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A 61-Year-Old Woman with Ocular Syphilis Presenting As Floaters in Eye

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Abstract

A 61-year-old woman visited to eye clinic as she had floaters in left eye. She had diabetes mellitus and hypertension. Localized retinal hemorrhages with occult neovascularization/ vasculitis were seen in fundus examination. Optical Coherence Tomography Angiogram (OCTA) of left eye revealed clinically occult neovascularization. Blood for VDRL, TPHA, and Syphilis chemiluminescence immunoassay (CLIA) were positive. She was treated successfully with benzathine penicillin and laser photocoagulation. Her husband had positive test for TPHA and treatment was given too.

Keywords: Floaters; Retinal hemorrhages; Vasculitis; Neovascularization; Syphilis

Introduction

Syphilis is a sexually transmitted disease caused by Treponema pallidum. Previously known as the "great imitator", it has numerous and complex manifestations particularly in secondary and tertiary syphilis. Ocular involvement in acquired syphilis is rare, tending to occur during the secondary and tertiary stages of the disease. It is a form of neurovascular syphilis; however, it may be primary syphilis [1]. Syphilis may affect all the structures of the eye [2]; therefore, syphilis serology is advised for any patient with unknown intraocular inflammation. Uveitis was reported as the most common ocular finding [3-5]. Generally, contact tracing and proper treatment are essential in both treatment and cure of syphilis. Early diagnosis and appropriate treatment are important for visual prognosis [6]. The diagnosis of ocular syphilis requires screening with a non-treponemal serology and confirmation with a treponemal-specific test [7-10]. With proper diagnosis and prompt antibiotic treatment, the majority of cases of ocular syphilis can be cured. Parenterally administered penicillin G is considered first-line therapy for all stages of ocular syphilis. Systemic corticosteroids and intravitreal bevacizumab are indicated in for posterior uveitis, scleritis and optic neuritis if ocular inflammation is severe [11-12]. Prolonged follow-up is necessary because of the possibility of relapse of the disease.

Causes of retinal hemorrhages are trauma, blood dyscrasia, diabetes mellitus, hypertension and infections; bacterial, viral and parasites. Fundoscopic examination is essential to see the pattern/shape of hemorrhage and its distribution. Optical Coherence Tomography Angiogram (OCTA) of eye is non-invasive examination; it clearly demonstrates vascular pattern, hemorrhages and neovascularization.

Case Presentation

A 61-year-old woman visited to eye clinic with complaint of floaters in left eye for one month duration. There was no complaint of reduced vision, seeing flashing of light and loss of visual field defect. There was no history of ocular trauma and surgery. She has diabetes mellitus for 17 years; well controlled with metformin, gliclazide and sitagliptin. She also has hypertension for same duration and controlled with amlodipine and enalapril. She had total abdominal hysterectomy and bilateral salpingo-oophrectomy in 2000 due to molar pregnancy (H. Mole).

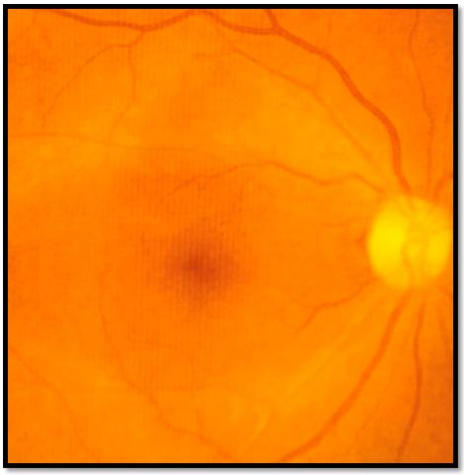

Figure 1: *Dilated fundus examination of right eye revealing unremarkable findings in optic disc and macula.*

