

## Dengue Complicated with Epididymo-Orchitis, Parotitis and Rheumatoid Like Arthritis - Case Series

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**Abstract:** Dengue fever is endemic in countries of south and south-east Asia. Dengue fever may be complicated with dengue hemorrhagic fever (DHF) and dengue shock syndrome (DSS). Owing to the increase in dengue cases, atypical manifestations are also on the rise. The dengue virus, a member of flavivirus group in the family Flaviviridae, is a single-stranded enveloped RNA virus, 30 nm in diameter, which can grow in a variety of mosquitoes and tissue culture. This review collects descriptions of atypical manifestations of dengue fever such as epididymo-orchitis, the second case highlights dengue complicated with left-sided parotitis and third case complicated with rheumatoid-like arthritis.

**Keywords:** Dengue, Epididymo-orchitis, Parotitis, and Rheumatoid like arthritis.

### INTRODUCTION

Dengue is a viral infection conveyed by Aedes mosquitoes. It is a flavivirus with four different antigenically distinct serotypes [1-4]. Dengue is a rapidly growing health problem with an estimated 2.5 billion people at risk, mainly in countries of south and south-east Asia. The clinical features of dengue range from a relatively minor febrile illness to a life-threatening condition characterized by an extensive capillary leak. Dengue infection with one serotype is supposed to result in a defense against all serotypes [2].

Epidemiological studies have revealed that severe disease is more frequently seen after secondary infections. The reason behind this phenomenon is when the neutralizing antibodies fall with a time the non-neutralizing antibodies form complexes with the new infecting virus and these complexes are occupied by Fc-receptor bearing cells. As a result of increased uptake of the virus increased replication and viral load, and hence we assumed the increased likelihood of complications [3].

Severe disease is considered by, hemorrhage, plasma leak, and organ impairment. Knowing the threatening signs of severe disease is vital for successful clinical management. Threatening signs include abdominal pain, evidence of fluid accumulation, hepatomegaly and increases in hematocrit accompanied by a fall in the platelet count [4].

A spectrum of rare complications of dengue infection has been reported throughout the world it ranges from hepatitis[5, 6], appendicitis[7], intracranial hemorrhages[7], myocarditis[8], myocardial infarction[9,10] and neurological complications such as aseptic meningitis, encephalitis, encephalopathy,

Guillain-Barre syndrome, intracranial hemorrhages, thrombosis, mononeuropathies and polyneuropathies.

The aim of this case report is to highlight the three different rare complications of dengue were encountered during the last epidemic. The first case illustrates dengue with left-sided epididymo-orchitis, the second case highlights dengue complicated with left-sided parotitis and third case complicated with rheumatoid-like arthritis.

### CASE HISTORY

#### Case 1

An 18-year -old schoolboy presented to medical ward with the history of fever, body pain and joints pain for 3 days duration. The third day of the fever he complained left side of the testicular pain, which get worse on following day. A surgical opinion was taken, and clinical diagnosis was made left sided epididymo-orchitis subsequently which was confirmed by the ultrasound, which revealed that left funiculitis and left spermatic cord appears bulky. His blood test revealed that he had positive dengue serology (IgM and IgG dengue antibody). The sixth day after admission he was diagnosed to have dengue fever with epididymo-orchitis and was treated with antipyretics. Rest of the blood tests was listed in table 1.

**CASE 2**

A 23-year old female brought to the medical ward with the history of fever, cough, and joints pain, right sided pain over the parotid gland and muscle pain for a two-day duration. She had a high-grade fever with chills and rigors. Her blood test revealed features suggestive of viral fever and her platelets started to reduce. The fourth day of the fever she had evidence of a leak in the means of right-sided pleural effusion and fluid in the peritoneal cavity. On the fifth day, her blood test revealed that both (IgM and IgG) dengue antibodies were positive. However, she complains of persistent pain and tenderness over the right parotid gland. It was confirmed as parotitis by ultrasonically. Rest of the blood tests was listed in table 1.

**CASE 3**

A 31-year-old woman presented to the medical ward with the history of fever, multiple joints pain and myalgia for 2 days duration. The joint pain involving both small and large joints. She had high grade, intermittent fever which responded with paracetamol.

Her full blood count, revealed that neutropenia with lymphocytosis and thrombocytopenia. Subsequent blood report revealed that platelets started to drop further. The fifth day of the fever, dengue IgM antibody became positive. The sixth day of the admission, she was fever free but complained of joints pain. However, her pain only improved by 50% and her platelets started to rise. She recovered from the dengue fever, but still complains of small and large joints pain. As her platelets are low level, we are not in the position to start the non-steroidal anti-inflammatory drugs. But the seventh day of the admission she was started prednisolone. She impartially improved with the steroid, and she went home. Six weeks later she was admitted with the history of multiple small and large joints pain with joints swelling. She also complained early morning stiffness which lasts for more than one hour. The blood test revealed high inflammatory markers with negative Rheumatoid factors. We followed up this case for further three-month periods; she had a remission with non-steroidal anti-inflammatory drugs. See table 1.

