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Anterior uveitis, an extrahepatic manifestation of hepatitis B virus infection: A case report

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Abstract

Anterior uveitis is one of the most common forms of uveitis encountered in outpatient department. The etiology of uveitis ranges from infectious to noninfectious causes (e.g. virus, bacteria, autoimmune, idiopathic). We present a case of acute anterior granulomatous uveitis in 65 years old male patient who presented with a complaint of pain, redness and blurry vision for 5 days in his right eye. All the routine investigations were done to find the aetiology of the disease which showed positive HBsAg, RA factor and Mantoux test. However, rheumatoid arthritis and tuberculosis were ruled out as test result may be false positive because of various causes. Although the Hepatitis B virus is the hepatotropic, it leads to many extrahepatic manifestations such as glomerulonephritis, polyarteritis nodosa, polymyalgia rheumatica, essential mixed cryoglobulinemia and arthralgia which was reported in previous studies. The mechanism of extrahepatic manifestation of hepatitis B virus infection was unknown, however, the immune complex deposition is the most likely etiological cause. We report a rare case of Hepatitis B virus manifesting as acute anterior granulomatous uveitis.

Keywords: Anterior uveitis, Hepatitis B virus infection

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Introduction

Uveitis is the inflammation of the uvea which compasses the iris, ciliary body, and choroid plexus. Anterior uveitis is defined as the presence of inflammatory cells and or aggregate in the anterior chamber which are visible during ophthalmic examination. It is one of the most commonly encountered eye pathologies with multifactorial etiology which may be infectious or non-infectious.[1]

Hepatitis B virus is a partially double-stranded DNA virus of the Hepadnaviridae family. It usually leads to acute hepatitis and chronic hepatitis and in some cases hepatocellular carcinoma. However, extrahepatic manifestations of hepatitis B virus infection is not uncommon. It is postulated that hepatitis B virus leads to immune complex formation and causes a variety of diseases such as certain forms of glomerulonephritis, polyarteritis nodosa, polymyalgia rheumatica, essential mixed cryoglobulinemia and arthralgia.[2-6] Therefore, a physician must suspect HBV infection in patients with uveitis as the immune complex can also lead to intraocular inflammation. Here, we present a case of acute anterior granulomatous uveitis in a 56-year-old male presenting with pain, redness, and blurry vision in the right eye for 5 days.

Case Presentation

A 56-year-old male without any known prior comorbidities presented to the Ophthalmology outpatient department with complaints of pain, redness, and blurry vision in the right eye for 5 days. He also had a history of sudden onset of blurring of vision (floaters like a spider web) 3 months back. These symptoms were not associated with rhinorrhea, headache, and fever. The patient did not give a history of TB, cough, chest pain, rash, oral ulcer, genital ulcer, or weight loss. On ophthalmic examination, visual acuity in the right and left eye was 6/36 and 6/6 respectively. There was presence of cells (1+) and a few flares (1+) in the anterior chamber, the vitreous appeared hazy and the macula had a scar in the right eye. The patient was counseled for a uveitis workup.

Laboratory evaluation showed a positive HBsAg and RA Factor. The Mantoux test was positive with 12 mm of induration. Quantitative HBV DNA assessment was significant (2.1×10^5 IU/ml) confirming the diagnosis of HBV infection, Table 1.

The ultrasonography of the abdomen showed mildly heterogeneous hepatic echotexture, possibly the early chronic liver disease. A fibroscan showed a liver stiffness measurement (LSM) of 17 kPa. A gastroduodenoscopy for an evaluation of portal hypertension showed the presence of 2 columns of segmental esophageal varices and mild portal hypertensive gastropathy.

After complete evaluation the patient was diagnosed with acute granulomatous anterior uveitis and treatment was planned accordingly. He received antiviral therapy and other supportive treatment from ophthalmology unit. The patient responded to this treatment.

