Bilateral Acute Anterior Uveitis in a Parvovirus B19-Infected Kidney Transplant Recipient

Moniba Mobin[1], Fatema Ali Lanewala[1], Akhtar Jamal Khan[1] and Sidra German[2]

[1]*Department of Ophthalmology, Sindh Institute of Urology and Transplantation, Karachi, Pakistan*
[2]*Department of Nephrology, Sindh Institute of Urology and Transplantation, Karachi, Pakistan*

ABSTRACT

A 40-year male, who had received a kidney transplant four months before, experienced a sudden decrease in vision in his right eye. Upon examination, he was found to have severe acute anterior uveitis. One month later, he developed a similar episode in his left eye. He received symptomatic treatment during each episode. Although the inflammation temporarily subsided, it relapsed until he was ultimately diagnosed and treated for a systemic parvovirus infection. He was discharged with visual acuity of 6/6 in his right eye and 6/9 in his left eye. This case highlights the risk of parvovirus infection, which is common in transplant patients. In cases of bilateral relapsing acute anterior uveitis, maintaining a higher suspicion for this infection could help reduce visual morbidity in these patients.

Key Words: *Kidney transplant recipients, Uveitis, Parvovirus B19*.

How to cite this article: Mobin M, Lanewala FA, Khan AJ, German S. Bilateral Acute Anterior Uveitis in a Parvovirus B19-Infected Kidney Transplant Recipient. *JCPSP Case Rep* 2025; **3**:376-377.

INTRODUCTION

Uveitis is a common manifestation of various diseases; however, it is rarely caused by parvovirus B19 infection.[1] It remains unclear whether uveitis in these cases is a direct result of the parvovirus infection or due to auto-immunity. As parvovirus testing is not routinely performed in clinical settings, its prevalence, particularly among transplant recipients, is often underestimated.[2] The authors encountered a kidney transplant patient who presented with bilateral anterior uveitis, which was believed to be secondary to parvovirus infection, as it resolved with appropriate systemic management.

CASE REPORT

A 40-year male patient, a driver by profession and belonging to a lower-middle class, presented to a tertiary care ophthalmology unit with a complaint of a sudden decrease in vision in his right eye, accompanied by severe ocular pain. Upon examination, his vision was measured at 6/36 in the right eye and 6/6 in the left eye. It was determined that he had simple acute anterior uveitis. Following a baseline systemic investigation, which yielded negative results, the authors treated him symptomatically for acute anterior uveitis. The patient responded well to the treatment, and his vision improved.

Correspondence to: Dr. Moniba Mobin, Department of Ophthalmology, Sindh Institute of Urology and Transplantation, Karachi, Pakistan
E-mail: monibadanish@gmail.com

Received: February 10, 2025; Revised: May 01, 2025; Accepted: May 23, 2025
DOI: https://doi.org/10.29271/jcpspcr.2025.376

One month later, the patient returned with a complaint of the sudden onset of painful vision loss in his left eye. At this visit, his vision was recorded as hand movement (HM) in the left eye and 6/6 in the right eye. An intraocular pressure (IOP) examination using a pneumotonometer revealed elevated pressure. Slit lamp examination showed corneal oedema, ciliary congestion, and an adequate depth of the anterior chamber (AC), which had a flare grade of +3 and cell grade of +4. The lens exhibited mild posterior subcapsular changes, while the details of the vitreous and posterior segment were obscured by corneal oedema. Notably, the patient had received a kidney transplant four months prior due to end-stage renal disease after undergoing dialysis for four years.

The patient was admitted to the inpatient facility, where he received intravenous mannitol (20 mg/ml) and methylprednisolone sodium succinate (500 mg/ml) as an initial treatment. Topical cycloplegics and steroids were also administered. A complete systemic workup revealed a total leukocyte count (TLC) of 8,400/mL, an erythrocyte sedimentation rate (ESR) of 115 mm/h, and a positive antinuclear antibody (ANA) test (4+ with a centromeric pattern). To evaluate the underlying cause of the uveitis, further investigations for auto-immune disorders and systemic infections were conducted. The anti-dsDNA was negative, and complement levels (C3 and C4) were normal. His infectious workup, which included tests for CMV, syphilis, tuberculosis, and toxoplasmosis, showed negative results except for a positive parvovirus B19 polymerase chain reaction (PCR) (1×10^9), with negative parvovirus IgM serology. This was presumed to be a consequence of anti-thymocyte therapy (ATG) due to a poor HLA match with the donor kidney.

The authors planned an aqueous tap for PCR testing of parvovirus, herpes, and CMV for accurate ocular diagnosis, but the procedure

could not be performed as the patient did not give the consent. The transplant team collaborated with infectious disease specialists to develop a treatment plan. The patient was administered five doses of intravenous immunoglobulin (0.4 g/kg) for parvovirus. His mycophenolate mofetil (MMF) dose was reduced from 750 mg to 500 mg twice daily. Other immunosuppression medications, including prednisolone and tacrolimus, remained unchanged due to the poor graft match. The patient responded well to therapy, achieving a haemoglobin level of 9 g/dl.