**Table-1: Investigations on the fifth day of the fever**

Blood test	Case 1	Case 2	Case 3
WBC	3x10 <sup>9</sup> /l	2x10 <sup>9</sup> /l	3.1x10 <sup>9</sup> /l
Plateletes	14x10 <sup>9</sup> /l	30x10 <sup>9</sup> /l	45x10 <sup>9</sup> /l
AST	55u/l	45u/l	65u/l
ALT	35u/l	45u/l	55u/l
Blood urea	17mg/dl	23mg/dl	26mg/dl
Serum creatinine	0.9mg/dl	1.1mg/dl	1.1mg/dl
DengueIgM antibody	Positive	Positive	Positive
DengueIgG antibody	Positive	Positive	Positive
Urine culture	Negative		
Rheumatoid factor			Negative
ESR			68mm/h
CRP			30mg/dl
ANA			Negative
X-Ray hand			Normal

**DISCUSSION**

Dengue virus infection clinically apparent as dengue fever, dengue shock syndrome, and dengue hemorrhagic fever. Typical symptoms during the early febrile stage include fever, malaise, headache, body pains, and rash. Atypical manifestations of dengue can be diverse. Acute epididymo-orchitis is an acute inflammatory disease of the epididymis and ipsilateral testis. Epididymitis and orchitis are commonly seen in men less than 35 years of age. The most common cause in men is *Chlamydia trachomatis* and occasionally *Neisseria gonorrhoeae* [11]. In males of all ages paramyxovirus (mumps) and amiodarone use should be considered. Epididymitis and orchitis may also occur after indwelling urethral catheter as well as transurethral diagnostic and surgical manipulations [12]. Infrequent causes include tuberculosis, brucellosis, *Candida* spp, cryptococcosis, and Behçet's syndrome. However, dengue fever-

causing epididymitis and orchitis is a rare phenomenon. A similar case was reported in India as well [13].

Acute parotitis is a common clinical feature of many infectious and autoimmune, metabolic, and drug-related conditions, however usually it happened in bilaterally. We reported the unilateral involvement of the parotid gland following dengue fever which is a rare presentation. Acute infections that involve the parotid glands are possible to be confused with mumps because of their sudden onset. Furthermore, associated fever could suspect the following infections such as Coxsackie viruses, influenza A viruses, and parainfluenza type-3[14]. However, this rare presentation happened during the dengue outbreak period and positive dengue IgM antibody which was confirmed the diagnosis of dengue fever. The possible clinical and diagnostic implications of detection of

dengue virus in saliva during acute infection deserve further evaluation [15].

A viral etiology is believed to be accountable for roughly 1% of all cases of acute arthritis. Though, dengue fever usually displays with significant musculoskeletal symptoms including arthralgia and myalgia. However, dengue virus as a cause of rheumatoid-like arthritis is not reported so far. It is understandable that, Worldwide, parvovirus B19, hepatitis B and C, HIV and the alphaviruses are among the most important causes of virally mediated arthritis. However, it is challenging target for the clinician to come diagnosis because low-titer autoantibodies, such as rheumatoid factor and antinuclear antibody, can occur in the setting of acute viral arthritis [16]. An interesting case has been reported in Sri Lanka, where dengue fever complicated with unilateral sacroiliitis [17]. Though viruses cause only a small percentage of all cases of acute arthritis, differentiation of virally mediated arthritis from primary rheumatologically disease is important for several reasons. First, unlike immune-mediated rheumatological disease, virally mediated arthritis is self-limiting and does not require commencement of any specific disease-modifying agents. Conversely, certain viral infections may require initiation of specific antiviral therapy. However, rheumatoid arthritis (RA) and other types of systemic inflammatory arthritis may be difficult to differentiate from viral arthritis yet require early intervention to improve long-term outcomes.

## CONCLUSION

Owing to the increase in dengue cases, atypical manifestations are also on the rise. Therefore, it is vital to be aware of the atypical manifestations of suitable diagnosis and management. It complicates with epididymo-orchitis is a rare presentation; however, need to exclude the testicular torsion and scrotal swelling. Furthermore, the dengue fever complicated with acute parotitis is a rare phenomenon, however, the probable clinical and diagnostic implications of the discovery of dengue virus in saliva during acute infection merit further evaluation. Dengue viral arthritis is typically self-limiting and requires no specific intervention, although in rare cases symptoms can be prolonged. Some viruses have a predilection for the joints, and arthritis is one of the common presenting signs of infection.

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## CONSENT FOR PUBLICATION

Written informed consent was obtained from the patients for publication of this article

## CONFLICTS OF INTEREST

The authors declared no competing interests.

## ETHICAL CONSIDERATIONS

Ethical issues (including plagiarism, data fabrication, double publication) have been completely observed by the author)

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