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# Epididymitis associated with Dengue

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Epididimitis asociada con el Dengue

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**ABSTRACT**

**Objective:** Describe a rare case of dengue-associated epididymitis, emphasizing its presentation, diagnosis, treatment, and prognosis, aiming to enhance awareness among healthcare professionals. **Case details:** A 27-year-old male with no prior comorbidities presented with a 7-day history of fever, myalgia, anorexia, and a positive dengue IgM test, followed by 24-hour onset of unilateral testicular pain. Physical examination revealed a painful, engorged left epididymis without scrotal erythema or nodules. Scrotal ultrasound with Doppler confirmed epididymitis, with no bacterial infection detected in urinalysis or culture. The patient received symptomatic treatment, including analgesics and hydration, and was monitored for symptom progression. The patient achieved full symptomatic resolution within five days of conservative treatment. A semen analysis conducted one month post-recovery demonstrated normal parameters, indicating no lasting impact on fertility. The clinical presentation of epididymitis was attributed to dengue infection, supported by exclusion of other common etiologies. **Final considerations:** A rare manifestation of dengue is evidenced, including epididymitis in its clinical spectrum. Diagnosis requires a detailed history, physical examination, and imaging to differentiate it from other causes of acute scrotum. Awareness of this association is crucial for prompt identification and management, ensuring favorable outcomes.

**Keywords:** Dengue-associated epididymitis, Viral epididymitis management, Genitourinary manifestations in dengue, Infertility risk in viral infections.

**RESUMO**

**Objetivo:** Descrever um caso raro de epididimite associada ao dengue, destacando sua apresentação, diagnóstico, tratamento e prognóstico, com o objetivo de aumentar a conscientização entre os profissionais de saúde. **Detalhamentos de caso:** Um homem de 27 anos, sem comorbidades prévias, apresentou histórico de 7 dias de febre, mialgia, anorexia e teste IgM positivo para dengue, seguido pelo início, em 24 horas, de dor testicular unilateral. O exame físico revelou epidídimo esquerdo doloroso e edemaciado, sem eritema escrotal ou nódulos. A ultrassonografia escrotal com Doppler confirmou epididimite, sem detecção de infecção bacteriana na análise de urina ou cultura. O paciente recebeu tratamento sintomático, incluindo analgésicos e hidratação, e foi monitorado quanto à progressão dos sintomas. O paciente obteve resolução completa dos sintomas em cinco dias de tratamento conservador. Uma análise de sêmen realizada um mês após a recuperação demonstrou parâmetros normais, indicando ausência de impacto duradouro na fertilidade. A apresentação clínica de epididimite foi atribuída à infecção por dengue, apoiada pela exclusão de outras etiologias comuns. **Considerações finais:** É evidenciado uma manifestação rara da dengue, incluindo a epididimite em seu espectro clínico. O diagnóstico exige história detalhada, exame físico e imagem para

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diferenciar de outras causas de escroto agudo. A conscientização dessa associação é crucial para identificação e manejo rápidos, assegurando desfechos favoráveis.

**Palavras-chave:** Epididimite associada a dengue, Manejo da epididimite viral, Manifestações geniturinárias na dengue, Risco de infertilidade em infecções virais.

**RESUMEN**

**Objetivo:** Describir un caso raro de epididimitis asociada al dengue, destacando su presentación, diagnóstico, tratamiento y pronóstico, con el objetivo de aumentar la conciencia entre los profesionales de la salud. **Detalles del caso:** Un hombre de 27 años, sin comorbilidades previas, presentó un historial de 7 días de fiebre, mialgia, anorexia y una prueba de IgM positiva para dengue, seguido por la aparición en 24 horas de dolor testicular unilateral. El examen físico reveló un epidídimo izquierdo doloroso y congestionado, sin eritema escrotal ni nódulos. La ecografía escrotal con Doppler confirmó epididimitis, sin detección de infección bacteriana en el análisis de orina o cultivo. El paciente recibió tratamiento sintomático, incluyendo analgésicos e hidratación, y fue monitoreado para evaluar la progresión de los síntomas. El paciente logró la resolución completa de los síntomas dentro de cinco días de tratamiento conservador. Un análisis de semen realizado un mes después de la recuperación demostró parámetros normales, indicando la ausencia de un impacto duradero en la fertilidad. La presentación clínica de epididimitis se atribuyó a la infección por dengue, respaldada por la exclusión de otras etiologías comunes. **Consideraciones finales:** Se evidencia una manifestación rara del dengue, que incluye la epididimitis en su espectro clínico. El diagnóstico requiere una historia clínica detallada, examen físico y estudios de imagen para diferenciarlo de otras causas de escroto agudo. La conciencia sobre esta asociación es crucial para una identificación y manejo oportunos, garantizando resultados favorables.

