

A Rare Encounter: Adenovirus-Induced Hematuria in Pregnancy

Madhu Shakya ^{1*}, Abha Shrestha ², Sushma Lama ²

¹High Risk Pregnancy, Department of Obstetrics and Gynecology, Dhulikhel Hospital, Dhulikhel, Kavre, Nepal.

²Department of Obstetrics and Gynecology, Dhulikhel Hospital, Dhulikhel, Kavre, Nepal.

***Corresponding Author:** Madhu Shakya, High Risk Pregnancy, Department of Obstetrics and Gynecology, Dhulikhel Hospital, Dhulikhel, Kavre, Nepal.

Received date: September 04, 2026; **Accepted date:** September 11, 2026; **Published date:** September 18, 2026.

Citation: Madhu Shakya, Abha Shrestha, Sushma Lama, (2026), A Rare Encounter: Adenovirus-Induced Hematuria in Pregnancy, *J. Obstetrics Gynecology and Reproductive Sciences*, 10(5) DOI:10.31579/2578-8965/319

Copyright: © 2026, Madhu Shakya. This is an open-access article distributed under the terms of The Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Abstract:

Adenovirus infection in pregnancy is rare but clinically important. We report a case of a 35-year-old pregnant woman who developed itchy body rashes, flu-like symptoms and gross hematuria during mid pregnancy. Diagnosis was confirmed by Enzyme-Linked Immunosorbent Assay, which showed elevated Immunoglobulin G antibody levels indicating a recent or resolving infection. Although adenovirus-associated hematuria has been reported, this would be the first reported case of gross hematuria in a pregnant woman to our knowledge, underscoring the importance to consider adenovirus infection in unexplained hematuria. Early recognition and supportive management remain key to favorable maternal and fetal outcomes.

Keywords: adenovirus; gross hematuria; hemorrhagic cystitis; pregnancy

Introduction

Human Adenovirus (HAdV), a non-enveloped, double-stranded DNA virus, manifests with a broad spectrum of clinical presentations, ranging from mild and localized to severe disseminated disease, particularly in immunocompromised individuals, including pregnant women.[1] In immunocompetent individuals, adenovirus infection is largely self-limiting and resolves without intervention, with fatal complications being exceedingly rare.[2] Among its notable manifestations is hematuria. Microscopic hematuria, often incidental on routine urinalysis, is generally benign, transient, and rarely linked to adverse pregnancy outcomes, reflecting normal physiological changes of pregnancy.[3] In contrast, gross hematuria, though uncommon, carries greater clinical significance, most often due to urinary tract infection but also other etiologies requiring thorough evaluation.[4] Adenovirus (particularly serotypes 11 and 21) can infect the epithelial cells of the bladder and ureters. The virus replicates inside these cells, causing cellular damage and death (cytopathic effect). This damage leads to inflammation, ulceration of the bladder lining (mucosa), and subsequent bleeding occurs.[5]

Case report:

A 35-years, G2P1L1 lady reported to Dhulikhel hospital in Antenatal clinic on 17th September, 2025 at six weeks of gestation for confirmation of pregnancy. At her first visit, she was clinically well with booking hemoglobin (Hb) of 10.5 gm/dl, Blood Group 'A' Rh Positive and Transvaginal sonography showing single live intrauterine pregnancy of Six weeks and one day of gestation by CRL. Her subsequent antenatal visits were uneventful until 17 weeks and 3 days of gestation when she presented with whole body itching and rashes around her upper chest area for a month, underwent liver function test that came out to be normal. Dermatological

Expertise opinion was taken and was prescribed antihistamine and calamine lotion to apply locally. Next, at 23 weeks and 6 days of gestation, she had complaints of muscle cramps, fever (99°F) with rigor but without chills, throat pain, cough, cold, and burning micturition. She was advised for admission which she refused.

On 1st February 2026, she presented to the Emergency Department at 26 weeks of gestation with sudden onset hematuria for one hour. The urine was scanty, dark red and associated with dysuria and abdominal pain. She denied bleeding per vaginum, fever, trauma, sexual contact, heavy lifting or physical abuse. There was no history of bleeding disorder and she was not on any medication other than routine antenatal supplements.

On examination, her BP was 110/80 mmHg and Hb 10.8 g/dl. There was no renal angle tenderness. Speculum examination revealed no vaginal bleeding but bleeding was visualized via urethra. She was admitted for observation and started on hematinic therapy. Urine routine analysis showed pus cells 6-8/ high power field (hpf), Epithelial cells 1-3/ hpf, RBC >100/ hpf. However, urine culture and sensitivity yielded no bacterial growth after 24 hours of incubation.

An obstetric ultrasound confirmed single live fetus at 26 weeks and 5 days of gestation with cephalic presentation, adequate Amniotic Fluid Index, anterior placenta with no retroplacental clot. Laboratory evaluation showed normal complete blood count, liver and renal function tests, and coagulation profile, except for a prolonged activated partial thromboplastin time (APTT) of 38 seconds, which remained elevated at 43 seconds on repeat testing. Furthermore, ultrasonography of the urinary tract revealed prominent bilateral pelvicalyceal system (PCS). Based on the clinical history and symptoms, an Enzyme-Linked Immunosorbent Assay (ELISA) test for Adenovirus was performed, which revealed IgG positivity (28.74 NTU). A

diagnosis of adenovirus induced hematuria in pregnancy was made. The patient was managed conservatively with fluid resuscitation and paracetamol, after which hematuria subsided spontaneously, APTT normalized (30 NTU), and she remains on regular follow up. She delivered at 36 weeks and 5 days of gestation via Emergency LSCS for fetal distress. Both Mother and baby had no complications.