Following treatment, his vision improved to 6/9, and his IOP returned to the normal range after multiple flare-ups. He had been placed on anti-glaucoma topical therapy and mild topical steroid treatment, with close follow-up appointments scheduled.

DISCUSSION

Human parvovirus B19 belongs to the family *Parvoviridae* and the genus *Erythroparvovirus*. It measures between 23 and 26 nm in diameter, making it one of the smallest DNA viruses.[2] In the paediatric population, it typically presents as a classic childhood rash known as fifth disease, erythema infectiosum, or slapped cheek syndrome. In pregnant women, it can lead to nonimmune hydrops fetalis and persistent anaemia in immunocompromised patients. In individuals with haematological disorders, it may cause aplastic crises, and cases of arthropathy and inflammation of other tissues have also been reported.[4-6]

Uveitis secondary to parvovirus B19 is most commonly observed in children, although a few cases have been noted in adults. In children, the condition generally involves both anterior and posterior segments of the eye,[1,3] while in adults, it is usually restricted to the anterior segment. It remains unclear whether this ocular involvement is due to auto-antibodies triggered by the virus in previously infected individuals or if it results from the direct invasion of the virus itself. Some cases have reported positive ANA serology associated with the virus.[5,7]

Parvovirus B19 infection is common among kidney transplant recipients, with an incidence reported at approximately 10.3%, which increases to 27.4% in those with anaemia.[2] However, after an extensive literature review, the authors found very few documented cases of eye involvement in this patient population.

Parvovirus B19 infection is surprisingly more common than previously expected. Additionally, immunocompromised patients, including kidney transplant recipients, face a significantly higher risk of acquiring such infections. These patients may seldom present in ophthalmology clinics with bilateral relapsing anterior uveitis, which can be the only manifestation of the infection. If not recognised in a timely manner, this condition can lead to increased morbidity. This situation underscores the need for a higher suspicion of such infections, early diagnosis, and a better understanding of the underlying pathophysiology. It also emphasises the importance of having a low threshold for treatment, as well as frequent systemic and ophthalmological reviews and follow-ups for optimal patient outcomes.

PATIENT'S CONSENT:
Informed consent was obtained from the patient to publish the data concerning this case.

COMPETING INTEREST:
The authors declared no conflict of interest.

AUTHORS' CONTRIBUTION:
MM: Conception, design, drafting of the work, and accountable for all aspects of the work.
FAL: Conception and drafting.
AJK, SG: Conception of the study.
All authors approved the final version of the manuscript to be published.

REFERENCES

1. Ito T, Hoshina T, Mizuki K, Fukuda T, Ishibashi S, Kusuhara K. A pediatric case with parvovirus B19-associated uveitis without autoantibody formation. *Nagoya J Med Sci* 2018; **80(4)**:611-4. doi: 10.18999/nagjms.80.4.611.
2. Thongprayoon C, Khoury NJ, Bathini T, Aeddula NR, Boonpheng B, Lertjitbanjong P, *et al*. Epidemiology of parvovirus B19 and anaemia among kidney transplant recipients: A meta-analysis. *Urol Ann* 2020; **12(3)**:241-7. doi: 10.4103/UA.UA_89_19.
3. Maini R, Edelsten C. Uveitis associated with parvovirus infection. *Br J Ophthalmol* 1999; **83(12)**:403-6. doi: 10.1136/bjo83.12.1403.
4. Arias-Peso B, Navarro-Bielsa A, Vicente Altabas MJ, Pardinas Baron N. Anterior bilateral uveitis and acute parvovirus B19 infection. *Enferm Infecc Microbiol Clin (Engl Ed)* 2020; **39(2)**:103-4. doi: 10.1016/j.eimc.2020.04.002.
5. Saeki T, Shibuya M, Sawada H, Miyamura S, Nakano M, Gejyo F, *et al*. Human parvovirus B19 infection mimicking systemic lupus erythematosus. *Mod Rheumatol* 2001; **11(4)**:308-13. doi: 10.3109/s10165-001-8061-3.
6. Saturno MC, Manni P, Accorinti M. Bilateral conjunctivitis, keratitis, and anterior uveitis in a patient co-infected with parvovirus B19 and SARS-CoV-2. *Case Rep Ophthalmol* 2022; **13(3)**:979-83. doi: 10.1159/000527235.
7. Corridan PG, Laws DE, Morrell AJ, Murray PI. Tonic pupils and human parvovirus (B19) infection. *J Clin Neuro-Ophthalmolo* 1991; **11(2)**:109-10.