**Palabras clave:** Epididimitis asociada al dengue, Manejo de la epididimitis viral, Manifestaciones genitourinarias en el dengue, Riesgo de infertilidad en infecciones virales.

## INTRODUCTION

Dengue is an acute viral disease with a worldwide incidence estimated at 100 million diagnosed infections and 300 million asymptomatic infections annually. The pathology represents a global health problem, being endemic in more than 100 countries, with half of the world's population living in infection risk areas. The dengue virus (DENV), which has 4 distinct genotypes, is transmitted to humans by bites from female Aedes mosquitoes, usually Ae. aegypti and Ae. Albopictus (MONS J, et al., 2022). After transmission, the incubation phase lasts from 3 to 7 days, and the majority of people with the disease are asymptomatic or develop a mild form of flu-like symptoms.

Common symptoms include fever, retroocular pain, headache, cutaneous rash, muscle and joint pain, nausea, vomiting, and fatigue, which can be exacerbated by dengue hemorrhagic fever and dengue shock syndrome. Some of the associated clinical conditions that may relate to hemostasis problems and plasma leakage from capillaries include appendicitis, pancreatitis, encephalitis, meningitis, mumps, hepatitis, acalculous cholecystitis, myocarditis, adult respiratory distress syndrome, pleural effusion, ascites, and scrotal and penile edema (KESHARWANI A, et al., 2021). During the first five days of the illness, dengue can be diagnosed by identifying the viral genome in serum through polymerase chain reaction (PCR). Immunoglobulin IgM can also be used six days after the onset of the disease using immunoassays. After 14 days the diagnosis can be confirmed by Immunoglobulin IgG (HUNSPERGER EA, et al., 2016).

During dengue infection, essential treatment is supportive, using symptomatic medications such as analgesics and antipyretics. Oral fluid intake should be encouraged as tolerated, preferably with oral rehydration salts, to promote electrolyte replacement. In cases of hemorrhagic complications, blood transfusion may be necessary. As for specific treatment, antiviral drugs are being tested; however, available studies do not yet recommend their routine use (NGUYEN NM, et al., 2013).

Although dengue is common and presents with various clinical manifestations, epididymitis associated with the condition has not yet been described in the literature. Only reports of scrotal and penile edema related mainly to dengue hemorrhagic fever have been found (CHEN T, et al., 2008). Therefore, this article presents a rare case of epididymitis associated with dengue, detailing its presentation, diagnosis, treatment, and

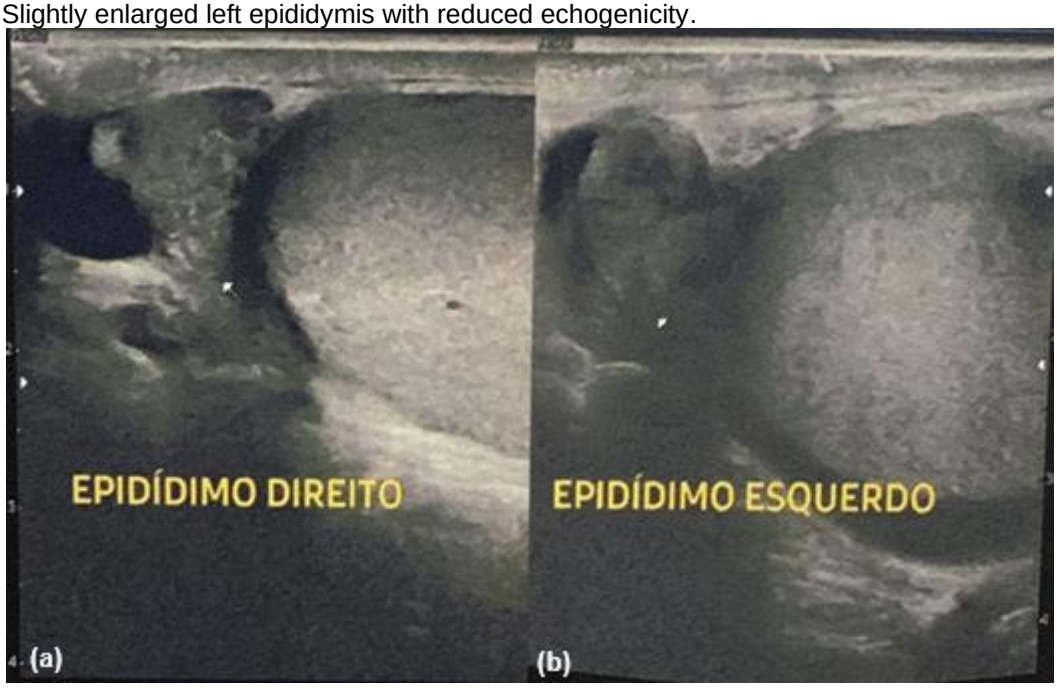
prognosis. Additionally, it aims to increase awareness among healthcare professionals about this condition and ensure its ideal identification and management.

