

## Double Calamity in Dengue Fever

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**Received:** October 05, 2018; **Published:** October 25, 2018

### Abstract

Dengue is a common arboviral illness borne by mosquito's aka *Aedes aegypti* in the tropics where 90% of infections rendering mild manifestations such as high fever, arthralgia and myalgia. Bleeding complications are infrequent. Rare bleeding problems that have been reported include gastrointestinal bleeding and heavy menstruation. Internal bleeding can induce unexpected sequelae such as compartment syndrome. The intramuscular hematoma is classified as an uncommon but serious bleeding complication in dengue which may further result in compartment syndrome.

It rarely occurs spontaneously, but peripheral vein cannulations and intramuscular injections are usually the root cause of such disasters. Once an expanding haematoma develops, treating them can be a handful even for the best of surgeons and physicians.

**Keywords:** Double Calamity; Dengue Fever

### Introduction

We present a case of severe dengue with bleeding tendencies associated with capillary leak syndrome presenting as compartment syndrome involving the right upper limb in a healthy middle-aged gentleman with no history of background medical illnesses. Compartment syndrome involving the limbs as a complication of dengue fever is rarely heard about and there are less than 5 cases reported in the international literature. We report this case to underline its utmost importance to raise awareness of this calamity and the challenges faced in treating these group of patients.

### Case Report

A 40-year-old Malay gentleman walked into the Emergency Department with complains of a 5-day history of arthralgia, myalgia, headache and reduced oral intake. On arrival, his physical examination was unremarkable with no signs of bleeding tendencies. Vital signs were stable with good urine output. His initial blood investigations revealed a classic dengue fever picture with white blood cells  $4.7 \times 10^3$  u/L, platelets 45000/ $\mu$ L, haemoglobin 14 g/dL, haematocrit of 43.2%.

Both dengue non-structural protein-1 (NS1 antigen) and dengue IgM were positive. Renal profile, prothrombin time and other investigations were normal. He was subsequently admitted to the dengue ward.

On day 3 of admission, the patient was referred to the Orthopaedics team as the physicians noted bruises and swelling on his right forearm (at the site of a now-removed venous cannula) which continued to expand. His right forearm and distal arm were warm, swollen and tense with the distal circulation capillary refill time noted to be approximately around 3 seconds. Further examination revealed hypoaesthesia involving all sensory modalities but without any ulceration nor discharge. Both active and passive movements at all joints involving the right hand and wrist were severely painfully restricted and resisted.

Laboratory investigations revealed haemoglobin (Hb) 12 g/dL, platelets 23,000/ $\mu$ L and a Hematocrit of 37%. Abnormal cells or parasites were absent on the peripheral smear. Malarial antigen and *Leptospira* tests were reported negative. An initial diagnosis of severe dengue fever with bleeding tendencies in defervescence with acute compartment syndrome of the right upper limb was made.

At this stage it was apparent to us that and urgent fasciotomy was necessary in order to save the limb, but not without studying the repercussions of the surgery - bleeding intraoperative and post operatively due to the low platelet counts. Courageously, we decided to transfuse him with 4 units of fresh platelets and simultaneously took him to the theatre for high risk surgical fasciotomy with carpal tunnel release of the hand, forearm and arm (Figure 1). Intra-operative findings exposed muscle bulge, large intramuscular and subcutaneous clots which were evacuated. The muscles began to regain their natural colour and contractility immediately following fasciotomy. Capillary refill time recovered to approximately less than 2 seconds and SPO<sub>2</sub> detection of all fingers read ≥ 96%.

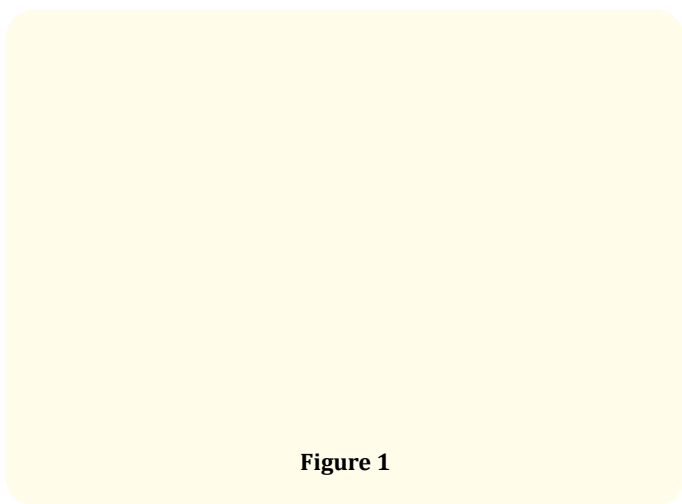


Figure 1

Post-operatively the patient was taken to the Intensive Care Unit for close monitoring. His Hb levels dropped to 8 g/dL post-surgery and the dressings were noted to be soaked day 1 post operatively. He was taken in to theatre again on the 2<sup>nd</sup> day for wound exploration and to secure haemostasis, however there was nothing much we could do as there were minute capillary bleeders which were not coagulable.

As the disease progressed to D6, his blood counts improved and as soon he was in the recovery phase, most of the minor bleeders stopped. He then later developed Hospital Acquired Pneumonia and has slowly began to show signs of recovery.

The fasciotomy wound showed no signs of secondary infection and he is planned for secondary closure of right forearm in 2 weeks.

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Time of onset	D3
Gender	Male
Local trauma	Venous cannula
Location	Right hand
Other bleeding sites	Nil
Other leaking sites	Nil
Pathophysiology	Haematoma 2' thrombocytopenia

Table 1

### Discussion

Musculoskeletal manifestations are rare in dengue and are usually either due to myositis or rhabdomyolysis. In our patient, a simple periphery vein cannulation with associated thrombocytopenia (despite normal prothrombin time (PT) and activated partial thromboplastin time (aPTT)) culminated a calamity which would have caused the patient his arm. Our patient developed compartment syndrome of the right upper limb due to an expanding haematoma. The haematoma was austere a result of thrombocytopenia from dengue fever. This haematoma increased the intra-compartmental pressure, which compromised capillary and venous blood flow as well as lymphatic drainage [1-4].

### Conclusion

In conclusion, practitioners must be aware of different forms of dengue complications, where urgent and aggressive interventions may enable physicians to salvage limbs and prevent morbidity and mortality. Patients, for whom venous or arterial cannulas are inserted during, need to be meticulously monitored. Hence, a high index of wariness is essential assessing a swelling of the limb in a patient with dengue. We report this case to underline the importance of internal bleeding and capillary leak in dengue, as also to record a clinical scenario as yet scarce in world literature.

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**Volume 1 Issue 2 November 2018**

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