycloplegic eye drops and 4 weeks of associated oral prednisone, the patient's visual function improved following her 5th month check up. Other opportunistic infections, inflammatory diseases related to HLA B27/B5 and pharmacology adverse reactions, were ruled out.

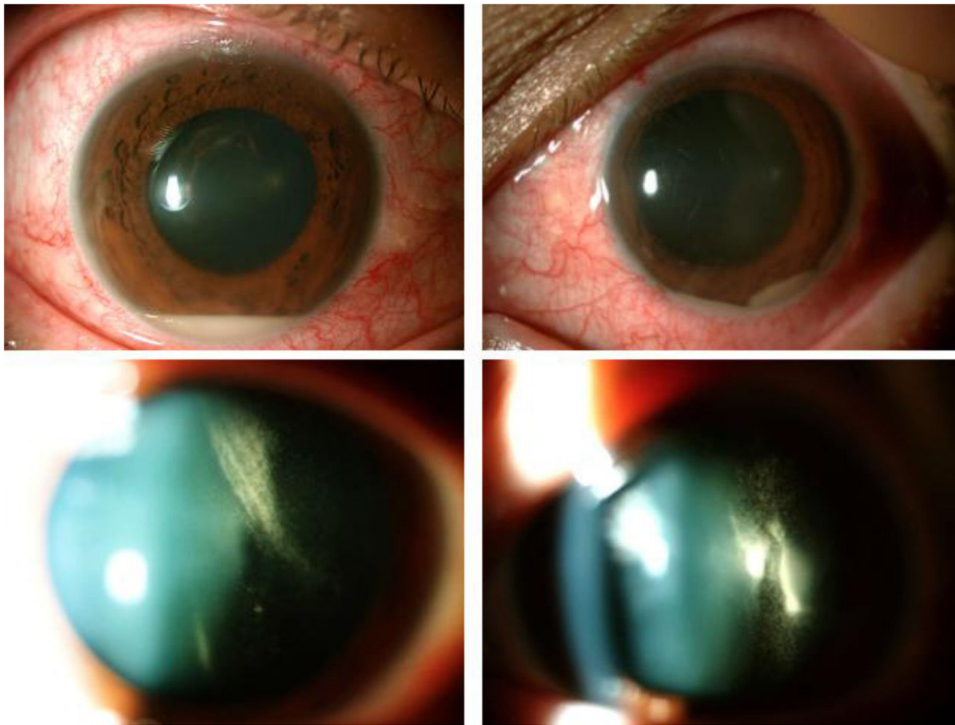
### Discussion

In HIV patients a wide spectrum of differential diagnosis ought to be considered when uveitis appears with hypopyon. Pharmacologic causes must be considered, as rifabutin bilateral associated-uveitis<sup>1</sup> is a well-known entity. In this case, symptoms did not resolve after suspension of rifabutin.

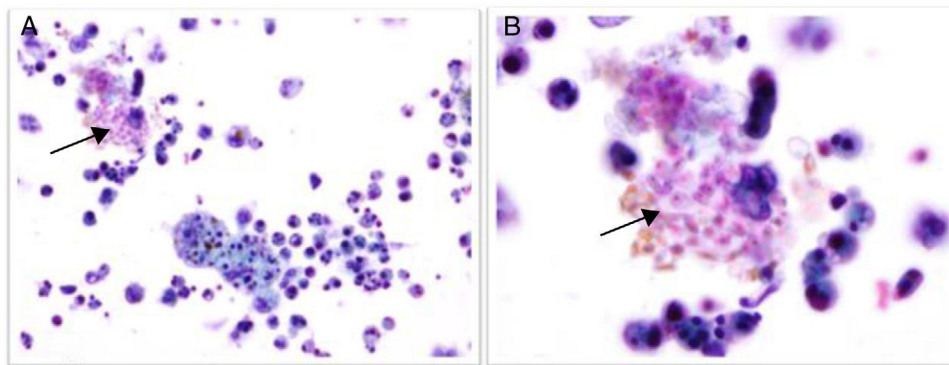
Differential diagnosis of posterior infectious uveitis should be ruled out in an immunocompromised patient: toxoplasmosis and

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**Fig. 1.** Forty-eight hours after onset of symptoms, bilateral hypopyon (LE hypopyon movement after AC tap) and dense vitritis. Visual acuity RE 20/100 LE Hand motion.



**Fig. 2.** A, Acute inflammatory response intermixed with macrophages to Microsporidia infection (Papanicolaou stain; 40 $\times$ ). B, Microsporidia forms (Papanicolaou stain; 100 $\times$ ).