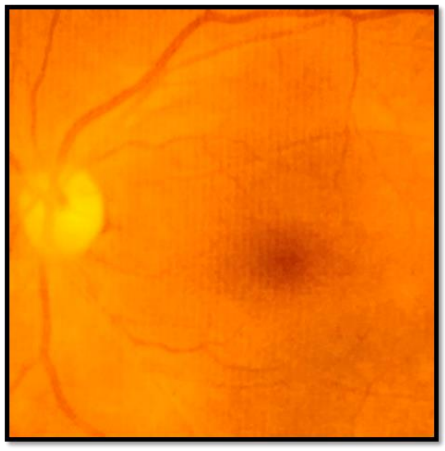

Figure 2: *Dilated fundus examination of left eye revealing unremarkable findings in optic disc and macula.*

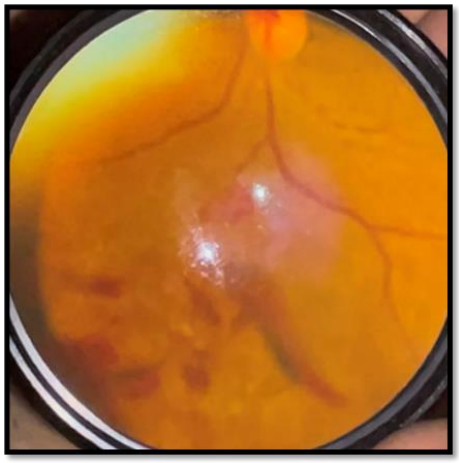

Figure 3*: Peripheral retinal examination of Left Eye showing active localized hemorrhages toward the vitreous face.*

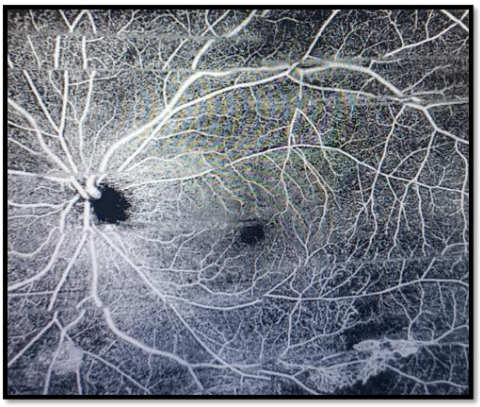

Figure 4*: Optical Coherence Tomography Angiogram (OCT angiography) of left eye revealed clinically occult neovascularization elsewhere (NVEs) at the site of active bleeding area.*

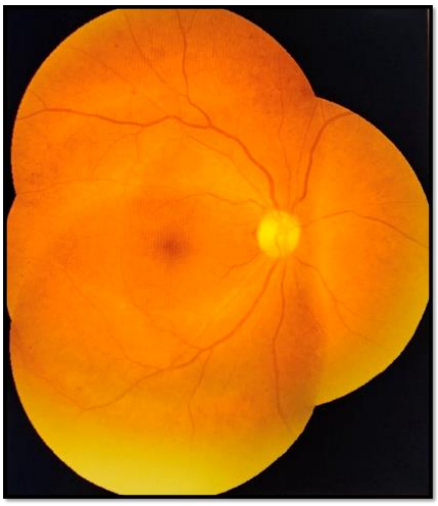

Figure 5*: Fundus right eye at 3 months.*

She received 12 units of blood transfusion for torrential bleeding per vagina. She also had carcinoma breast; she underwent right

