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# Case Report

## Dengue-Herpes Zoster Coinfection: A Case Report

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***Abstract***

*Tropical mosquito-borne infections, such as dengue, pose a significant morbidity and mortality risks to human. Coinfection in dengue patients may be seldom reported, but it carries essential implications in patient management. Our case is a 16-year-old girl who presented with vesicular eruptions on her face along with a short duration of high-grade fever and aches. Despite the typical distribution of rashes associated with herpes zoster infection, given the endemicity and recent outbreak of dengue, her blood sample was tested for dengue, which came back positive.*

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**Background**

Dengue fever, a mosquito-borne viral infection, reached new heights in 2023. A developing country like Bangladesh, which is endemic for the disease, has observed a high mortality and morbidity.[1] Coinfection with dengue fever in various combinations, such as malaria and Chikungunya virus, has been reported.[2,3] Coinfections are difficult to diagnose, and life-threatening complications may occur if not recognized early. Dengue infection may range from asymptomatic to mild or severe, life-threatening symptoms like hemorrhage and shock. Approximately 100-400 million dengue infections are recorded each year.[4] Nearly 321,017 and 101,211 confirmed dengue cases have been reported in our country in 2023 & 2024 respectively.[5]

Varicella-zoster, a neuro-dermotropic virus, manifests as vesicular skin rash in a defined dermatomal distribution, which is often self-limiting. It remains dormant and reactivates later, either spontaneously or when the host becomes immunocompromised. The concomitant infection of Dengue and varicella is rare but possible in countries where both diseases are prevalent.[6] Both diseases may cause fever and rashes, but later on, coinfection can be identified by the typical nature of the rash and by lab investigations. Endemicity, clinical profile, and high clinical suspicion are necessary for identifying coinfections.

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**Case presentation**

Our case is a 16-year-old girl who presented to us with vesicular eruptions on her face. Although it started as a single blister, within four days, the eruptions increased in number, resulting in more blisters and surrounding erythema. Blisters spread over the entire right cheek and the right periorbital area of the face. She also reported a history of fever, initially low but gradually increasing to 103°F. Her fever was associated with pain in the whole body, with worsening headache and vomiting for one episode. After peaking for three days, her fever gradually subsided, but the blisters increased, accompanied by new symptoms of burning on the face, along the distribution of the blisters. Day by day, her burning became so unbearable that she needed to cool it with a fan. At the same time, her right eye began to water spontaneously. She didn't have any photophobia, altered consciousness, abdominal pain, or vomiting.

On examination during her hospital admission, she was afebrile and oriented. She was well-hydrated with stable vital signs and a normal capillary refill time. There was no ascites or pleural effusion clinically. She had multiple erythematous blisters around her right eye and maxillary region, which became crusted over (Figure 1). Her complete blood count showed progressive thrombocytopenia, with the lowest platelet count of 100,000/cmm on day 5 of her fever, which subsequently increased to normal. Her hematocrit remained stable throughout (Table 1). She had a normal transaminase level (SGPT 36IU/L). Ultrasound scan of the whole

**Table I**

*Comparative Blood Counts along with day of fever*

| | Day 4 of Fever | Day 5 of Fever | Day 7 of Fever | Day 9 of Fever |
|---|---|---|---|---|
| Hemoglobin (gm/dl) | 12.3 | 11.3 | 11.4 | 11.8 |
| HCT% | 37.7 | 34.7 | 36.3 | 35.6 |
| Total WBC count | 3100 | 2530 | 4100 | 6480 |
| Platelets(/cmm) | 150000 | 100000 | 126000 | 175000 |