Discussion

In this case report, we describe diagnosis of HBV infection related-uveitis in a male patient in his mid-50s. Visual impairment in this patient improved after treatment for HBV. This case report is important in a way that it sensitizes the gastroenterologist to screen for extraintestinal manifestations of viral infections. It also implies that ophthalmologist should screen for viral infection in patients with uveitis as it is a treatable condition and has a bearing on the sight of the patients.

Uveitis is the inflammation of the uveal tract which may be anterior, intermediate, and or posterior. Anterior uveitis encompasses inflammation of the iris (iritis), anterior ciliary body (cyclitis), or both (iridocyclitis). Uveitis leads to approximately 15% of the total blindness burden in the USA and approximately 25% of blindness in the developing world.[1,3]

The aetiology of uveitis is multifactorial which may be infectious and non-infectious. Infectious etiology encompasses bacteria such as chlamydia, klebsiella, and other bacteria whereas viruses such as herpes simplex, cytomegalovirus, varicella zoster, and hepatitis virus mostly hepatitis B and C. Non-infectious etiology includes autoimmune diseases.[4]

Hepatitis viruses, primarily hepatitis B and C, were identified as the most common cause of uveitis in a study conducted in Taiwan. Similarly, another study found that 13% of uveitis patients were seropositive for HBsAg.[5] Additionally, a study involving 200 patients with acute anterior uveitis reported that 2% of the patients were seropositive for HBsAg.[6]

Studies have shown that vaccination against hepatitis B may lead to uveitis. A report from the National Registry of Drug-Induced Ocular Side Effects, the World Health Organization, and the Food and Drug

Administration revealed that 32 patients developed acute uveitis following hepatitis B vaccination. In our study, this patient had no history of hepatitis B vaccination.

Table 1. Baseline laboratory parameters of the patient suspected with acute anterior granulomatous uveitis

Parameters	Findings (normal range)
Hemoglobin	13.6 mg/dl (12-16)
Leukocyte count	4700 /mm^3 (4000-11000)
RBS	105 mg/dl (70-140)
HBsAg	Positive
HBV DNA	2.1× 10^5 IU/ml (<10 IU/ml)
HBeAg	Non-reactive
HCVAb	Non-reactive
HIV	Non-reactive
Toxoplasma titer	Negative
VDRL	Non-reactive
RA factor	Positive
Urinalysis	Normal
Mantoux test	12 mm (0-5mm)
Liver panel test	
Total bilirubin	1.2 mg/dl (0.2-1.2)
Direct bilirubin	0.1 mg/dl (0-0.2)
SGOT	80 U/L (<40)
SGPT	71 U/L (<45)
ALP	184 U/L (50-136)

A study done in Saudi showed an association between autoimmune disease and uveitis.[8] Our patient had no other features and criteria meeting for rheumatoid arthritis except for a seropositive status for Rheumatoid factor. It is not uncommon to find a positive Rheumatoid factor in the general population in the absence of rheumatoid arthritis.[9]

Tuberculosis is also seen to be associated with uveitis, which is one of the commonest manifestations of ocular TB. Uveitis in the setting of TB is usually due to a hypersensitivity manifestation of tubercular infection elsewhere in the body. There were no features of active tuberculosis in our patient. Tuberculin skin test was positive in our patient which can be a consequence of many other factors unrelated to active TB.[10]

Conclusion

Hepatitis B is a hepatotropic virus with many extrahepatic manifestations. A clinician should have a high suspicion in order to avoid missing the extrahepatic manifestations like uveitis.

Author contribution

Concept and design: RNK, MKR, AB; Data collection: RNK, MKR, AB; Data analysis and interpretation: RNK, MKR, AB; Draft and revision: RNK, MKR, AB; Final manuscript approval and accountability: All.

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Conflict of interest

None

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Supplementary material

The data and material that support the findings of this study are available from the corresponding author upon reasonable request.

Consent

Patient was informed and written consent was obtained for the publication. The patient was counselled that name and initials would not be published and due efforts would be made to conceal the identity, but anonymity cannot be guaranteed.

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