Journal of Clinical & Experimental Ophthalmology

Rocha-Cabrera et al., J Clin Exp Ophthalmol 2015, 6:6
DOI: 10.4172/2155-9570.1000508

Case Report Open Access

Uveitis by *Mycoplasma pneumoniae* in Tenerife, Canary Islands: Report of Two Cases

Pedro Rocha-Cabrera[1,3], Luis Cordovés-Dorta[1], Virginia Lozano Lopez[1], Beatriz Rodríguez Lozano[2], María José Losada Castillo[1], Jacob Lorenzo-Morales[3], Miguel Ángel García- Serrano[1]

[1]*Department of Ophthalmology, Hospital Universitario de Canarias, Tenerife, Spain*

[2]*Department of Rheumatology, Hospital Universitario de Canarias, Tenerife, Spain*

[3]*University Institute of Tropical Diseases and Public Health of the Canary Islands, University of La Laguna, Spain*

[*]**Corresponding author:** Pedro Rocha Cabrera, Department of Ophthalmology, Hospital Universitario de Canarias. Tenerife, Spain, E-mail: procha975@yahoo.es

Received date: Sep 23, 2015; **Accepted date:** Dec 27, 2015; **Published date:** Dec 30, 2015

Abstract

Purpose: In this study, two cases of uveitis due to Mycoplasma pneumoniae (MP) are described including the clinical and therapeutic management of both affected patients.

Methods: Retrospective study of two cases of uveitis by MP from a uveitis unit in a University Hospital in Tenerife, Canary Islands, Spain. Two female patients of 46 and 49 years old respectively were admitted to the Canary Islands University Hospital Ophthalmology unit due to the manifestation of acute anterior uveitis, intermediate uveitis and papillitis in their left eyes showing resistance to topical treatment with steroids. Both patients reported to suffer acute pharyngitis that healed without any prescribed treatment a week before admission.

Results: A systemic study was carried out showing IgG and IgM levels against *Mycoplasma pneumoniae* and thus therapy was started. Both patients recovered after treatment with doxycycline and prednisone, without recurrence after a year follow-up.

Conclusions: Mycoplasma pneumoniae is a pathogen capable of producing atypical pneumonia that occasionally manifests by ocular involvement such as uveitis, optic neuritis or papillitis. In the reported cases in this study, positive levels of antibodies levels and previous history of prior infection was able to lead us to a diagnosis and recovering of both patients after treatment.

Keywords: *Mycoplasma pneumonia*; Uveitis; Optic neuritis; Papillitis

Introduction

Mycoplasma pneumoniae (MP) is a pathogen capable of producing the so-called atypical pneumonia, which is a type of pneumonia with an overall prevalence of 22.7% [1]. It is also a causative agent of acute pharyngitis [2]. Extrapulmonary manifestation of this disease has been reported for years and it is often related to neurological complications even fatal encephalitis [3]. Other neurological manifestations of MP include meningitis, poliradiculitis, cerebellar ataxia, myelitis, and Guillain-Barre syndrome as well as haematological disorders such as leukocytoclastic vasculitis or mono or polyarthritis [4,5]. Furthermore, ocular disorders associated to MP have also been reported such as conjunctivitis, anterior uveitis, optic neuropathy, paralysis of the third or sixth cranial nerve, homonymous hemianopia and nystagmus [6]. Interestingly, most of the previously MP reported cases showing extrapulmonary involvement have presented symptoms of respiratory tract infection [7]. Even though, the pathogenic mechanisms involved in this manifestations have not been elucidated although direct invasion, immune system mechanisms, vascular damage and toxic effects due to hypercoagulability have been postulated as possible pathways.

Methods and Case Reports

In this work, a retrospective study of two unusual cases of optic neuritis and posterior uveitis induced by MP in two patients who were admitted at ophthalmology unit of the University Hospital of the Canary Islands (HUC), Tenerife, Canary Islands is presented.

Case 1

A 49 year-old female patient referred to the ophthalmology unit for evaluation of a case of acute anterior uveitis in the left eye and was under treatment by topical prednisone. A week before admission, the patient reported to suffer acute pharyngitis that healed without any prescribed treatment. The patient referred a personal history of allergy to NSAIDs, Arnold neuralgia and lumbar disc herniation.

