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Case Report

Neuroretinitis Syphilis in Human Immunodeficiency Virus-Infected Patient

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Abstract

BACKGROUND: In HIV-infected patient who accompanied by syphilis often difficult to diagnose and difficult to treat. The aim is to diagnostics understanding and to optimise the management and response therapy in patients with neuroretinitis syphilis in HIV-infected patients.

CASE PRESENTATION: A 53-years old, bisexual, male patient whose initial presentation was a blurry vision on the left eye. History of a painless genital lesion, HIV infection (+) on ARV therapy. The visual acuity of hand movement (HM), RAPD (+), with vitreous opacities and optic disc swelling. The OCT RNFL showed neural layer thickening in all areas. VEP showed increased P100 latency, normal head and orbital CT scan. High VDRL and TPHA titer. Lumbar puncture examination showed non-reactive VDRL. Treated with topical prednisolone eye drops, oral neurotropic vitamin, and intramuscular injection of Benzathine Penicillin G. Diagnosed with OS neuroretinitis *et causa* syphilis infection, HIV stage II on HAART. Follow up in 2 months, the visual acuity improved, and serology post-therapy VDRL was decreased.

CONCLUSION: High accuracy is needed for screening signs and symptoms in syphilis patients because of the varied clinical manifestations. Ocular syphilis manifestation in HIV has a higher risk for neurologic complications and the risk of failing treatment with the standard regimen.

Introduction

Optic neuritis is an inflammation of the optic nerve which is caused by the demyelinating process. Based on its location, optic neuritis can be categorised into retrobulbar neuritis, papillitis, polyneuritis, and neuroretinitis. Neuroretinitis typically occurs in the third or fourth decade with symptoms of blurry vision in one or both eyes [1], [2], [3], [4].

The most common cause of neuroretinitis is cat scratch disease, toxoplasmosis, leptospirosis, mumps, herpes simplex, salmonella, Lyme disease, and syphilis. Syphilis is a well-known infectious and chronic disease caused by Treponema pallidum. Syphilis has numerous presentations and can imitate many other infections, in advanced stages can caused immune-mediated processes. Hence, it has earned the nickname “The Great Imitator” [7], [8].

The incidence of ocular syphilis is 231 cases (0.65%) of all syphilis cases at 2015, with the proportion of men who have sexual intercourse with men and HIV-infected patients which is consistent with syphilis epidemiology in the United States. The incidence of ocular syphilis in Indonesia is very rare; only 0.3% of the total incidence of syphilis. Involvement of ocular in syphilis infection mostly occurs unconsciously, with most often clinical sign is decreased visual acuity [4], [5], [6].

Antibiotic gives better results on neuroretinitis syphilis, but corticosteroids usages have been controversial. The goal of this case report is to understand the diagnosis and management of syphilis neuroretinitis in HIV-infected patients and the results of the therapy given.

Case Presentation

A 53-years old, bisexual, male patient whose initial presentation was a blurry vision on the left eye for seven months and getting worse since last month.

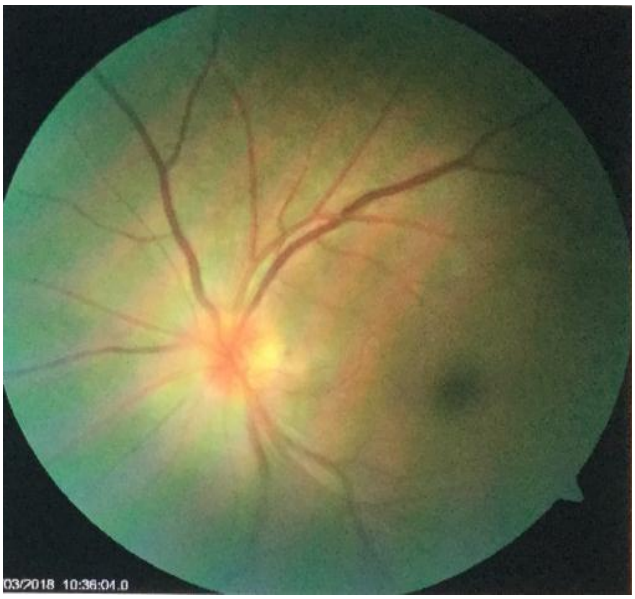

Figure 1: Fundus photography at first examination on the left eye when the patient first came to the ophthalmology clinic.

History of the genital wound with discharge three years ago, but resolve without treatment. The last unprotected sex was three years ago. History of decreasing body weight of about ten kilograms in two months. On that time, the patient was diagnosed with HIV infection. The last absolute CD4+ count 220 cells/uL. The patient was on treatment antiretroviral (ARV).

