

## Concomitant Dengue Fever with *Haemophilus influenza* and *Candida tropicalis* in an Infant: A Rare Association

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### Abstract

Dengue represents common endemic infection in tropical areas. Occurrence of bacterial and fungal superinfection or coinfection in patients with dengue is rare. In case of persistent fever in patients with dengue, co-infection with bacteria and fungi should be kept in mind and patients should be investigated accordingly. We report an unique case of an infant with severe dengue fever presenting as meningoencephalitis with co-infection with *Hemophilus Influenza* and *Candida tropicalis*. [Bangladesh J Infect Dis 2014;1(2):38-40]

**Keywords:** Dengue; co-infection; *Haemophilus Influenza*; *Candida tropicalis*

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**Competing interests:** None stated

### Introduction

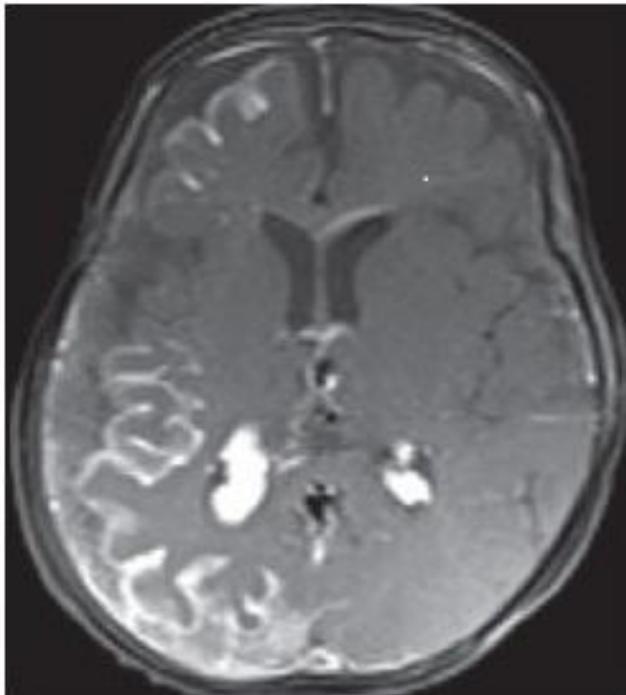
Dengue represents one of the common endemic infection in tropical areas and it has variable clinical spectrum ranging from asymptomatic infection to life-threatening severe dengue with organ failure. Fever, arthralgia, headache, petechial spots, rash and haemorrhagic manifestations are common features with which dengue infection presents<sup>1</sup>. Occurrence of bacterial and fungal superinfection or coinfection in patients with dengue is rare<sup>2-6</sup>. We report an unique case of an infant with severe dengue fever presenting

as meningoencephalitis with co-infection with *Hemophilus Influenza* and *candida tropicalis*.

### Case Report

One year old male child presented with fever, projectile vomiting, altered sensorium and multiple episodes of generalized tonic-clonic seizures .On presentation child was in hypotensive shock and had neck stiffness. Complete blood count revealed white cell count normal (6,300 cells/cu mm) with Polymorphs (25%), high Lymphocytes (75%), severe thrombocytopenia (12,000 cells/cu mm) and reduced

hemoglobin (7 mg/dl) with packed cell volume (PCV) of 25%. Dengue NS1 antigen testing performed on day 2 of fever was positive, week later Dengue IgM was also positive. C-reactive protein was high (114 mg/dL). Liver function and renal function were normal. Child was shifted to ICU and required fluid resuscitation and inotropic support.