CMV are the most frequent, although herpes zoster and herpes simplex virus play a role as well. Tuberculosis or serpiginous like chorioretinopathy and syphilis should equally be taken into account.<sup>2</sup> Recognized forms of uveitis include intraocular inflammations with occur during or following some emerging infectious diseases: Chikungunya fever, dengue, Zika or Ebola virus disease.<sup>3</sup>

Microsporidiosis has been identified in immunocompromised and immunocompetent hosts.<sup>4</sup> Different species of microsporidia were involved with a broad range of clinical presentations (diarrhea, keratoconjunctivitis, disseminated disease. . .). Microsporidia are intracellular spore forming ubiquitous fungi with a controversial taxonomy.

Ocular involvement with punctate/stromal keratitis has been reported due to several risk factors.<sup>5</sup> Save where uveal involvement has been described in animals,<sup>6</sup> to the best of our knowledge, this is the first case in an HIV patient. Only one case has been reported in an immunocompetent patient concerning uveal involvement.<sup>7</sup>

During the diagnostic process of uveitis, the aqueous humor analysis is mandatory to diagnose of infectious uveitis. A pars plana vitrectomy (PPV) is mainly valuable for diagnosing lymphoma

and non-infectious uveitis of unknown cause.<sup>8</sup> Microsporidiosis detection is challenging and usually remains underdiagnosed. Laboratories should be alerted to the suspected diagnosis, and specific stains (periodic acid-Schiff, silver, Giemsa, acid-fast stains, modified Gram chromotrope and modified trichrome stains)<sup>9</sup> should be performed to identify spore-forming shapes, since routine parasites or fungal examination does not detect microsporidia. Immunofluorescence assays or molecular methods are also useful but they are still not commercialized. PCR assays for detection and identification of microsporidia species have been developed,<sup>10</sup> although they are only performed in specialized laboratories.<sup>9</sup>

Albendazole is effective against microsporidia. The treatment usually lasts for approximately four weeks. In case of confirmed ocular microsporidiosis, urine and respiratory samples should be examined.<sup>6</sup>

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## Conflict of interest

The authors declare that there is no conflict of interest.

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## References

1. Shafran SD, Singer J, Zarowny DP, Deschenes J, Phillips P. Determinants of rifabutin-associated uveitis in patients treated with rifabutin, clarithromycin, and ethambutol for *Mycobacterium avium* complex bacteria: a multivariate analysis. *J Infect Dis.* 1998;177:252–5.
2. Rodríguez A, Calonge M, Pedroza-Seres M, Akova YA, Messmer EM, D'Amico DJ, et al. Referral patterns of uveitis in a tertiary eye care center. *Arch Ophthalmol.* 1996;114:593–9.
3. Oliver GF, Carr JM, Smith JR. Emerging infectious uveitis: Chikungunya, dengue, Zika and Ebola: a review. *Clinical Exp Ophthalmol.* 2019;47:372–80, <http://dx.doi.org/10.1111/ceo.13450>.
4. Didier ES. Microsporidiosis: an emerging and opportunistic infection in humans and animals. *Acta Trop.* 2005;94:61–76, <http://dx.doi.org/10.1016/j.actatropica.2005.01.010>.
5. Yee RW, Tio FO, Martinez JA, Held KS, Shaddock JA, Didier ES. Resolution of microsporidial epithelial keratopathy in a patient with AIDS. *Ophthalmology.* 1991;98:196–201.
6. Pilny AA. Excellence in exotics: case report: *Encephalitozoon cuniculi*-associated phacoclastic uveitis in a dwarf rabbit. *Compend Contin Educ Vet.* 2012;34:E5.
7. Mietz H, Franzen C, Hoppe T, Bartz-Schmidt KU. Microsporidia-induced sclerouveitis with retinal detachment. *Arch Ophthalmol.* 2002;120:864–5.
8. Oahalou A, Schellekens PA, de groot-Mijnes JD. Diagnostic pars plana vitrectomy and aqueous analyses in patients with uveitis of unknown cause. *Retina.* 2014;34:108–14, <http://dx.doi.org/10.1097/IAE.0b013e31828e6985>.
9. Garcia LS. Laboratory identification of the Microsporidia. *J Clin Microbiol.* 2002;40:1892–901.
10. Polley SD, Boadi S, Watson J, Curry A, Chiodini PL. Detection and species identification of microsporidial infections using SYBR Green real-time PCR. *J Med Microbiol.* 2011;60:459, <http://dx.doi.org/10.1099/jmm.0.026781-0>.