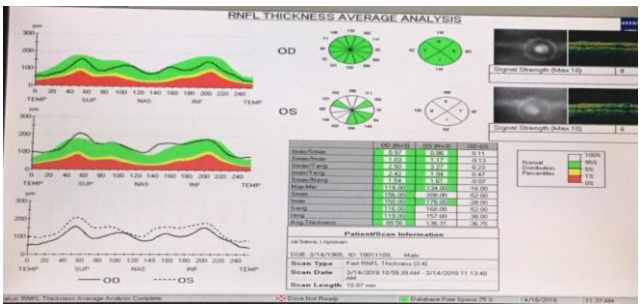

Figure 2: Optical Coherence Tomography (OCT) on the left eye when the patient first came to the ophthalmology clinic.

Ophthalmology examinations on the left eye, the visual acuity of hand movement (HM), relative afferent pupillary defect (RAPD) positive, with vitreous opacities, optic disc swelling, and not well-demarcated optic disc border. Cup disc ratio (CDR) difficult to evaluate, the arterio-venous ratio is 2:3. Macula reflex positive. Intraocular pressure was normal. Contrast sensitivity, Visual field, Ishihara test, and Farnsworth can't be evaluated. The Optical Coherence Tomography (OCT) examination showed neural layer thickening in all areas with central macular thickness was 386 µm.

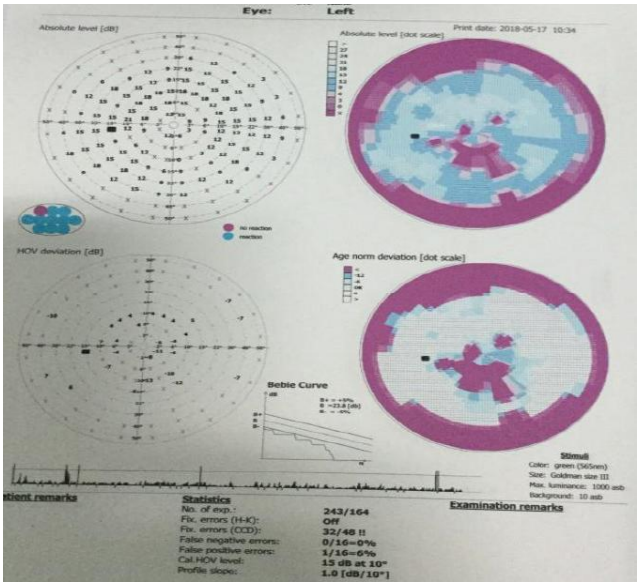

Figure 3: Visual Field Findings on the left eye when the patient first came to the ophthalmology clinic

The patient is referring to the Department of Dermatology and Venereology and Department of Neurology. The laboratory results showed the titer of VDRL 1: 2048, TPHA 1: 5120. Visually Evoked Potential (VEP) showed increased P100 latency, normal head and orbital CT scan.

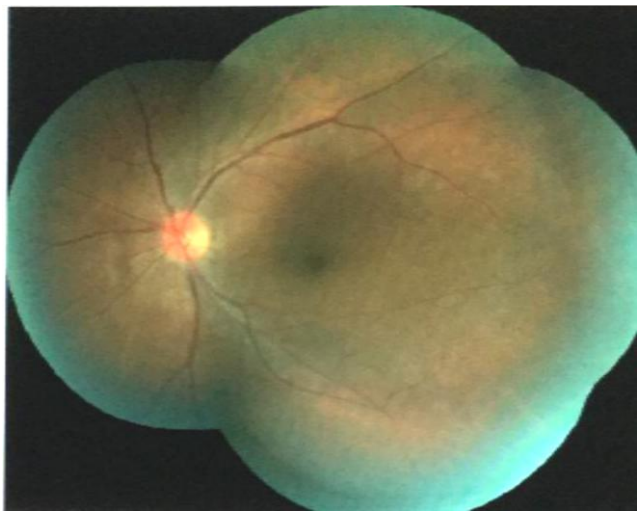

Figure 4: Fundus photography after two months of treatment on the left eye

The patient was treated with topical prednisolone eye drops and oral neurotropic vitamin.

The patient has been monitored for the duration of treatment. Follow up in two months showed visual acuity became 6/15 and 6/12 with a pinhole on the left eye, CDR 0.3, the arterio-venous ratio is 2:3. Macula reflex positive. Intraocular

pressure was normal. Contrast sensitivity, visual field, Ishihara test, and Farnsworth were within normal limits. The OCT examination was normal. Central macular thickness had been decreased to 376 µm. Serology VDRL 1:512 after one-month post treatment.