At this stage, visual acuity in the right eye (RE) was 20/25 (Snellen) and 20/30 in the left eye (LE). Moreover, acute anterior uveitis was observed with Tyndall +/+++ without sinequiae, with pigment deposits in the anterior anterior membrane of the lens and funduscopy showing mild vitritis and initial papillitis without macular edema in the LE (Figure 1). Performance of fluorescein angiography in the LE, showed a stage of papillitis with early peripapillary hyperfluorescence and a start of cystic changes in the macular area by OCT (Figure 2).

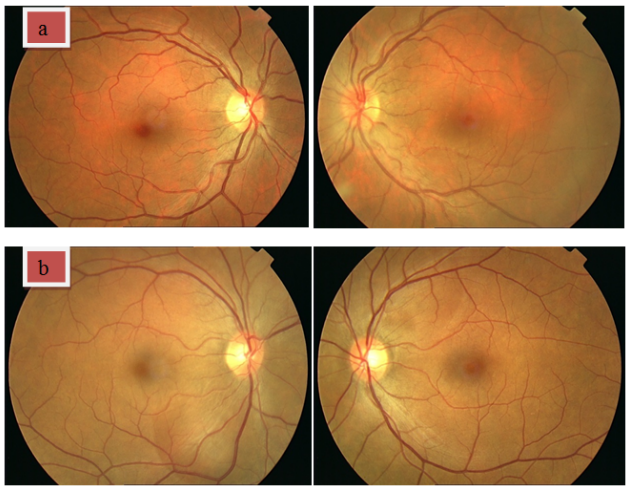

Figure 1: a) Case 1: Bilateral retinography showing signs of initial papilitis with mild vitritis at the left eye. The right eye was normal. **b)** Case 2: Bilateral retinography showing bilateral serous detachments with mild vitritis.

Therefore, patient was prescribed a treatment with topical corticosteroids and oral prednisone regimen at a dose of 1 mg/kg/day and then in a descending pattern. Moreover, a full immunological and infectious disease analysis was requested, showing normal levels in all parameters (Negative levels for ESR 3 mm/h, CRP 0.56 mg/dl, rheumatoid factor, C3, C4, serology for *Bartonella, Coxiella, Borrelia, Chlamydia pneumoniae*, HSV 1 and 2, Mantoux and MRI) without significant alterations with the exception of positivity for MP IgM and IgG levels (1/320 for both). At this stage, the patient was prescribed 100 mg every 24 h of doxycycline for a month. Examination of the patient after treatment displayed that the CV showed a small residual superior arciform defect in the LE (Figure 3) and a visual acuity of 20/25 in the RE and 20/20 in the LE without activity in the anterior chamber, without vitreous floccules or bilateral macular edema (Figure 4). Two months later, MP IgM was analyzed again, being the patient negative at this stage. The patient was followed-up for a year without showing any signs of recurrence.

Case 2

A 46 year-old female patient with a previous history of Hashimoto thyroiditis was referred to the ophthalmology unit due to a gradual loss of visual acuity. A week before admission, the patient reported to suffer sore throat that healed without treatment. At this stage, visual acuity was 20/100 in the RE and 20/70 in the LE and patient observation ended up with diagnosis of a case of posterior uveitis with multiple serous detachments located peri-papillary to the posterior pole (Figure 1 and 2). Therefore, patient was admitted for the administration of intravenous corticosteroids bolus showing a significant improvement in her condition after treatment. At this stage, uveitis due to Vogt-Koyanagi-Harada syndrome was discarded since analyses were negative to CBC, ESR, CRP, RF, C3, C4, *Bartonella, Coxiella, Borrelia, Chlamydia pneumoniae*, HSV-1 and 2, NMR and Mantoux. However, IgG and IgM levels for MP were 1/320 in both cases and thus patient was prescribed prednisone in decreasing doses and 100 mg of doxycycline every 24 h for a month. Examination of the patient after treatment showed improvement in visual acuity 20/25 in both LE and RE. Moreover, intrinsic motility with a slightly reactive to light bilateral mydriasis with no light-near dissociation was observed. Pilocarpine test was performed at this stage, showing bilateral tonic pupils compatible with the disruption of the axoplasmic transport of any nature (including a previous infection). Eye fundus showed disappearance of serous detachments, residual visual field exhibited bilateral arciform scotoma (Figure 3) and macular OCT did not displayed serous detachments (Figure 4). Two months later, MP IgM and IgG were analyzed again, being the patient negative at this stage. The patient was followed-up for a year without showing any signs of recurrence.