Discussion:

We report a case of adenovirus infection in pregnancy who initially presented with pruritic rashes, muscle cramps and fever, and subsequently developed gross hematuria weeks later. Although adenovirus-associated hematuria has been reported in the literature, to our knowledge, no such case has been documented in a pregnant woman, making this a rare and clinically significant presentation.

Cutaneous involvement in adenovirus infection, though not predominant, is recognized, with rashes ranging from maculopapular to urticarial, and may signal early systemic dissemination, particularly in immunocompromised hosts such as pregnant women.[6,7] Early systemic symptoms of adenovirus infection, including fatigue, chills, and myalgia, typically appears within two to fourteen days of exposure.[5] Fever is a consistent feature of adenovirus infection, occurring across diverse clinical manifestations depending on the serotype.[8] Acute hemorrhagic cystitis, a recognized manifestation of adenovirus infection, presents with dysuria and frequency, followed by hematuria.[5]

In our case, adenovirus infection in pregnancy manifested as a multisystem illness, reflecting both systemic viral involvement and the unique immunological state of pregnancy. At that time, adenovirus infection had not yet been established, and obstetric cholestasis along with primary dermatological causes were excluded. Approximately two weeks before the onset of hematuria, she developed fever with rigors and muscle cramps. The cramps were likely multifactorial, related to systemic inflammation, dehydration, and electrolyte imbalance precipitated by the febrile illness. The development of gross hematuria indicated adenovirus-related urinary tract involvement, particularly hemorrhagic cystitis, which retrospectively unified the earlier cutaneous, febrile, and myalgic manifestations.

In our case, the diagnosis of adenovirus infection was confirmed serologically via ELISA, which revealed a significantly elevated Adenovirus IgG antibody level with a concurrent negative IgM antibody level. This pattern is consistent with a recent or resolving adenovirus infection, indicating that the acute phase of the infection had passed by the time of testing. Management of adenovirus infection in pregnancy remains challenging as no approved antiviral therapy exists. Treatment is therefore supportive, focusing on antipyretics, analgesics, intravenous fluid, and electrolyte replacement. In our case, the detection of adenoviral DNA in the blood, in conjunction with the consistent clinical presentation, supported adenovirus infection as the most likely diagnosis, guiding the decision to pursue supportive management as the primary treatment approach.

Conclusion:

Our case highlights the rare and complex presentation of adenovirus infection in pregnancy, manifesting as a progressive multisystem illness culminating in gross hematuria. The altered immune state of pregnancy may predispose to more severe disease. With no approved antiviral therapy, management remains supportive. Early recognition and close clinical monitoring are essential, ensuring timely diagnosis, preventing unnecessary interventions and promoting favorable maternal and fetal outcomes.

Author affiliations:

11st year Fellow in High Risk Pregnancy, Department of Obstetrics and Gynecology, Dhulikhel Hospital, Dhulikhel, Kavre, Nepal

2Professor and Head of Department, Department of Obstetrics and Gynecology, Dhulikhel Hospital, Dhulikhel, Kavre, Nepal

32nd year Fellow in High Risk Pregnancy, Department of Obstetrics and Gynecology, Dhulikhel Hospital, Dhulikhel, Kavre, Nepal

Conflict of Interest: None declared

References:

1. Al-Heeti OM, Cathro HP, Ison MG. (2022). Adenovirus infection and transplantation. *Transplantation*. 106(5):920-927.
2. Keramari S, Fidani L, Poutoglidis A, Chatzis S, Tsetsos N, Kaiafa G. (2022). Adenoviral infections in neonates: a case-based literature review. *Cureus*. 14(9).
3. Brown MA, Holt JL, Mangos GJ, Murray N, Curtis J. et al. (2005). Microscopic hematuria in pregnancy: relevance to pregnancy outcome. *American journal of kidney diseases*. Apr 1;45(4):667-673.
4. Lindheimer MD and Davison JM. (1998). Hematuria in pregnancy. *Principles and Practice of Medical Therapy in pregnancy*. Ed-Gleicher N, 3rd edition, Appleton and Lange, Connecticut. 1074-1075.
5. Shieh WJ. (2022). Human adenovirus infections in pediatric population-an update on clinico-pathologic correlation. *Biomedical journal*. 45(1):38-49.
6. Kajon AE. (2024). Adenovirus infections: new insights for the clinical laboratory. *Journal of Clinical Microbiology*. 62(9): e00836-22.
7. Keyes A, Mathias M, Boulad F, Lee YJ, Marchetti MA. et al. (2016). Cutaneous involvement of disseminated adenovirus infection in an allogeneic stem cell transplant recipient. *British Journal of Dermatology*. 174(4):885-888.
8. Lynch III JP, Kajon AE. (2016). Adenovirus: epidemiology, global spread of novel serotypes, and advances in treatment and prevention. In *Seminars in respiratory and critical care medicine* (Vol. 37, No. 04, pp. 586-602). Thieme Medical Publishers.



This work is licensed under Creative Commons Attribution 4.0 License

To Submit Your Article, Click Here:

Submit Manuscript

DOI:[10.31579/2578-8965/319](https://doi.org/10.31579/2578-8965/319)

Ready to submit your research? Choose Auctores and benefit from:

- fast, convenient online submission
- rigorous peer review by experienced research in your field
- rapid publication on acceptance
- authors retain copyrights
- unique DOI for all articles
- immediate, unrestricted online access

At Auctores, research is always in progress.

Learn more <https://www.auctoresonline.org/journals/obstetrics-gynecology-and-reproductive-sciences>