Editorial

Dengue Fever Affecting the Genitourinary System

Doi: https://doi.org/10.3329/kyamcj.v15i04.82966

Dengue is a life-threatening viral disease mainly spread to humans through the bites of infected female Aedes aegypti mosquitoes, which also spread the zika and Chikungunya viruses. Female Aedes mosquitoes bite to get blood as a meal and to utilize the protein and iron in the blood. The iron and protein in human blood help mosquitoes produce eggs. Without blood, they cannot mature eggs. Mosquitoes get infected with dengue viruses when they bite infected people. After about one week, the mosquitoes can transmit viruses while biting a healthy person.[1]

Persons infected with the Dengue virus (DENV) are sometimes asymptomatic or develop mild symptoms resembling influenza-like fever, retro-ocular pain, headache, joint and muscle pain, rash, nausea, vomiting, and fatigue. They sometimes progress to severe illness, causing bleeding, thrombocytopenia or sometimes affecting the urogenital tract and later shock.[2]

Dengue has been a rapidly emerging disease in the last few decades. According to the World Health Organization (WHO), the disease is endemic in more than 100 countries annually, infecting about 390 million people worldwide and increasing gradually daily.[2]

These editorials aim to give a comprehensive picture of the atypical spread of the disease and manifestation of DENV fever related to the Genitourinary system which causes severe complications throughout life. There are few reports of dengue, and concurrent urinary tract infection (UTI). If the diagnosis is overlooked lately shock can occur. Both dengue and UTI are common problems mainly in tropical countries. The authors suggest that laboratory tests for both should be done simultaneously during dengue, and UTI diagnosis.[3-5]

In post-PCNL (percutaneous nephrolithotomy) patients, hematuria is a common finding. A study found hematuria, with fever after PCNL for staghorn calculus, who developed anuria, and dengue shock syndrome. So, post-PCNL hematuria, investigations for dengue fever should be done routinely, or severe complications may arise.[6,7]

If the dengue virus passes through semen, it can affect other sexual partners Few studies found dengue virus in semen after acute dengue illness. These findings support the possible sexual transmission of DENV and genitourinary involvement by the virus.[8]

Scrotal involvement in dengue virus infection is not unlikely. Acute scrotal edema associated with DENV infection has been reported in journals. Hematuria is a sign of genitourinary disease, but genitourinary bleeding, acute scrotal edema, and scrotal hematoma have been reported in dengue hemorrhage fever. The right hemiscrotum was swollen and tender without skin edema or a rise in local temperature. Scrotal hematoma may cause compression of the tests, possibly damaging the viability of the testes and resulting in infertility. [9,10,15]

The testis is a very vital part of the genitourinary tract, which is related to fertility. It is well established that testis is a viral reservoir, but whether testes can be infected with DENV is unknown. In animal studies dengue viral proteins were observed in seminal vesicles and the prostate, but not in the testes. So, further studies are required.[12,13] This study found that sperm production decreased after dengue symptoms onset, but there was no significant change in reproductive hormones, which reflects Leydig cell dysfunction after infection by dengue virus. The development of knowledge regarding the involvement of the reproductive tract is currently in its infancy. It emphasizes the importance of further studies in this field, enforcing increasing diagnostic efficacy and limiting sexual transmission of DENV. This finding also gives information relevant to counseling DENV-infected patients and couples who wish to conceive a child.

The genital tract, especially the epididymis and testes, is vital for producing and transporting mature spermatozoa. If an obstruction of the epididymal pathway follows infection, then azoospermia results. The result of treatment of azoospermia is poor. Few reports have been published regarding dengue fever being presented as epididymo-orchitis.[14] This type of atypical dengue manifestation is often underreported and unrecognized due to the lack of awareness of this presentation. We hope this type of report may increase the clinical vigilance of the readers about atypical presentations of a common infection.