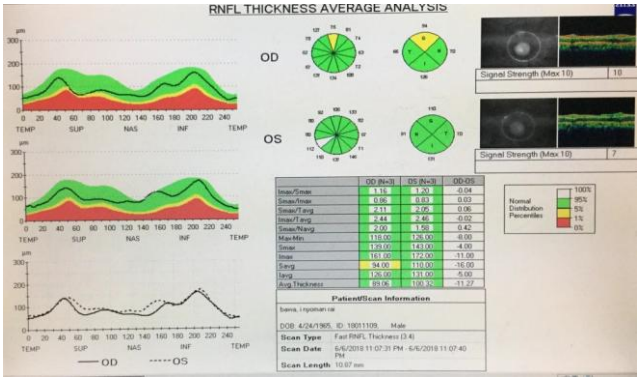

Figure 5: Optical Coherence Tomography (OCT) retinal nerve fibre layer (RNFL) after two months of treatment on the left eye

Discussion

Syphilis is a well-known infectious and chronic disease caused by *Treponema pallidum*. Syphilis has numerous presentations and can imitate many other infections, in advanced stages can caused immune-mediated processes. Hence, it has earned the nickname "*The Great Imitator*" [7], [8].

Men are affected more frequently with primary or secondary syphilis than women. The past decade has found a significant increase in syphilis cases among men, driven mostly by the Men who have sex with men (MSM) community. MSM accounted for 83.7% of all syphilis cases in the United States [9].

Based on its location, optic neuritis can be categorised into retrobulbar neuritis, papillitis, polyneuritis, and neuroretinitis. The most common causes of neuroretinitis are cat scratch disease, toxoplasmosis, leptospirosis, mumps, herpes simplex, salmonella, Lyme disease, and syphilis. Neuroretinitis typically occurs in the third or fourth decade with symptoms of blurry vision in one or both eyes [10].

Decreasing visual acuity mostly followed by visual field disturbance in central scotoma or cecocentral scotoma. The specific sign found in neurosyphilis is weakened of pupillary (pupil response to light slowly disappear) but responds to accommodation, this condition called Argyll Robertson Pupil [10].

A further diagnostic examination that can be done was OCT, perimetry, VEP, fundus fluorescein angiography (FFA), complete laboratory examination. Generally, VEP examination of optic neuritis shows P100 extended, latency, and relatively normal amplitude. P100 extended due to signals interference to the sensory system due to decrease in conduction velocity and the presence of lesions that make deceleration of axon, those conditions were found in 90% of cases [4], [11], [12].

Syphilis neuroretinitis is confirmed by a serological test. Unlike other bacteria, *Treponema pallidum* cannot be cultured. The serological test can be divided into two, which is Non-Treponemal Test and Treponemal Test. Non-Treponemal Test such as Venereal Diseases Research Laboratory test (VDRL) used for screening and monitoring therapy. Treponemal test such as the Treponemal Pallidum Haemagglutination Assay Test (TPHA), used as confirmed test for syphilis because it has a higher sensitivity and specificity, it can detect antibodies in small amounts, and their appearance will last for a lifetime, but this test cannot be used as therapeutic monitoring [13], [14].

The differential diagnosis of neuritis syphilis is papillary oedema and compressive optic neuropathy. Papil oedema is most frequently caused by increased intracranial pressure. Usually patients complain of headache, nausea and vomiting. In acute papillary oedema, optic nerve function, sharp sharpening and colour vision are generally normal. RAPD can be normal, bilateral, with an enlarged blind spot. Compressive optic neuropathy was found in patients with intraorbital or intracranial compression lesions with a sharp decrease in progressive exposure. RAPD is found and loses the monocular field of view [2].

Syphilis patient in HIV-infected has a higher risk to be a neurologist complication and failure outcomes with standard therapy. Some researcher showed that antiretroviral could improve the HIV-infected patient with syphilis [15].

The prognosis of syphilis in HIV-infected patient is influenced by therapy for both syphilis and HIV infections. Neurological monitoring and examination should be done when the patient was on treatment because it can lead to neurosyphilis complications in HIV-infected patient. Recurrency and failure of treatment in HIV-infected patients are higher than patients without HIV. So, clinical and serological monitoring need to be done [13], [16], [17], [18].

Patients were informed to continue the antiretroviral treatment, advised not having sex, especially unprotected sex.

In conclusion, ocular syphilis manifestation in HIV has a higher risk for neurologic complications and the risk of failing treatment with the standard regimen. This patient was treated with Benzathine Penicillin G, topical prednisolone eye drops, oral neurotropic vitamin and antiretroviral. At the end of follow up, showed improvement of visual acuity and decreased of VDRL titer.

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