Overview of ocular histoplasmosis syndrome (ohs)

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Histoplasmosis

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Introduction

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Introduction

Histoplasmosis is a systemic disease caused by *Histoplasma capsulatum* . [1] It produces intracellular granulomatous inflammation of many organs including eyes, lungs, liver, spleen , etc. Ocular histoplasmosis syndrome (OHS) is characterized by a triad of signs – of punched-out atrophic choroidal scars in the macula or periphery, peripapillary atrophy and choroidal neovascular membrane (CNVM). [2]

Etiology- Ae tiology

Histoplasmacapsulatum H . capsulatum , a dimorphic fungus, is presumed to play a causative role in the development of OHS. [1] There are few reports of pathologic and molecular evidence supporting a the direct role for of *H. capsulatum* in the development of chorioretinal scars , ; however, no serologic confirmation of histoplasmosis infection has been reported. [3, 4] A h a ematogenous dissemination of the fungus results in choroidal invasion and subsequent scarring. Additionally, disseminated histoplasmosis presents with intraretinal infiltrates composed of histoplasma yeast cells that are easily

demonstrable on histology. Extensive study of the affected individuals in Europe and the United States has revealed the presence of human leukocyte antigen (HLA) -DR15) . 1 : Please provide the full form of DR> . [5] No full form; it indicates type of HLA This HLA association suggests that immune reaction is likely to play a major role during the development of scarring and CNVM. *H. capsulatum* may induce d localized autoimmune reaction in the retina. However, an infection with this fungus is not an absolute requirement for the development of clinical OHS. Because of this lack of association, there has been a suggestion to rename this clinical syndrome as ‘ multi – focal choroidopathy’.

Epidemiology

OHS is most common in the Ohio and Mississippi River valleys of the United States, which are endemic for *H. capsulatum* . [6] Up to 70% of the population living in the endemic areas react s positively to the histoplasmin skin testing and 1. 5% exhibits the typical fundus findings. [7] It can be a blinding disease in its more severe manifestations. There is no gender predilection, although some reports show a higher prevalence in women.

Pathobiology

OHS belongs to the spectrum of autoimmune diseases triggered by an infectious organism, with *H. capsulatum* being one of several candidate pathogens. It is characterized by a chronic reaction to the immunogenic residua of the *H. capsulatum ,* which acts as a nidus for inflammation. Light microscopy reveals mixed inflammatory cells in the choroidal lesions with

the loss of overlying retinal pigment epithelium. There are adhesions between the outer retina and choroidal lesions. The genesis of CNVM in OHS is thought to be caused by the disruption of Bruch ’ ‘ s membrane at the site of atrophic scar.

Systemic Features f eatures

Mycilia Myc e lia of Histoplasmosis h istoplasmos e s are inhaled and they transform to the yeast form shortly and infect lungs. They can produce caseation and enlargement of hilar nodes , which produce typical shadows on X-ray. About 90% of cases are benign and do not produce symptoms. In d D isseminated 2 : Kindly > OK histoplasmosis are is characterized by pyrexia, vomiting and enlargement of liver, spleen , and lymph glands. The Involvement i nvolvement of skin, mouth, gastrointestinal tract and heart may also occur.

Ocular Features f eatures

The clinical findings in OHS include peripapillary atrophy, multiple punched punched – out white atrophic choroidal scars (histo spots) , and a macular CNVM, accompanied by the complete absence of a cellular reaction in the anterior chamber or vitreous cavity [(Fig. 40. 1 (a A)] . [6] The histo spots are considered to be the earliest stage of the disease , and are usually asymptomatic [(Fig. 40. 1 (B b)] . CNVM will develop in fewer than 5% of individuals with histo spots. The Clinical c linical presentation of CNVM involves acute or insidious onset of painless progressive blurring of central vision and metamorphopsia. The Fundus f undus examination typically shows a yellow-green subretinal discolo u ration with accumulation of subretinal