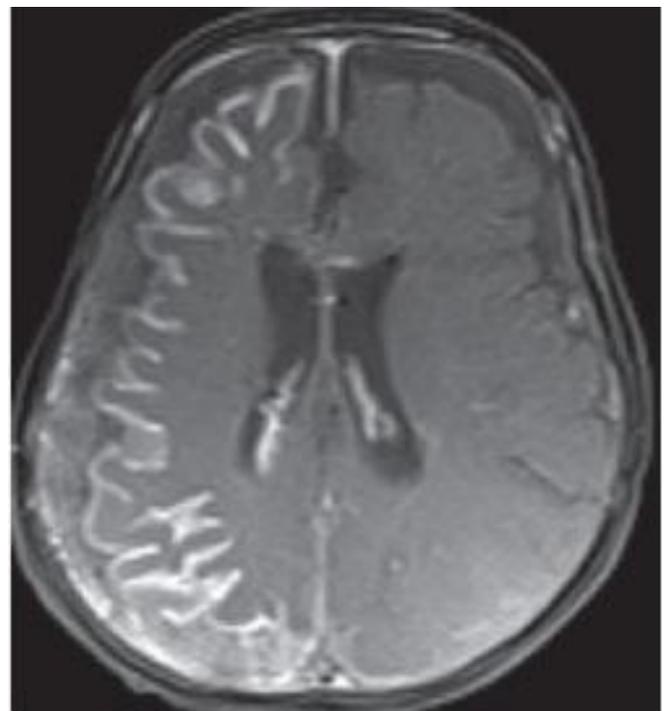


**Figure I: MRI of Brain**

Fever and altered sensorium were persistent; therefore, MRI brain was done that showed [Figure I] diffuse leptomeningeal enhancement, tiny focus of restricted diffusion representing non-hemorrhagic infarcts in right temporal lobe and sublentiform region. On day 4 of hospitalization, lumbar puncture (LP) was performed and cerebrospinal fluid (CSF) showed raised protein (170mg/dL), 650 cells/cu mm with high polymorphs (70%), lymphocytes 30% and sugar 56 mg/dl with corresponding blood sugar of 95mg/dL. Gram staining of CSF did not reveal any organism but latex agglutination for *H. Influenza* was positive. Blood culture and CSF cultures did not grow any organism. The patient was started on IV ceftriaxone. Patient's sensorium improved gradually but fever continued. A CT-scan of brain was done on Day-10 of hospitalization which showed bilateral subdural empyema and mastoiditis. Mastoid fluid was aspirated and grew *Candida tropicalis*. Liposomal amphotericin B was added following which fever subsided. The patient was given 21 days of Ceftriaxone and total dose of 40mg/kg of liposomal amphotericin B. The patient is now in regular follow up and is growing well.

## Discussion

The occurrence of co-infection by dengue virus and bacteria has been underestimated and only few case reports have been published. Among 774 patients presenting with DHS, Lee and others observed that 5.5% of the patients had bacteraemia<sup>7</sup>. Microorganisms have been identified as occurring simultaneously with dengue virus infection include *Streptococcus pneumoniae*, *E. coli*, *Salmonella species*, *Shigella sonnei*, *Klebsiella species*, *Enterococcus faecalis*, *Moraxella lacunata*, *Staphylococcus aureus*, *Haemophilus influenza*, *Candida tropicalis*, *Mycobacterium tuberculosis*, *Mycoplasma* and *herpes viruses*<sup>2-6</sup>. Similarly in this case *Haemophilus influenza* was detected in CSF by latex agglutination test and mastoid fluid showed *Candida tropicalis*.



**Figure II: MRI of Brain**

As for the pathogens isolated from blood in bacteremic patients in case series with the exception of one isolate of *Roseomonas* species and another isolate of *K. ozaenae*, the majority of the bacteria like three isolates of *K. pneumoniae*, one of *M. lacunata*, and one of *E. faecalis* are normally found in the intestinal tract<sup>7</sup>. It can be assumed that most of the above mentioned bacteria invaded the bloodstream from the intestinal lumens of the patients because dengue virus infections may lead to disintegration of intestinal mucosal barrier, resulting in creation of a portal of entry for pathogens that normally inhabit the intestinal tract<sup>8</sup>. Whether this the occurrence of

bacterial or fungal infection superimposed on the dengue virus infection is purely coincidence or more likely due immunosuppression caused by the virus needs to be further investigated<sup>9</sup>.

### Conclusion

This case report permits to conclude that in case of persistent fever in patients with dengue, co-infection with bacteria and fungi should be kept in mind and patients should be investigated accordingly.

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