## CASE DETAILS

The presented case report is exempt from approval by the Research Ethics Committee in accordance with CNS Resolution No. 466/2012 and CNS Resolution No. 510/2016 of the Ministry of Health. Both regulations establish that research using information already available in medical records or reports, as long as it does not contain direct identification of participants and ensures their privacy and confidentiality, does not constitute research involving human subjects in the strict sense. This report meets these criteria, adhering to the ethical and responsible use of information, guaranteeing patient anonymity and the confidentiality of the data presented. Male patient, 27 years old, with no comorbidities or previous surgeries, presented with fever, myalgia, nausea, and anorexia for the past 7 days.

He came to the consultation with a positive dengue IgM test and a significant history of left testicular pain for the past 24 hours. He denied testicular trauma or physical activities that might suggest testicular torsion, as well as findings indicative of differential diagnoses of acute scrotum. Physical examination revealed predominantly painful left testicle, especially in the epididymis, which was engorged, but no testicular nodules or erythema in the scrotum were noted. Due to the symptom presented, an immediate local ultrasound was indicated. The scrotal ultrasound with Doppler revealed a slightly enlarged left epididymis with reduced echogenicity, without focal lesions, suggesting epididymitis and no other abnormal findings were identified (**Figure 1**). Additionally, a urinalysis and culture were performed, which showed no signs of infection or bacterial growth.

**Figure 1 -** Scrotal ultrasound with Doppler (a) Right epididymis without abnormalities; (b) Slightly enlarged left epididymis with reduced echogenicity.




**Source:** Ruas JPP, et al., 2025.

The patient was treated clinically with symptomatic relief using codeine with paracetamol for pain management, along with instructions for increased fluid intake and in-structed to return in case of worsening symptoms. There was no need for more potent analgesic medication and the patient showed complete improvement of epididymitis symptoms 5 days after diagnosis with conservative treatment alone. At a follow-up consultation, the patient presented with no complaints, in good general condition, and performing his usual

activities without any sequelae. He brought the requested semen analysis, performed one month after the initial condition, which showed values within the normal range.

## DISCUSSION

Dengue is considered a global health issue, being endemic in various countries predominantly located in tropical and subtropical areas. Over the past decades, the incidence rate and geographical distribution of dengue have rapidly increased by approximately 30 times (NEDJADI T, et al., 2015). Data from the World Health Organization (WHO) estimate hundreds of thousands of dengue cases annually. However, the impact of dengue may be greater than predicted, affecting around 390 million people per year (BHATT S, et al., 2013). The WHO also classifies the disease severity into dengue without warning signs, dengue with warning signs, and severe dengue. This classification considers clinical and laboratory aspects, aiming to improve disease management, reduce mortality rates, and decrease hospital service costs (ARORA SK, et al., 2021; YUAN K, et al., 2022).

Laboratory alterations mainly affect hematological and infectious parameters, requiring investigation to avoid complications. A significant decrease in hemoglobin and platelets can be observed, while white blood cell counts show a reduction in neutrophils and eosinophils, with an increase in monocytes and lymphocytes. The simultaneous rise in hematocrit and abrupt drop in platelets is a major factor related to dengue severity. Liver enzymes such as alanine aminotransferase, aspartate aminotransferase, and albumin protein may also be elevated, indicating liver involvement (ANWAR F, et al., 2022). Beyond its impact on clinical and laboratory parameters, dengue presents significant social and economic challenges. The disease predominantly affects developing countries where limited access to healthcare and preventive measures contributes to its widespread dissemination.