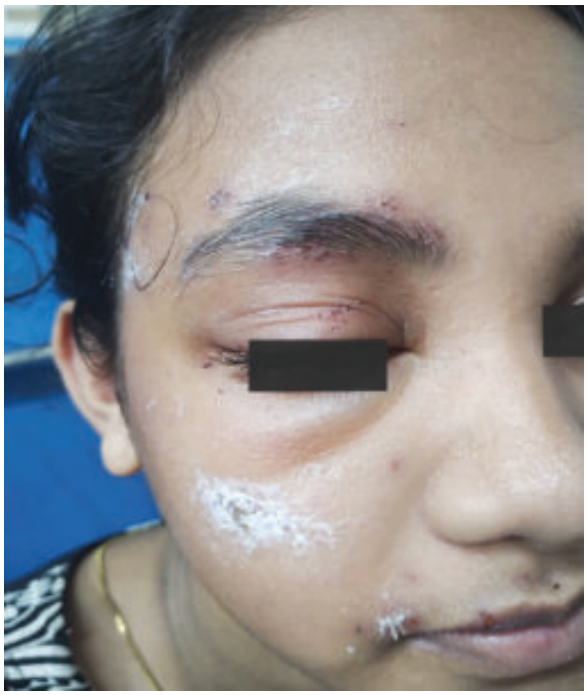

**Fig.-1.** Distribution of rashes in our patient (with ointment applied over the lesions)

abdomen showed neither any pleural nor peritoneal fluid accumulation nor pericholecystic collection or hepatomegaly. As there is a local outbreak of dengue and complete blood count revealed progressive leucopenia & thrombocytopenia, she was tested for dengue, which became positive (NS1 for dengue). She also had positive IgM for dengue antibody tested on the 7th day of her illness. She was treated by a multidisciplinary team including an internist, dermatologist, Ophthalmologist, and specialist nurse. She was put on both oral and topical acyclovir. We gave her Oral acyclovir at a dosage of 10mg/kg/dose divided into 5 doses. She also received topical antibiotic eye drops and ointments. As she had mild dengue, she was advised to take adequate oral fluids and paracetamol when needed. Gradually she improved, rashes healed, but burning in the face persisted, for which she needed some antineuropathic medication like pregabalin for a month. Thereafter, she had no complaints and recovered completely.

**Discussion**

Varicella (chickenpox) is caused by the varicella-zoster virus (VZV), a member of the herpesvirus family that remains dormant in the dorsal root ganglia after initial infection and may reactivate later in life as herpes zoster (shingles).[7] HZI may be preceded by a prodrome of deep burning or aching pain and followed by complications such as encephalitis, pneumonia, and postherpetic neuralgia, a condition where pain persists even after the rash resolves—sometimes for months or years.[8,9]

Dengue fever, caused by dengue virus (serotypes DENV-1 to DENV-4), presents in two primary clinical forms: dengue fever (DF) and dengue hemorrhagic fever (DHF). The symptoms may range from fever, aches & pains to life-threatening complications like major bleeding, shock, and multi-organ involvement.[10]

Our patient presented with fever and erythematous vesicular rashes on her face—features consistent with herpes zoster infection. These rashes displayed the classic "cropping" pattern of vesicles, papules, and crusts in a localized area. Although rashes are common in both diseases, in HZI, they are unilateral, painful, and blistering in a dermatomal distribution, rather than the generalized rashes seen in dengue. As most cases are diagnosed clinically, lab testing (like PCR or direct fluorescent antibody tests) is usually not done for the diagnosis of HZI.[11]

For patients with acute febrile illness in an endemic region like Bangladesh, we considered differentials such as dengue, chikungunya, malaria, and enteric fever. Our patient tested positive for dengue, both for NS1 antigen & later for IgM antibody for dengue on immunochromatography (ICT). Although her ICT for Malaria, Chikungunya, and blood culture for enteric fever came back negative.

Typically, HZI doesn't require hospitalization unless the patient is immunocompromised. In this case, due to the concurrent dengue infection, inpatient monitoring was necessary. We closely monitored her vital signs, capillary refill time, and urine output for signs of plasma leakage or

other complications. Treatment included oral fluids, paracetamol, acyclovir (both oral and topical), moxifloxacin eye drops, and oral pregabalin for neuropathic pain (neuralgia). Her clinical condition improved steadily, and she was discharged without any complications. Follow-up lab tests were within standard limit.

Although there is no well-established link between dengue and herpes zoster, dengue may trigger immune changes that could potentially reactivate latent VZV, suggesting a possible autoimmune-mediated mechanism.[12] However, more research is required to understand better any potential association between dengue infection and the reactivation of herpes zoster.

**Conclusion**

In tropical country with emerging and re-emerging infectious diseases, clinicians should always consider the possibility of coinfection with different microbes. Here, in our case, both the dengue and herpes zoster coinfections could have resulted in severe complications. Therefore, a vigilant clinical eye as well as a multidisciplinary approach are essential to manage such cases.

**Author Contributions**

Mazid AHMT was responsible for the project's initiatives, supervision, and editing. Mehedi HMH, Kabir ASML, and Saleh N were involved in the management of the case and assisted with the writing of the manuscript. All authors read and approved the final manuscript.

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**Conflict of interest**

The authors declare that they have no competing interests.

**Data Availability Statement**

Data sharing does not apply to this article as no datasets were generated or analyzed during the current study.

**Funding Statement**

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**Ethical Approval**

The study is exempt from ethical approval in our institution.

**Consent**

Written informed consent was obtained from the patient's legal guardian for the publication of this case report.

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