fluid. In advanced cases , there is subretinal fibrosis leading to disciform scar formation and that is associated with severe central visual loss. [9] The exact time frame between the initial choroidal scarring and CNV < AQ 3 : Please check if CNV stands for “ choroidal neovascular ization ” and CNVM is choroidal neovascular membrane and should be replaced with CNVM > NO development is difficult to determine given that histo spots are asymptomatic. New histo spots may develop in more than 20% of individuals while they are under observation , ; however, only 3. 8% progress to CNV. The precipitating factors promoting such progression are not known. Some studies implicate emotional stress and tension headaches as associated event s .

Diagnosis

OHS is a clinical diagnosis and relies on the observation of characteristic fundus lesions in one or both eyes. Intravenous fluorescein angiography (FA) and optical coherence tomography (OCT) can assist in the evaluation of CNVM (Figs . 40. 2 and 40. 3). FA assists in identifying areas of CNVM and in planning photodynamic therapy. OCT is a useful tool for the detection and monitoring of treatment response.

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Treatment

The optimum treatment of subfoveal and juxtafoveal CNVM is the main focus in OHS. Histo spots are asymptomatic in most cases and require no treatment until a progression of the disease is detected. [9-11]

Corticosteroids

Regimens of systemic corticosteroid therapy were widely used in early studies of ocular histoplasmosis. [12] Few clinical studies have evaluated the role of subtenon ’s and intraocular triamcinolone. The intravitreal steroids demonstrated favo u rable visual outcomes ; however , they are associated with cataract formation or progression and increased intraocular pressure. [13]

Laser photocoagulation

Laser Photocoagulation p hotocoagulation effectively inhibits the progression of OHS-related CNV. In randomized trials, the Macular Photocoagulation Study demonstrated that argon and krypton laser photocoagulation is effective in treating well-defined, classic extrafoveal, juxtafoveal , and peripapillary CNV lesions secondary to OHS. [14, 15] Only 12% of treated individuals experienced significant disease progression , compared with 42% of the control patients.

Surgical therapy

The role of submacular surgery for the removal of CNV lesions was evaluated in a multi – cent e r e randomized clinical trial. [16] The study data indicate that surgery may be beneficial to patients with visual acuity worse than 20/100 , and subfoveal CNV.

Photodynamic therapy

Verteporfin in Ocular Histoplasmosis study enrolled 26 patients prospectively with subfoveal CNV and demonstrated an improvement of visual acuity from baseline as well as an absence of serious adverse events at in 2 years. [17]

Anti-vascular endothelial growth factor (VEGF) therapy

Several intravitreal anti- vascular endothelial growth factor (VEGF) treatments are currently being pursued for the treatment of OHS-related CNV. Few retrospective studies have evaluated the role of intravitreal anti-VEGF therapy for CNV associated with OHS. One such study by Ehrlich et al. found that at least 50% of eyes with subfoveal or juxtafoveal CNV experienced ≥ >= 3 three lines of vision gain and 91. 5 % to – 100% of patients had improved or had stable visual acuity (at 3- – to 12-month follow-up) after the intravitreal bevacizumab therapy. [18] Similar l y, the results concerning the therapeutic efficacy of ranibizumab are promising. Both treat-and-extend and pro re nata treatment strategies were effective. A study by Nielsen et al. demonstrated that many eyes require long-term anti-VEGF therapy to suppress the choroidal neovascular activity in OHS. [19]

Suggested reading

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Fig. ure 40. 1 Fundus photo graph s of a patient with OHS showing peri-papillary atrophy and CNV with subretinal h a emorrhage in the right eye (A) and macular histo spot in the left eye (B). Choroidal neovascularization

Fig. ure 40. 2 Early (A) and late (B) phase fluorescein photo graph s showing CNV with subretinal h a emorrhage secondary to OHS.

Fig. ure 40. 3 OCT scan showing CNV with intraretinal fluid secondary to OHS.