mastectomy in 2022. She had ischemic heart disease and she has been on aspirin. Ocular Examination, visual acuity on right eye was 6/12 Unaided and 6/9 with glasses; left was 6/36 Unaided and 6/9 with glasses. Intraocular pressure was normal; 18.3 mmHg on right and 17.9 mmHg on left. Cornea, anterior chamber, pupils and anterior vitrous were normal. Early cortical cataract was noted in both eyes. Visual field test of both eyes by confrontation was normal. Fundus examination of the both eyes (after dilatation) was unremarkable in optic disc and macula as shown in (Figures 1 and 2). Peripheral retinal examination of Left Eye revealed abnormalities: focal retinal vasculitis areas were noted along the infero-temporal quadrant at about 5-disc diameter away from the optic disc; the spots were active localized hemorrhages toward the vitreous face; PVD was not yet developed; there was no evidence of an associated retinal break and tear. (Figure 3) reveals peripheral retinal examination of Left Eye showing active localized hemorrhages toward the vitreous face. There was no evidence of hypertensive retinopathy or proliferative diabetic retinopathy. Blood pressure was 130/80 mmHg; pulse rate was 75/minutes; sinus rhythm; carotids were normal; neurological examination revealed no evidence of tabo-paresis; higher cortical function and cranial nerve examination were normal; pupils were normal size and no evidence of Argyl Roberson pupil. Regarding investigations, blood sugar and HbA1c was within normal limits; complete blood count (CBC) was within normal limits; lipid profiles were within normal limits; ESR increased up to 30mm/hr. Vasculitis screens were normal; antinuclear antibody (ANA) was negative; rheumatoid factor was negative; LE Cell Test was negative. Infective screenings were done. HIV serology, Hepatitis B serology and Hepatitis C serology were non-reactive. Toxoplasma IgM was negative. ICT for tuberculosis was negative. Blood for KT VDRL was reactive; TPHA was positive up to 1: 320 dilutions (>1:80 indicate a past or current infection with syphilis). Syphilis chemiluminescence immunoassay (CLIA) Test was > 600mlU/ml (reference <1 mlU/mL).Therefore, it was concluded that the patient was having retinal vasculitis with active localized vitreous haemorrhage due to ocular syphilis; it caused floaters in left eye. Joint care treatment of ophthalmologist and physician were taken. Optical coherence tomography angiogram (OCTA) was done; left eye revealed clinically occult neovascularization elsewhere (NVEs) at the site of active bleeding area. At the periphery of infero-temporal quadrant with adjacent capillary non-perfusion area were noted. (Figure 4) shows OCTA of left eye revealed clinically occult neovascularization elsewhere (NVEs) at the site of active bleeding area. Therefore, targeted retinal photocoagulation (TRP) was applied using Argon Laser with the laser setting of power - 140-190mW, spot size - 200 µm and duration 0.1 sec at the inferior peripheral retina outside the vascular arcade. Follow-up visit after 3 months showed marked improvement. The patient had no more floater in her left eye. Visual quality was appreciated though subjective visual acuity was same; right eye was 6/36 unaided and 6/9 with glasses; left was 6/36 unaided and 6/9 with glasses. Intraocular pressure was 14.2 mmHg on right eye, 18.3 mmHg on left eye. (Figure 5) demonstrates improvement in OCTA.

Discussion

This patient presented with floaters in left eye for one month; peripheral retinal examination revealed focal retinal vasculitis with localized hemorrhages. Retinal hemorrhages are a common clinical manifestation in patients visiting an eye clinic. Retinal hemorrhages give a clue to an underlying systemic disorder or an uncontrolled ocular disorder. The extent, depth, and pattern of distribution of the hemorrhages give us a clue as to what might be the underlying cause. The patient did not have typical features of neither diabetic retinopathy (dot and blot and vitreous hemorrhages, bilateral and diffusely distributed in the posterior pole) nor hypertensive retinopathy (silver wiring, arterio-venous nipping, diffuse flame-shaped hemorrhages, preretinal hemorrhages and papilledema). Therefore, absence of known disease related retinal changes was the clue to find out underlying systemic disease in this case; one reason for case reporting.The location, size, and distribution of the retinal hemorrhages provide clues to the etiology and uncover underlying systemic disorders such as vascular disease, hematologic disorders, and dyscrasias, infections, trauma, or hypoxia. This patient had one focal area of localized retinal vasculitis with localized hemorrhages. Therefore, the possibility of connective tissue disorders (lupus) was unlikely in this case; intraretinal hemorrhage and vascular occlusions (severe stages) were commonly seen bilaterally in SLE vasculitis. However, blood tests for LE cell and dsDNA were done; and they were negative. Blood for complete picture was normal in this case; there was no history of trauma or hypoxia. Therefore, the most likely aetiology for localized hemorrhages and vasculitis would be infection. Several case reports found out tuberculosis, HIV infection and syphilis. Chest radiograph was normal and IGRA test for tuberculosis was negative. Both non-treponemal and Treponema serology tests were positive. It also highlighted the importance of doing syphilitic serological tests in patient with unexplained retinal hemorrhages and vasculitis. Therefore, Treponema pallidum is known as the “great masquerader” for its many presentations and ocular findings in patients who are infected and develop secondary and tertiary stage of syphilis. It is another reason for case reporting. Retinal vasculitis is one of the manifestations of ocular syphilis; one case report mentioned 29-year-old man with sudden visual loss due to syphilitic vascular occlusion in large retinal arteries, arterioles, and capillaries as well as in segments of retinal veins, resulting in irreversible changes in the vascular walls [2]. Having negative serology for

