

## Spontaneous splenic rupture during dengue fever

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### Abstract

Dengue fever is one of the most frequent arboviral diseases in the world. Dengue is known to cause myocarditis, hepatitis, and neurological illustrations but one of the established presentations is leakage of plasma resulting in circulatory failure. Spontaneous rupture of the spleen is one of the most infrequent but known outcome of dengue fever which has been reported from time to time in literature. We present, here, the case of a 50-year-old patient who developed this condition during dengue fever and was managed in our department successfully. This complication must be kept in mind while treating any case of dengue fever so that it can be avoided or if not then treated timely.

**Keywords:** Spontaneous splenic rupture, Dengue Fever, Dengue haemorrhagic fever, Haemoperitoneum.

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### Background

Dengue fever is one of the most frequent arboviral diseases in the world.<sup>1</sup> Although plasma leakage leading to circulatory failure is a known complication of dengue, dengue has also been linked to pathologies like myocarditis, hepatitis, and neurological manifestations.<sup>2</sup> Spontaneous rupture of the spleen is one of the most infrequent but known outcomes of dengue fever which has been reported from time to time in literature. Data of most of the reported cases shows that the spleen ruptured during the early phase of dengue has fatal outcomes. In the present case, the patient had splenic rupture in the recovery phase of the disease. Patient's consent for publication was obtained for publishing the case report.

### Case Presentation

A 50-year-old male presented in the emergency department of Mayo Hospital Lahore on December 25,

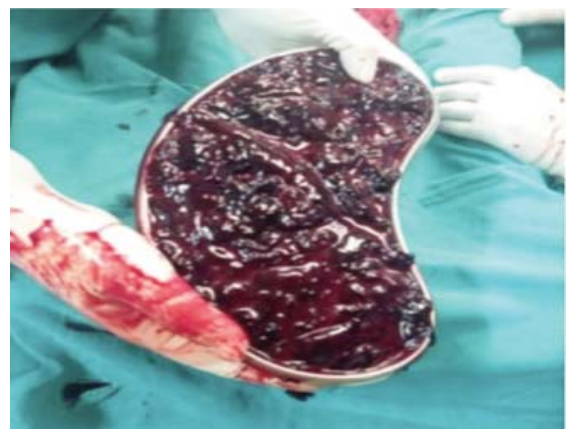
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2021, with the complaint of pain in the left hypochondrium for the last two days with a history of fever with shivering, myalgias and loss of appetite for two weeks. According to the patient, the pain was sudden in onset, non-shifting and non-radiating, and the intensity had increased from moderate to severe. There were no aggravating and relieving factors associated with pain. The patient's previous medical history was not significant.

On examination, the patient was pale, tachycardic with pulse rate of 108/min, B.P was 90/50 mmHg and was tachypnoeic. On abdominal examination there was generalised abdominal tenderness. His chest was clear bilaterally. Investigations carried out at the time of presentation revealed haemoglobin (Hb)-7.6 g/dl (12-16 g/dl), TLC- $6.0 \times 10^3$ /UI ( $4-11 \times 10^3$ ), platelet count  $110 \times 10^3$ /UI ( $150-450 \times 10^3$ ), MCV 79.7 fl(76-100); microscopic examination of the urine was normal. LFTs, serum amylase, lipase, electrolytes, and renal function test parameters were normal. His coagulation profile was normal. An X-ray of the abdomen in erect position was done on emergent basis which gave no evidence of pneumoperitoneum, with clear lung fields. After resuscitating the patient, ultrasound was carried out and the report showed a large haematoma in the left hypochondrium. Moderate abdominopelvic free fluid was seen with internal echogenic debris suggesting haemoperitoneum. The patient denied any traumatic insult to the abdomen. His laparotomy was done in emergency. There was around two litres of blood along with 500ml of clotted blood (Figure 1) mixed with pieces



**Figure-1:** Clots of Haemoperitoneum.



**Figure-2:** Ruptured Spleen

of spleen in the peritoneal cavity and a shattered spleen (Figure 2). Splenectomy was done. Three units of whole blood along with two units of FFP were transfused during the surgery. His test report for malaria dual antigen and Widal test were negative. Dengue IgM antibodies were positive, confirming the diagnosis. On the first post-operative day, the patient was vitally stable and in good state of health. Hb was 11.5 g/dl, packed cell volume 35, white blood cell count 14,000/mm<sup>3</sup>, and platelets 183,000/mm<sup>3</sup>. The histopathology report of the spleen came out unremarkable. After making full recovery, the patient was sent home on the sixth postoperative day.

## Discussion

Ruptured spleen can occur either due to trauma or it can be non-traumatic. Rupture of the spleen without any trauma is of two types—pathologic or spontaneous. Diagnosis of non-traumatic, spontaneous rupture of the spleen is made in cases in which rupture occurs in a histologically normal spleen.<sup>3</sup> Conditions in which spontaneous splenic rupture occurs include lymphoproliferative disorders, connective tissue diseases, solid neoplasm, aneurysm, pancreatitis and many other infective disorders.<sup>4-6</sup> Dengue fever can be caused by any one of the four serotypes of dengue virus transferred by the vector *Aedes aegypti* and less likely by *Aedes albopictus*.<sup>7</sup> Dengue fever is one of the least common causes of spontaneous rupture of the spleen leading to haemoperitoneum. The pathogenesis leading to this grave impediment is most likely the congestion of spleen and thrombocytopenia or both.<sup>8</sup> In this case, it was established that severe thrombocytopenia led to this condition but the pathway leading to rupture of the

spleen in dengue fever is still not clear. One of the plausible processes which can be considered is excessive congestion of spleen causing laceration and formation of subcapsular haematoma. Splenectomy is the ultimate treatment option in patients with spontaneous splenic rupture leading to haemoperitoneum. Diagnosis made in time along with timely decision of intervention saved the life of our patient leading to complete recovery which could have otherwise been fatal.

## Conclusion

In dengue, splenic rupture is a rare but life threatening manifestation that must be in the mind of the treating physician so index of suspicion must be high in all the patients. Timely diagnosis and management like we did in our patient as presented above can save life and other potential complications.

**Disclaimer:** None.

**Conflict of Interest:** Prof Dr Ameer Afzal who signed the HOD letter is also one of the authors of this article.

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