

# **Effect of Hepatitis on Eye: Ocular manifestations of Viral Hepatitis**

## **An awareness article on the occasion of World Hepatitis Day (28 July)**

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World Hepatitis Day is observed on 28 July annually with the aim to raise awareness about viral hepatitis, a major global public health challenge. The theme for World Hepatitis Day 2026 is "Hepatitis: Let's break it down". According to the World Health Organization (WHO), viral hepatitis B and C account for the majority of chronic hepatitis infections. They together can lead to complications such as cirrhosis and hepatocellular carcinoma which are a major cause of morbidity and mortality in the general population. While the liver is the primary organ affected, hepatitis is a systemic disease with several extrahepatic manifestations, including involvement of the eye. Early recognition of these ocular manifestations may facilitate timely diagnosis of underlying hepatitis and prevent irreversible visual loss as well as systemic complications.<sup>1</sup>

### **Pathophysiology**

Ocular manifestations in hepatitis result mainly from immune-mediated mechanisms rather than direct viral invasion. In chronic hepatitis B and C, circulating immune complexes may deposit in the retinal and choroidal vasculature leading to inflammation, ischaemia and vascular occlusion. Hepatitis C is also associated with mixed cryoglobulinaemia, which causes small-vessel vasculitis affecting multiple organs, including the retina. Cryoglobulins precipitate at low temperatures and cause vessel occlusion and vasculitis by complement activation. Autoimmune mechanisms like molecular mimicry have also been implicated in causing ocular manifestations like dry eye disease and peripheral ulcerative keratitis. Additionally, antiviral therapy like interferon-based regimens have historically been associated with characteristic retinal complications.<sup>2</sup>

### **Ocular Manifestations of Hepatitis**

#### **1. Dry Eye Disease**

Dry eye is the most common ocular manifestation of chronic hepatitis C infection. Patients typically present with burning, foreign body sensation, irritation and blurring of vision. The condition is often associated with Sjögren-like autoimmune lacrimal gland dysfunction and may significantly affect quality of life.<sup>2,3</sup>

#### **2. Corneal Involvement**

Peripheral ulcerative keratitis and Mooren ulcer have been reported in association with chronic hepatitis C infection. They are immune-mediated disorders characterized by painful peripheral corneal ulceration and progressive stromal thinning carrying a risk of corneal perforation if left untreated.<sup>2</sup>

### **3.Uveitis**

Anterior uveitis has often been described in patients with hepatitis B and C. It is caused by immune-mediated inflammation. Though uncommon, viral hepatitis is a differential diagnosis of unexplained recurrent uveitis, particularly in patients with systemic risk factors.<sup>2,4</sup>

### **4.Retinal Vasculitis**

Retinal vasculitis is one of the most important posterior segment manifestations of hepatitis, particularly hepatitis C. Immune complex deposition and cryoglobulinaemia can lead to retinal vascular inflammation resulting in cotton-wool spots, retinal haemorrhages, capillary non-perfusion and macular oedema. It may even lead to retinal vein occlusion due to hyperviscosity and vasculitis. If not recognised early, these findings may lead to vision loss.<sup>2,3</sup>

### **5.Optic Nerve Involvement**

Rarely, cases of optic neuritis and anterior ischaemic optic neuropathy have been reported in association with hepatitis infection and interferon therapy. Patients typically present with sudden painless visual loss, dyschromatopsia and relative afferent pupillary defect.<sup>2</sup>

### **6.Ocular Adverse Effects of Hepatitis Treatment**

Before the widespread use of direct-acting antivirals, interferon- $\alpha$  formed the backbone of chronic hepatitis C treatment. But its use is associated with an adverse effect known as "Interferon-associated retinopathy". It is characterised by cotton-wool spots and retinal haemorrhages usually developing within the first few months of therapy. Rarely, retinal vein occlusion, retinal artery occlusion and optic neuropathy can also be seen. Modern direct-acting antiviral agents have significantly reduced these complications, but one should be familiar with this entity because many landmark studies and previously treated patients continue to be encountered in clinical practice.<sup>2,5</sup>

### **Approach to a case of hepatitis**

The ophthalmologist may be the first clinician to suspect systemic viral hepatitis in a patient presenting with unexplained retinal vasculitis, recurrent uveitis or severe dry eye disease. In case of suspicion, a detailed systemic history along with assessment of risk factors for hepatitis, appropriate serological investigations for HBV and HCV, liver function tests should be carried out. A timely referral to a physician or hepatologist is of utmost importance. Collaborative care thus ensures optimal management of both ocular and systemic disease.

## Conclusion

Viral hepatitis is much more than an entity with manifestations limited to the liver as discussed earlier. Its ocular manifestations may be vision threatening and occasionally represent the earliest sign of systemic illness. Its awareness among ophthalmologists and physicians is therefore of utmost importance. On this World Hepatitis Day, emphasis should be placed on hepatitis prevention through vaccination, early screening, prompt treatment and multidisciplinary care. Recognising the eye as a window to systemic disease can contribute to earlier diagnosis and better patient outcomes.

## References

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