CASE REPORT

Spontaneous calf haematoma in severe dengue

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SUMMARY

We report a case of spontaneous calf muscle haematoma, formed during the recovery phase of dengue haemorrhagic fever, which, to the best of our knowledge, has never been encountered before. A 45-year-old man presented with features of severe dengue and got admitted to our intensive care unit. He was treated with intravenous fluid therapy and supportive measures, and gradually improved, initially. However, during the recovery phase, he suddenly developed painful left calf, which was found tender, hot and swollen on physical examination. Colour Doppler ultrasound revealed left calf haematoma. As the patient rapidly developed local compartmental syndrome, surgical evacuation of the haematoma followed by urgent fasciotomy was performed. He recovered without further complication and was discharged home. At follow-up after 2 months, he remained well.

BACKGROUND

Dengue, the fastest emerging arboviral infection, has become a major public health concern worldwide. It has a wide spectrum of presentation, from flu-like illness to death at its most severe form. Most patients present with fever, non-specific constitutional symptoms and features of plasma leakage. However, reports of atypical or unusual features involving neurological, hepatic, renal or other isolated organ system, also known as expanded dengue syndrome (EDS), are on the rise¹. Although spontaneous bleeding in various organs and cavities have been reported, spontaneous large muscle haematoma formation is rare². We report a case of spontaneous calf muscle haematoma, formed during the recovery phase of dengue haemorrhagic fever (DHF), which, to the best of our knowledge, has never been encountered before.

CASE PRESENTATION

In September 2015, a 45-year-old man presented to ER of our hospital with generalised body ache for 7 days and palpitation for 2 days. He had a history of high fever (highest recorded temperature 39.4°C)

and maculopapular rash for 5 days that subsided 2 days prior to presentation. On physical examination, he was found conscious (Glasgow Coma Scale 15), dehydrated and with hypovolemic shock (pulse regular, low volume, rate 130/min, blood pressure 80/50 mm Hg and central venous pressure 8 cm of water). There was no rash or any active bleeding at any site. Other general and systemic examinations revealed no abnormality. DHF was suspected from clinical parameters, and intravenous fluid therapy as per WHO guideline¹ with other supportive measures (ie, oxygen and nutrition supplements) were commenced. His shock resolved within next 24 hours, and physical well-being as well as the laboratory parameters improved gradually. However, during the recovery phase, on the second day following admission (ninth day of onset of fever), he suddenly developed painful left calf, which was found tender, hot and swollen on physical examination.

INVESTIGATIONS

Significant initial laboratory investigations showed haemoglobin (Hb) 122 gm/L, haematocrit (Hct) 34%, total leucocyte count 4.94 K/ μ L, platelet count (PC) 136 K/ μ L, alanine aminotransferase 267 U/L, aspartate aminotransferase 573 U/L, serum sodium 130 mmol/L, procalcitonin 0.53 ng/mL and C reactive protein 37.7 nmol/L. Clinical suspicion of DHF was confirmed by positive dengue-NS1-antigen and anti-dengue-antibodies (immunoglobulin (Ig)M and IgG). After the sudden development of the left calf swelling, due to history of prolonged bed rest during the previous week, deep vein thrombosis (DVT) was suspected, and an urgent colour Doppler ultrasonogram of left lower limb veins was done. It revealed fairly large haematoma (about 12.0×6.0×3.3 cm, approximate volume 155 cc), in the left calf muscle (figure 1), which was also obstructing the venous flow. No thrombus was detected in the venous system. PC on the day of development of haematoma was 110 K/ μ L, which was the lowest, recorded during his admission.

DIFFERENTIAL DIAGNOSES

- Deep Vein Thrombosis (DVT)
- Calf muscle haematoma

TREATMENT

As the pain gradually worsened and there was clinical evidence of compartment syndrome, surgical evacuation of the haematoma (about 140 mL) followed by urgent fasciotomy was performed under general anaesthesia. Two units of packed cell

Figure 1 Ultrasonogram of left calf showing a fairly large haematoma.

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were transfused to compensate the dropped Hb (76 gm/L). No further treatment or support was required.

OUTCOME AND FOLLOW-UP

The patient improved gradually on the following days and was discharged home on the 11th day of admission, with the diagnosis of severe dengue with atypical manifestation (spontaneous left calf haematoma). He was followed-up after 2 months and was well.

DISCUSSION

Dengue is a self-limiting, systemic, viral infection, caused by one of four single-stranded RNA viruses (DEN 1–4) of the genus flavivirus, spread by *Aedes* mosquito. Although most infections are asymptomatic, a wide variety of clinical manifestations, from mild febrile illness to severe and fatal disease, can occur. Dengue viral infection can present with or without warning signs, and patients either recover without complications or develop severe dengue. Unusual manifestations in dengue are uncommon. However, in recent years, with the geographical spread and with more involvement of adults, there have been increasing reports of atypical manifestations or EDS.¹

Although bleeding in different organs and body cavities have been reported in DHF,^{1–4} spontaneous muscle haematoma, an atypical manifestation, itself is rare^{2,4}. Only a handful of reports are available on haematoma formation in iliopsoas muscle^{2,3} and rectus sheath³ in DHF. But, to the best of our knowledge, spontaneous calf muscle haematoma has not been reported in association with DHF. Spontaneous calf haematoma itself is rare. Interestingly, all the patients reported to have this condition were males, in their middle or older age. No conclusive cause could be found in any case.⁴

Pathogenesis of muscle haematoma in DHF is unclear. Bleeding could either be due to vasculopathy, thrombopathy or disseminated intravascular coagulopathy, secondary to the immune response against secondary dengue infection. Vasculopathy results from endothelial dysfunction and enhanced vascular permeability, whereas thrombopathy is due to platelet dysfunction and thrombocytopenia.² The most important differential diagnosis of calf haematoma to exclude is DVT. Use of anticoagulation, as in case of DVT, could worsen situation in haematoma. Thorough history and meticulous physical examination is important, but findings are not always specific.^{4,5} Ultrasound is a quick and safe procedure to diagnose haematoma and to exclude DVT and other differentials. CT scan and MRI are also useful tools to identify and measure haematoma.⁵ In case of calf haematoma, surgical evacuation usually yields good result,⁴ especially if complicated with compartment syndrome.

Learning points

- ▶ Dengue is a mosquito-borne, systemic, self-limiting viral disease that may manifest from mild febrile illness to severe and fatal disease.
- ▶ Although unusual manifestations in dengue are uncommon, in recent years, there have been increasing reports of atypical manifestations (also termed as expanded dengue syndrome).
- ▶ Bleeding in different organs and body cavities have been reported in dengue haemorrhagic fever (DHF), however, spontaneous muscle haematoma is rare. Spontaneous calf muscle haematoma has never been encountered before.
- ▶ The most important differential diagnosis of calf haematoma to exclude is deep vein thrombosis (DVT). Use of anticoagulation, as in case of DVT, could worsen situation in haematoma.
- ▶ Ultrasound is a quick and safe procedure to diagnose haematoma and to exclude DVT and other differentials. CT scan and MRI are also useful tools to identify and measure haematoma.

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