The economic burden of dengue is substantial, encompassing direct costs for hospital treatment and indirect costs such as productivity loss due to morbidity and mortality (SHEPARD DS, et al., 2016). In regions where dengue is endemic, communities also face challenges related to a lack of basic sanitation, facilitating the proliferation of the Aedes aegypti mosquito vector. Although 87% of dengue patients are asymptomatic or exhibit only mild symptoms, a small proportion still requires healthcare assistance (ENDY TP, et al., 2002). In the quality of dengue healthcare, which can directly impact disease outcomes, structural, procedural, and outcome aspects need to be evaluated. This includes the organization of actions, care practices in services, and adequacy of case management according to patients' needs (FIGUEIRÓ AC, et al., 2011).

The wide range of conditions associated with the disease can lead to unfavorable outcomes, especially in cases of dengue hemorrhagic fever, which causes approximately 22,000 deaths annually (STANAWAY JD, et al., 2016). Among potentially fatal complications, neurological manifestations stand out, with encephalopathy and stroke being some of the most severe. In addition to neurological complications, muscular ones are also concerning, such as rhabdomyolysis and myocarditis (MERLOS F, et al., 2024). These severe conditions are generally associated with dengue hemorrhagic fever. The pathophysiology of this condition is understood through the formation of non-protective antiviral antibodies induced by prior invasion of a heterologous DENV serotype. These antibodies bind to the virion's surface, interacting with the Fc receptor (a glycoprotein on certain cells with a protective function in the immune system), directing the viruses to target cells and causing enhanced infection (SOJOS BYB, et al., 2019).

The severity of the condition depends on the viral load and the magnitude of acute-phase reactive substances. Symptoms generally include fever, anorexia, headache, myalgia, joint pain, retro-orbital pain, gastrointestinal manifestations, rash, and pruritus. Genitourinary involvement is usually rare but, when present, typically manifests as scrotal and/or penile edema (KESHARWANI A, et al., 2021). Other inflammatory conditions associated with hemostatic problems and plasma leakage from capillaries, such as appendicitis, encephalitis, myocarditis, pleural effusion, and ascites, may result from the infection.

However, epididymitis, as in the presented case, has not been reported in the literature. Epididymitis is usually caused by the spread of infections from the kidneys, bladder, or urethra. In young men, the most

common causes of acute epididymitis are sexually transmitted infections leading to urethritis. However, sexually transmitted forms are less common in older individuals. Sporadic cases of epididymitis may be associated with systemic bacterial diseases such as tuberculosis and brucellosis or even systemic viral infections like influenza, mumps, chickenpox, Epstein-Barr virus, Coxsackievirus, Echovirus, and Coronavirus (FAION AG, et al., 2021).

Although viral epididymitis is rare, it is noteworthy, characterized by inflammation of the epididymis caused by viral infections. Laboratory analysis may reveal systemic markers of viral infection, including lymphocytosis, elevated inflammatory markers, and specific viral serologies. The pathophysiology involves direct viral invasion or an immune-mediated response that triggers local inflammation and tissue damage in the epididymis. Clinically, patients typically present with scrotal pain, tenderness, and swelling, often accompanied by systemic symptoms of the underlying viral infection, such as fever, fatigue, or rash (KESHARWANI A, et al., 2021). Diagnostic differentiation from bacterial epididymitis is essential, as viral cases generally do not require antibiotics. It is also crucial to differentiate dengue-related epididymitis or other etiologies from acute scrotal conditions requiring urgent surgical intervention.

A thorough history, physical examination, and scrotal ultrasound with Doppler imaging can aid in accurate diagnosis and help avoid unnecessary surgical exploration. Doppler ultrasound findings typically include thickening of the epididymis, with or without hydrocele, and normal or increased blood flow in the testicle. Ultrasound findings such as thickening of the tunica albuginea, enlarged and heterogeneous echogenicity of the testicle, epididymis, abscess, and scrotal wall edema are also suggestive of this condition. These features were crucial for identifying approximately 22.5% of individuals with acute orchitis, epididymitis, or epididymo-orchitis in COVID-19 infection, data not found in the literature for dengue. It is worth noting that the risk of acute scrotal infection in coronavirus infection increases with age, with incidence reaching 53.3% in men over 80 years old. Additionally, men with severe COVID-19 also had a significantly higher likelihood of epididymo-orchitis compared to non-severe cases (CHEN L, et al., 2021).