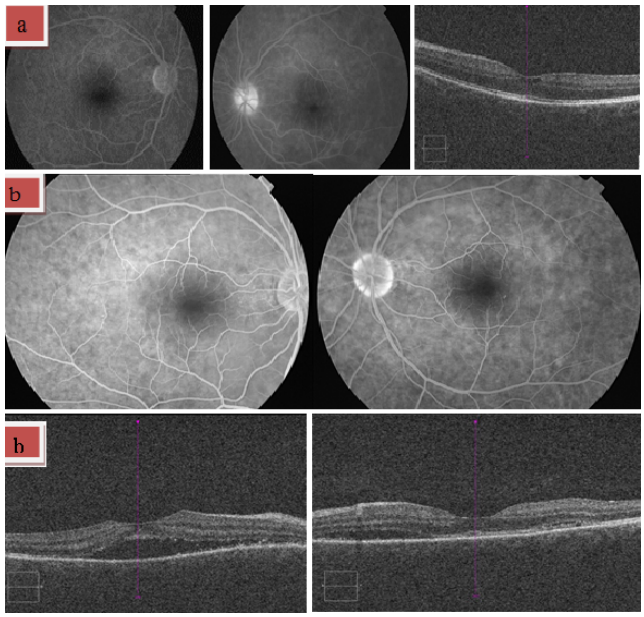

Figure 2: a) Case 1: Fluorescein angiography showed early hyperfluorescence (during the first minute) in the left eye compared to the contralateral eye compatible to signs of papillitis. The macular OCT showed cystic changes in the LE at the foveolar level. **b)** Case 2: Fluorescein Angiography showed congestion at the bilateral papillar level with multiple serous detachments or subretinal fluid during the first minute. The macular OCT showed bilateral serous detachments or bilateral subretinal fluid.