Humans have known penetrating sex except for sex toy use or strap-on-dildo since the dawn of time and has been an instinctive form of sexual behavior and psychology among humans, that can contribute to human bonding. Although sexual transmission of the dengue virus is rare, still we cannot rule out that sexual transmission of the dengue virus is impossible. Further study is recommended.[15]

Voiding and sexual dysfunction are substantial health concerns with a significant impact on the male quality of life. Urinary and sexual dysfunction are relatively common after neurological injuries. Although it is rare, few reports have been published about voiding and sexual dysfunction after dengue. After dengue fever, neuromuscular and neuro-ophthalmological complications have been reported. We cannot rule out the effect of voiding and sexual dysfunction in dengue fever. It is recommended that more research work be done on this topic.[16]

In conclusion, we can say that due to the increase in dengue cases, atypical manifestations are rising. It is vital to be aware of the atypical manifestation of dengue fever for proper diagnosis and management. Although epididymo-orchitis is a rare presentation in dengue fever, it may increase in number. Although AKI is rare in dengue fever, symptoms can be prolonged, and damage to the kidney is not unlikely, as gradually publishing more reports are published regarding the development of AKI in dengue fever. Further research is recommended. Passage of DENV through semen has been documented and may cause infection to female genitalia, even spread to the fetus, this part of conjugal meeting is debatable.

References

1 Marieke M. de Swart, Carlijn Blavers, Niels O. Verhulst, Constantianus J.M. Koenraadt, Effects of host blood on mosquito reproduction, Trends in Parasitology. 2023;39(7): 575-587,

2. WHO Newsroom. Dengue and Severe Dengue. 23rd April, 2024.

3. Subhash C. Arya, N. Agarwal. Dengue and concurrent urinary infection in a tertiary care hospital in Delhi . Transactions of The Royal Society of Tropical Medicine and Hygiene. 2009; (103(6) : 642–643, https://-doi.org/10.1016/j.trstmh.2009.01.004.

4. Mary E Wilson, David O Freedman. Etiology of travel-related fever. Curr Opin Infect Dis. 2007;20(5):449-53. doi: 10.1097/QCO.0b013e3282a95e27.

5. S. Wiwanitkit, V. Wiwanitkit . Dengue and concurrent urinary tract infection. Asian Pac J Trop Dis. 2013;3(4):323. doi: 10.1016/S2222-1808(13)60077-8

6. M. Kumar, A. Karthikeyan, Vilvapathy Senguttuvan Karthikeyan et. al. Dengue shock syndrome after percutaneous nephrolithotomy leading to hematuria and renal failure: A rare complication. Indian J Urol. 2020;36(2):136-137. doi: 10.4103/iju.IJU_335_19.

7. Sanjay P. Dhangar, Nayanesh C, Niraj M, and Manisha S, et al. Dengue in a post-PCNL Patient- Vigilance and Suspicion Matters. Asian J of Research and Reports in Urology. 2020; 3(4):1-4.

8. J.Mons , D. Mahé-Poiron , J M. Mansuy , Hélène Lheureux et al. Effects of Acute Dengue Infection on Sperm and Virus Clearance in Body Fluids of Men. Emerg Infect Dis. 2022 ;28(6):1146–1153. doi: 10.3201/eid2806.212317.

9. Muhammad Shamim , Syed Zohaib Gulzar Naqvi. Dengue fever associated with acute scrotal edema: two case reports. J Pak Med Assoc. 2011;61(6):601-603.

10. Rishad MM, Saha P, Khan R, Zahiruddin M. Dengue with Scrotal Swelling: Rare Case Report. Bangladesh J Medicine 2025; 36: 64-65

11. Tun-Chieh Chen , Po-Liang Lu, Yen-Hsu Chen, et al.. Dengue hemorrhagic fever is complicated with acute idiopathic scrotal edema and polyneuropathy. Am J Trop Med Hyg. 2008;78(1):8-10.

12. F. Wang, J. Zhang, Y. Wang et al. Viral tropism for the testis and sexual transmission. Front. Immunol. 2022;13. https://-doi.org/10.3389/fimmu.2022.1040172

13. Joffrey Mons, Dominique Mahé-Poiron et al. Effects of Acute Dengue Infection on Sperm and Virus Clearance in Body Fluids of Men. Emerg Infect Dis. 2022 ;28(6):1146–1153. doi: 10.3201/eid2806.212317.

14. Umakanth M. Dengue Complicated with Epididymo-Orchitis, Parotitis and Rheumatoid Like Arthritis - Case Series. DOI: 10.21276/sjmcr.2018.6.2.1

15. Abdulla, Mansoor C.; Alungal, Jemshad; Nagabhushan. Dengue fever presenting as epididymo-orchitis. DOI: 10.4103/2349-5006.196337

16. Ana B. Bogdana, c, Rodrigo G. Silva, Joao P. Fantina. Voiding and Sexual Dysfunction in a Young Patient After Dengue Fever. Doi: https://doi.org/10.14740/jem380e

Prof. Dr. Ashraf Uddin Mallik
Professor of Urology