retroviral infection in this patient was good as HIV infection and syphilis co-infection was commonly reported in eye manifestations [3-6]. High index of suspicion is essential to get early diagnosis particularly in ophthalmology practice and appropriate treatment of ocular syphilis; hence, they are important for visual prognosis [1-10]. Contact tracing, examination, Treponema serology tests and treatment to sexual partner are not only essential in primary syphilis but also in secondary and tertiary syphilis. In this case, the patient's husband did not admit unprotected extramarital exposure or genital sore although Treponema serology tests were positive. He did not have features of secondary or tertiary syphilis. After taking penicillin therapy for 3 months, the titer for Treponemal tests were dropped in both patient and husband. Management from eye side for retinal hemorrhage consisted of intraocular management to reduce the ischemic and neovascularization sequelae following the hemorrhages. In this case, management was done in collaboration with physicians and microbiologists. Reduction in titer of Treponema serology tests as well as improvement in vision, symptoms and findings in OCTA showed success in treatment. This activity highlights the importance of an interprofessional team in the evaluation and treatment of retinal hemorrhages. Retinal hemorrhages are an important ophthalmic diagnostic sign for an underlying systemic vascular disorder. They may be first manifestation of systemic disease. A detailed slit-lamp examination with fundus photography and an OTCA scan is essential to diagnose the cause and help in deciding the various treatment options to prevent vision loss. In this case, both fundoscopic examination and OCTA were very useful in demonstrating vasculitis and hemorrhage initially and follow up too. In diagnosing vasculitis, Fluorescein angiography was used previously. Compared to Fluorescein angiography, OCTA is non-invasive. Therefore, this case again highlighted the usefulness of non-invasive eye examination in ophthalmology. In ophthalmology practice, retinal hemorrhages were reported as asymptomatic; found in checkup. They range from the smallest dot and blot hemorrhage to massive sub-hyaloid hemorrhage. Most require a detailed systemic work up to detect the underlying cause for the hemorrhages. One report on various proposed etiologies of peripheral retinal hemorrhages were senescence, systemic and retinal vascular disease, hematologic disorders, infectious disease, hypoxia, and mechanical and iatrogenic causes in 33 patients with peripheral retinal hemorrhage detected during routine fundus examination. Therefore, they suggested the importance of identifying causes associated with serious ocular or systemic complications, appropriate treatment and followup (Tolls, 1998). Therefore, fundus examination should be included in routine medical checkup. This patient presented with floaters in left eye; she did not have no features of secondary or tertiary syphilis. It supported the findings by Deschenes et al 'most patients had only ocular manifestations of syphilis with no other definitive symptoms [13]. Therefore, awareness of ocular manifestation of syphilis is extremely important to prevent visual loss. Doing Treponemal tests are mandatory in finding etiology ocular signs.

Conclusion

Fundoscopic examination plays an important role in the early diagnosis and treatment of syphilis. Ocular syphilis can cause retinal vasculitis and it may lead to hemorrhages. Syphilis is one of the etiologies of vasculitis and it is treatable. Timely treatment with penicillin can restore vision. Interprofessional collaboration among ophthalmologists, physicians and microbiologists is essential. The manifestation of ocular syphilis may not associate with features of secondary or tertiary syphilis. Contact tracing or screening to husband and initiating appropriate treatment are essential. Optical Coherence Tomography Angiogram of eye is non-invasive examination and is very useful in detecting vascular pattern, hemorrhages and neovascularization.

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Declaration of conflict of interest

The authors declared no potential conflicts of interests with respect to authorship and publication of this article.

Ethical approval

Our institution does not require ethical approval for reporting cases.

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Informed consent

The informed consent for publication in this article was obtained from patient.

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