Case Report

Endophthalmitis in an Immunocompromised Patient

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Purpose: The goal of manuscript was to report a case of mixed infection eye in an immunocompromised patient.

Case report: A case of bilateral Cytomegalovirus (CMV) retinitis with endogenous endophthalmitis in the left eye in an immunocompromised drug user is reported. Fundus examination showed retinitis of the right eye. Slit lamp examinations revealed endogenous endophthalmitis of left eye. Authors applied disposable therapeutic modules.

Conclusion: Cytomegalovirus retinitis is an infection of the retina in an immunocompromised patients localised to the back of eye. Untreated endogenous endophthalmitis leads to progressive destruction of almost all eye structures and poor visual outcome. The prognosis is dependent on adequate antiviral therapy and immune competence of the patient. Ganciclovir treatment was effective in our case.

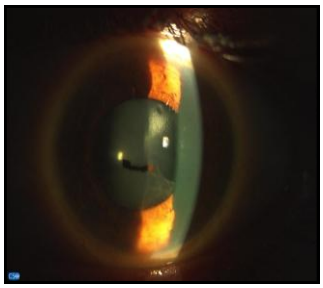
CMV belongs to the herpes group of viruses. It is a rare cause of eye infection. However in immunocompromised patients, patients with acquired immune deficiency syndrome (AIDS), intra venous drug abusers (IVDA) or patients on any kind of immune-suppressive therapy, such as organ transplant patients, are at higher risk to develop CMV retinitis. [1].

Endophthalmitis is sight threatening condition defined as clinical infection all layers of eye. It might be endogenous or exogenous depending on the route of the infection. Exogenous is the result of direct contacts, as corneal lesion (intraocular inoculation of microbe), post-surgery intraocular infection and post-penetrating ocular trauma with intraocular foreign bodies. Endogenous endophthalmitis also termed metastatic endophthalmitis occurs when microbes disseminate through blood and cross ocular blood barrier and enter internal ocular spaces.

CASE REPORT

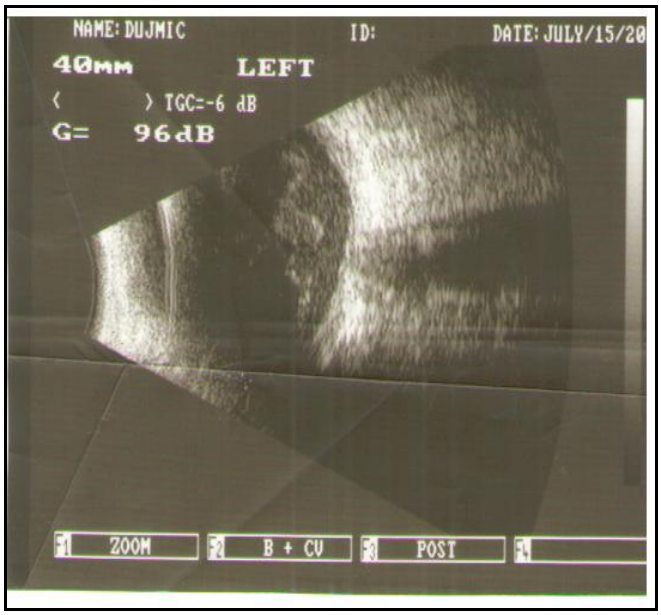
A 35 – years old male, IVDA, was seen in Clinic of Ophthalmology in Kragujevac, Serbia (July, 2012) with decreased visual acuity of both eyes; redness and pain of the left eye. History indicated that our patient was an IVDA for many years. Best corrected visual acuity of the right eye was 20/60 and of the left eye 1/60 (by Snellen test). Intraocular pressures of both eyes were normal. Slit lamp examination of right eye was normal; slit lamp examination of left eye showed a fibrous exudation in the anterior chamber, (Fig. 1a) Slit lamp examination of left eye indicated inflammatory reaction in the anterior segment, (Fig. 1. b) Indirect ophthalmoscope of right eye indicated inflammatory lesion of the retina along infra-temporal vascular arcade; no vitreous exudation was detected and ultrasound of left eye showed thickening of chorioretinal with vitreous exudation, (Fig. 1. c).

Complete blood and immunological examination were performed. HIV antibody and RNA tests were negative, and CMV (IgG and IgM) positive; but his full blood count revealed lymphocytopenia, with the low CD4+ subset[2]. In consultation with microbiologist and infectious disease specialist. We started antiviral therapy for our patient: ganciclovir (5 mg/kg) twice daily intravenous for fourteen days, and ganciclovir (4 mg/dL) intravitreal; then corticosteroids intramuscular and antibiotic intravenous for



(a)

(b)



(c)

Fig. 1: (a) Slit lamp examination of left eye.
(b) Photo fundus of right eye.
(c) Ultrasound of left eye

controlling inflammation and secondary infection (August, 2012). Corticosteroids may be implicated in disease reactivation. After this medical treatment visual acuity of the right eye was improved to 40/60 and of left eye was very poor. Fundus examination of right eye showed amelioration of retinal lesion, but on left eye exudation of vitreous was persistent. Because of the immunocompromised condition of our patient and clinical signs of left eye we performed antiviral intravitreal injection for the treatment of the endogenous endophthalmitis.