Orchitis or epididymitis can lead to anatomical alterations in the genital organs, resulting in infertility, a fact already reported in other viral diseases affecting both the epididymis and the testicle through the bloodstream. Pathological evaluation reveals direct or indirect cellular damage by cytokines inducing a local inflammatory response, potentially resulting in sequelae (FAION AG, et al., 2021). Despite thousands of dengue infections worldwide, only two sexually transmissible cases have been reported (LALLE E, et al., 2018). The presence of the virus in semen suggests possible reproductive involvement. A study evaluating DENV transmissibility showed significant decreases in sperm count, total sperm count, and total motile sperm count on day 30. The percentage of normal sperm was also lower during this period, though the decrease did not reach statistical significance, likely due to the small number of volunteers studied (MONS J, et al., 2022).

Semen analysis conducted three months post-infection in the case discussed revealed no residual impact on the patient's fertility, ruling out reproductive impairment. Given the limited number of similar cases reported, the prognosis for genital function remains uncertain. Scientific research continues advancing in the search for effective dengue therapies. Recent studies have investigated specific antivirals and more personalized fluid replacement to treat patients with hypovolemic shock resulting from severe dengue. Artificial intelligence applied to large clinical databases has enabled disease progression prediction and risk factor identification in patients. These innovations have the potential to transform dengue management, making it more efficient and accessible. However, no antiviral drugs are currently available for dengue treatment. Supportive or symptomatic medications can be used, with vector control being the primary route to prevent disease spread (ROSSI P, et al., 2015). In the case presented, only supportive measures were necessary until the viral infection resolved naturally.

Dengue control efforts include epidemiological surveillance initiatives and health education. Awareness campaigns have been implemented worldwide to inform the population about the importance of eliminating mosquito breeding sites, such as containers with standing water. Additionally, dengue prevention should be reinforced as a global priority. A multifaceted approach to vector control, involving community actions, vaccine development, and innovative technologies, has shown promising results. Releasing genetically modified

mosquitoes to reduce Aedes aegypti populations is one such strategy that can complement conventional efforts like insecticide use and breeding site elimination (CARAGATA EP, et al., 2020).

Moreover, vaccination, exemplified by the Dengvaxia vaccine, represents a significant advance, although its application is still limited by factors such as variable efficacy across age groups and the need for prior serological evaluation. The development of next-generation vaccines, such as those based on messenger RNA platforms, offers hope for broader and more effective protection against all four dengue virus serotypes. Another innovative measure includes using the Wolbachia bacterium, which, when infecting Aedes aegypti mosquitoes, reduces their virus transmission capacity, emerging as a sustainable alternative for disease control. However, for these strategies to succeed, it is essential to secure the support of local communities, which play a crucial role in eliminating breeding sites and adhering to vaccination campaigns.

A point deserving attention is the adaptation of dengue control strategies in the face of climate change. Rising global temperatures and altered precipitation patterns have expanded the occurrence areas of the mosquito vector, leading to dengue outbreaks in previously non-endemic locations. Therefore, public policies integrating environmental monitoring with public health measures are crucial to addressing these emerging challenges (LAMBRECHTS L, et al., 2023). The scarcity of similar cases also reflects the difficulty in establishing standardized treatment. Generally, in the presence of viral epididymitis, symptomatic treatment with anti-inflammatory drugs or analgesics is preferred.

Other options observed in a described case included empirical antibiotic therapy with ciprofloxacin due to the risk of opportunistic bacterial infection, along with supportive measures such as scrotal support and local heat application (FAION AG, et al., 2021). It is important to highlight the psychological and emotional impact of dengue on patients and their families. The unpredictability of symptoms and the possibility of severe complications can generate significant anxiety. Studies indicate that patients who have experienced severe dengue episodes report feelings of fear and post-traumatic stress, especially when hospitalized in intensive care units.

Therefore, psychological support should be considered an integral part of treatment, particularly in severe cases. Understanding the characteristics of this rare condition within a relatively common and potentially severe disease can help healthcare professionals make an accurate diagnosis and provide appropriate treatment. It is also essential to inform patients about the typically benign course of dengue infection. Physicians should pay attention during physical examinations to identify any abnormalities, which can be confirmed through laboratory and imaging studies. Although dengue remains a significant public health threat, ongoing advances in research, prevention, and disease management offer a promising path toward reducing its incidence and impact. In this case, follow-up after recovery showed no clinical sequelae, and a semen analysis conducted three months post-infection revealed no residual effects on the patient's fertility.

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