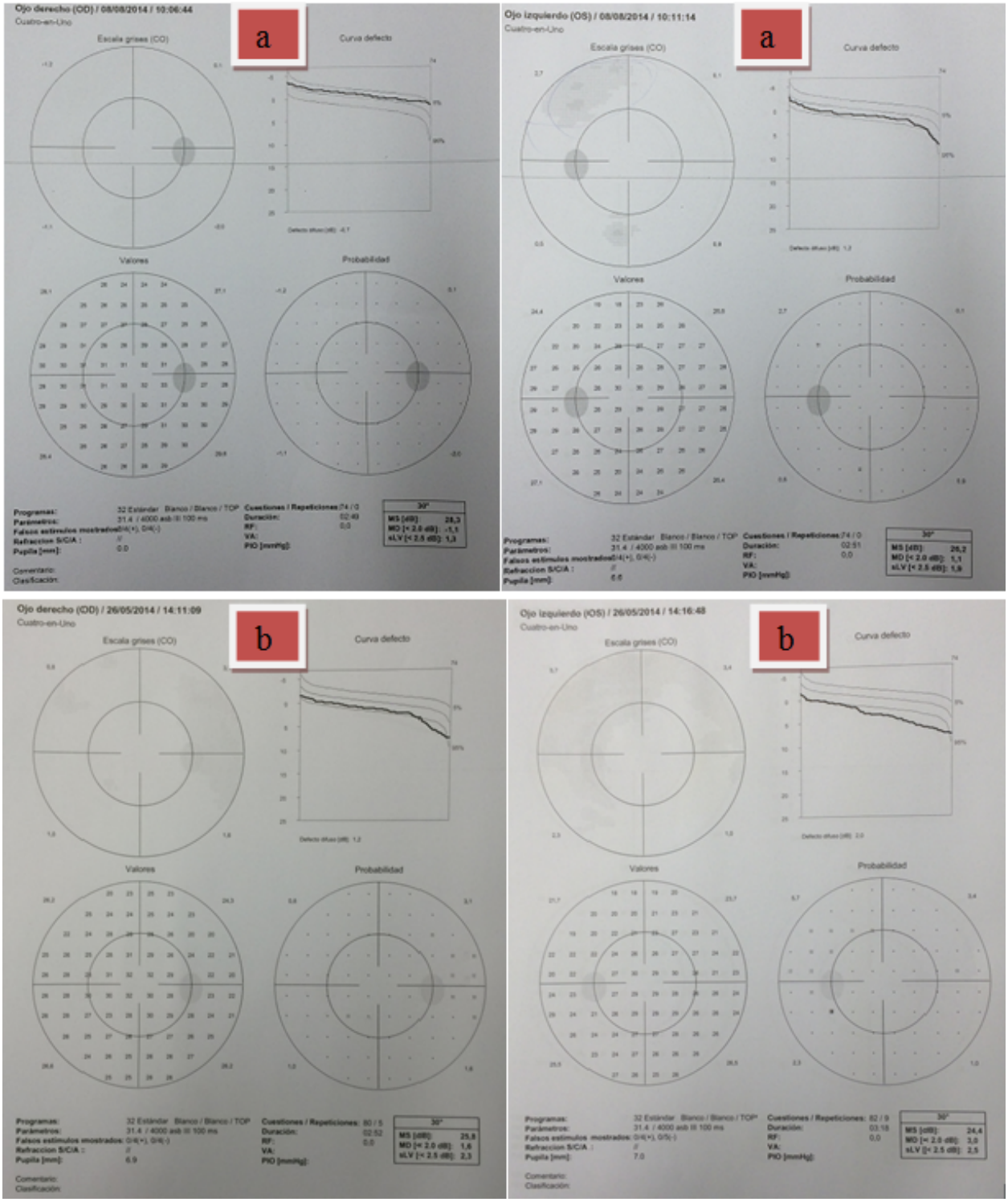

Figure 3: a) Case 1: perimetry performed by TOP strategy (Octopus®) showed a small residual superior arciform defect in the Left eye. **b)** Case 2: perimetry performed by TOP strategy (Octopus®) showing that the residual visual field exhibited bilateral arciform scotoma.

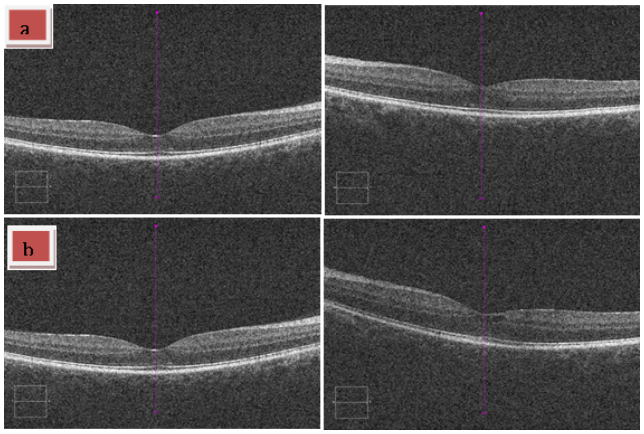

Figure 4: Macular OCT was normal after treatment in case 1. Patient reported in case 2 condition improved regarding the presence of serous detachments/subretinal fluid although a few intraretinal peri-foveal cysts still remained. a) Patient 1. b) Patient 2.

Discussion

Extrapulmonay manifestations of MP should be taken into account since they could be potentially dangerous. Therefore, in the case of patients with positive levels of MP antibodies, prescription of MP treatment is necessary. Otherwise, patients could evolve to fatal neurological disorders [3]. Moreover, at least 7% of hospitalized patients with MP present CNS symptoms that are a number that should be considered [10]. Even though presentation of papillitis is a rare event, it has been previously described in three cases in the literature [3,5,11]. Moreover, the reported cases in this study are unusual since optic nerve disorders related to MP are normally reported in children [12], being a rare event in adults.

Evaluation of MP should be carried out by checking IgG and IgM titers in suspected patients, especially if respiratory tract involvement is reported previous to ocular manifestation of the disease. Therefore, patients presenting uveitis and a previous stage of respiratory tract infection should be checked for MP. Moreover, once diagnosed, treatment including macrolides or tetracyclines should be started early in order to shorten the course of uveitis and avoid ocular complications in the affected patients [13]. Previously reported cases of uveitis due to MP have responded positively to treatment with erythromycin and topical steroids or ciprofloxacin [14].