Anterior chamber tap of the aqueous was PCR positive for Acinetobacter species. We performed antibacterial systemic therapy with amp. Tolycar®, intravenous, for ten days. Our patient was treated with these antibiotic based on results of anti-biogram test, as well as with anti-inflammatory local and systemic therapy (steroids). Condition of left eye became better and visual acuity was improved to (60/60).

DISCUSSION

Visual symptoms of peripheral lesions include floaters and loss of peripheral vision, but some ocular condition can be asymptomatic. Retinal necrosis and secondary macular edema that occurs with the development of CMV retinitis, often results in loss of vision. In addition to CMV retinitis, endogenous endophthalmitis can be one of the causes of loss of the central and peripheral vision as well, by its pathological mechanism of action[3, 4]. Endogenous endophthalmitis by viral / fungal etiology, acute retinal necrosis by herpetic etiology, and toxoplasmosis often presents a differential diagnostic problem in relation to CMV retinitis. Paracentesis of the anterior chamber, or during a formal pars-plana vitrectomy, about 1 ml of aqueous humor or vitreous can be taken for microbiological analysis, usually in aseptic conditions and by the clinical protocols[5, 6].

CMV retinitis is the most common opportunistic infection which affects immunocompromised patients and those with AIDS, and it may lead to endogenous endophthalmitis. The most probable way of spreading CMV is through blood to eye. Central type of CMV retinitis is clinically characterized with white and clearly limited, retinal necrotic foci, mainly localized along the vascular arcades. Peripheral CMV retinitis shows less limited but specific necrotic lesions. Ganciclovir administered intravenously and-or intra-vitreous in the induction phase. In acute exacerbation of disease oral Acyclovir is used with Ganciclovir by intravitreal administration as a depot preparation in vitreous[7].

Intra vitreous ganciclovir implant is surgically applied following vitrectomy with silicone oil in the projection of the pars plane vitreous, the drug release for 7 to 8 months, which is the treatment of choice, but we have not been able to employ this therapeutic module[7].

Endophthalmitis might be endogenous or exogenous depending on the way of the infection. Endogenous endophthalmitis termed metastatic endophthalmitis occurs when microbes disseminate through blood ocular barrier. Endogenous endophthalmitis reported to account by 8% of all cases of endophthalmitis. Endogenous endophthalmitis is most often associated with the medical condition, including intravenous drug abuse adults, liver

diseases, diabetes mellitus, cardiac disease, malignancy etc. Endogenous endophthalmitis is the diagnostic and serious treatment problem for the ophthalmologists. Polymerase chain reaction is emerging as the valid diagnostic test of choice for identifying causes of the infective endophthalmitis, whether bacterial, fungal or mixed infection[7, 8].

Endophthalmitis is a frequent complication of fungal infections by Candida albicans, Klebsiella pneumoniae, and less commonly occurs in patient who has the systemic Aspergillosis[9, 10]. Implicit in the approach for treatment of endogenous endophthalmitis under the assumption that we achieve adequate concentrations of antifungal drug in the infected tissues represents the crucial piece to the puzzle of our success. The choroid and retina are highly vascular compared with the vitreous, and the vascular compartments are separated from intraocular structures by the blood ocular barrier. Thus, infection localized to chorioretinal layers, which are not protected by this barrier, can be treated with systemic antifungal drugs, but treatment of other intraocular infections requires penetration of antifungal drugs through this relatively impermeable barrier. However, sight threatening lesions in the macula and chorioretinitis with vitritis usually necessitate intravitreal injection of antifungal drugs, with or without vitrectomy[11, 12]. The second assumption in treating endogenous endophthalmitis is that an examination has been performed by an ophthalmologist familiar with fungal endophthalmitis soon after the diagnosis of Candida and the other infection. If endophthalmitis is found, follow up examinations should be routinely performed to evaluate the response to therapy and the development of complications. The greatest clinical experience has been acquired with Amphotericin B. Intravitreal – Amphotericin B has been used as mono treatment for endogenous Candida endophthalmitis to avoid systemic toxicity. Intravitreal injection of Amphotericin B is used as adjunctive therapy along with systemic antifungal drugs in patients who have sight threatening endophthalmitis caused by Candida species and in most cases of Aspergillums' endophthalmitis. Outcomes for early vitrectomy combined with systemic antifungal therapy with Amphotericin B or fluconazol have been favorable for Candida endophthalmitis[11, 12].

CONCLUSION

CMV retinitis with young adults who are drug users represents clinical entity of immune deficiency conditions. Therapy effects of ganciclovir, most importantly intravitreal, in remission are most important, also in recovery of visual acuity. Endogenous endophthalmitis with mixed etiology includes bacterial, viral or fungal infection represents a complication of eye infections, with the bed prognosis for visual acuity. Vitrectomy is an option to debulk the infection and to provide any intra-ocular treatment required.

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