The mechanism by which Mycoplasma infection may cause uveitis is unknown. The available literature postulates that uveitis by MP could be cause by direct invasion of the affected organ, autoimmune reactions, vascular lesions, hyper coagulation stages and toxic effects [14]. In the reported cases in this study, colonization could have started in the oropharynx with the formation of immune complexes after antigen presentation by macrophages or monocytes, inducing an immunological response cascade. In fact, circulating immune complexes have been previously identified in the serum of patients [6]. Therefore, another potential mechanism may be the deposition of circulating immune complexes in the vessel walls of the ciliary body, triggering a type III hypersensitivity reaction with a subsequent inflammatory response as it has been previously postulated by other authors [15]. Additionally, it has been shown that MP induces a strong inflammatory response in macrophages derived from the Toll-like receptors 2 and 4 [16]. This fact suggests that the immune mechanism could probably be the cause of uveitis and optic neuritis in our patients. Thus, this possible immunological reaction mechanism supports the beneficial use of corticosteroids treatment if MP infection is suspected in cases of uveitis [14, 16].

In conclusion, patients reporting a previous stage of pneumonia or pharyngotonsillar involvement followed by uveitis should be checked for MP infection using antibody tittering since early treatment could improve the prognosis of these patients.

References

1. Hardy RD (2012) Infections due to mycoplasmas. In: Longo DL (editor). Harrison´s Principles of Internal Medicine (18th edn), McGraw-Hill Medical, New York 1417-1420.
2. Salzman MB, Sood SK, Slavin ML, Rubin LG (1992) Ocular manifestations of Mycoplasma pneumoniae infection. Clin Infect Dis 14: 1137-1139.
3. Ginestal RC, Plaza JF, Callejo JM, Rodríguez-Espinosa N, Fernández-Ruiz LC, et al. (2004) Bilateral optic neuritis and Guillain-Barré syndrome following an acute Mycoplasma pneumoniae infection. J Neurol 251: 767-768.
4. Pfausler B, Engelhardt K, Kampfl A, Spiss H, Taferner E, et al. Post-infectious central and peripheral nervous system diseases complicating Mycoplasma pneumonia infection. Eur J Neurol 9: 93-96.
5. Perez C, Mendoza H, Hernandez R (1997) Leukocytoclastic Vasculitis and Polyarthritis associated with Mycoplasma pneumonia infection. Clinical Infectious Diseases 26:154-155.
6. Milla E, Zografos L, Piguet B (1998) Bilateral optic papillitis following mycoplasma pneumoniae pneumonia. Ophthalmologica 212: 344-346.
7. Wei-Yu C, Hsiu-Mei H (2014) Bilateral monosymptomatic optic neuritis following Mycoplasma penumoniae infection: A case report and literature review. Ophthalmology practice. 62: 724-727.
8. Tsiodras S1, Kelesidis I, Kelesidis T, Stamboulis E, Giamarellou H (2005) Central nervous system manifestations of Mycoplasma pneumoniae infections. J Infect 51: 343-354.
9. Guo ZN, Zhang HL, Bai J, Wu J, Yang Y (2012) Meningitis associated with bilateral optic papillitis following Mycoplasma pneumonia infection. Neurol Sci 33: 355-358.
10. Guleria R, Nisar N, Chawla TC, Biswas NR (2005) Mycoplasma pneumoniae and central nervous system complications: a review. J Lab Clin Med 146: 55-63.
11. Bae JW, Kim HJ, Chang GY, Kim EJ (2011) Combined Striatum, Brain Stem, and Optic Nerve Involvement due to Mycoplasma pneumoniae in an Ambulatory Child. Case Rep Neurol 3: 109-112.
12. Candler PM, Dale RC (2004) Three cases of central nervous system complications associated with Mycoplasma penumoniae. Pediatr Neurol 31: 133-138.
13. Weinstein O, Shneck M, Levy J, Lifshitz T (2006) Bilateral acute anterior uveitis as a presenting symptom of Mycoplasma pneumoniae infection. Can J Ophthalmol 41: 594-595.
14. Yashar SS, Yashar B, Epstein E, Viani RM (2001) Uveitis associated with Mycoplasma pneumoniae meningitis. Acta Ophthalmol Scand 79: 100-101.
15. Shimizu T, Kimura Y, Kida Y, Kuwano K, Tachibana M, et al. (2014) Cytadherence of Mycoplasma pneumoniae Induces Inflammatory responses through autophagy and Toll-like Receptor 4. Infect Immun. 82: 3076-3086.
16. Gücüyener K, Simşek F F, Yilmaz O, SerdaroÄŸlu A (2000) Methyl-prednisolone in neurologic complications of Mycoplasma pneumonia. Indian J Pediatr 67: 467-469.