

# A Rare Case Report of Spontaneous Splenic Rupture in a Hemodynamically Stable Dengue Patient

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## Abstract

Although uncommon, spontaneous splenic rupture is a known complication of dengue infection. The majority of previously documented cases has resulted in a fatal outcome and has happened early in the disease's progression. This case report describes a case of spontaneous splenic rupture in a dengue fever patient while she was still recovering from her illness.

**Key words:** Dengue fever, Recovery phase, Spontaneous splenic rupture

## INTRODUCTION

The most prevalent arboviral disease in the world is dengue fever. In addition to the known symptom of plasma leakage resulting in circulatory failure, dengue fever has been linked to a number of additional complications, including neurological symptoms, myocarditis, and hepatitis. One uncommon but well-known side effect of dengue fever that has been extensively documented in international literature is spontaneous splenic rupture. On the other hand, nearly every case that has been documented has stated that spontaneous splenic rupture happens early in the illness. Before now, there have been limited reports of late splenic rupture in the literature from around the world during the illness' recovery phase.<sup>[1]</sup>

## CASE REPORT

A 60-year-old female presented with complaints of pain in abdomen for 6 days. She had a history of dengue. She was tested NS1 positive 1 month ago and was admitted for the same. Her platelet count had then dropped to as low as 60,000/mm<sup>3</sup>. However, she remained hemodynamically

stable with no evidence of plasma leak. She was treated conservatively and was discharged when she had improved clinically.

However, she again presented to the hospital with pain in abdomen 1 month later. The patient had no history of trauma in between.

On this second admission, her complete blood count report revealed Hb level of 7 g/dL on the day of admission, which improved to 7.4 on day 3 of admission. Her platelet count was also on a rising trend, improving from 3.36 lakh/mm<sup>3</sup> on Day 1–3.73 lakh/mm<sup>3</sup> on Day 3 of admission.

However this time, her ultrasound (USG) revealed a hyperechoic collection in the perisplenic region.

The patient underwent contrast-enhanced computed tomography, which revealed an irregular area (laceration) in splenic parenchyma near the inferior pole which was extending as a hyperdense (HU~55–65) subcapsular collection along medial and superior aspect of the spleen [Figure 1]. The splenic hilum was intact. Minimal perisplenic free fluid was also noted. Mild left-sided pleural effusion with underlying lung atelectasis was also seen [Figure 2].

The patient remained hemodynamically stable and was managed conservatively till her symptoms of abdominal pain subsided. Her subsequent USG examinations revealed remission of the perisplenic collection. The patient was subsequently discharged.

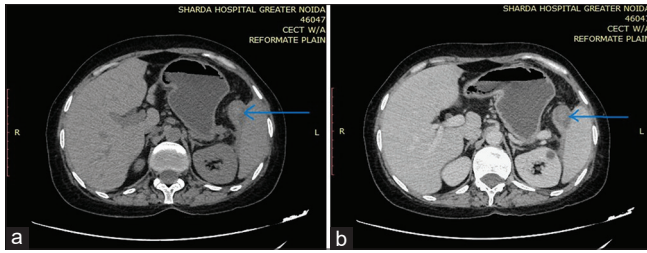
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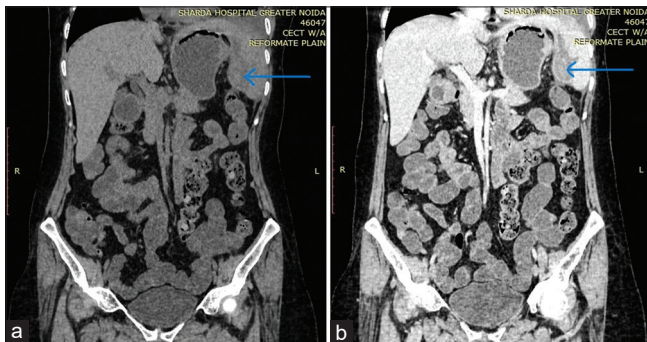
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**Month of Submission :** 12-2023  
**Month of Peer Review :** 01-2024  
**Month of Acceptance :** 02-2024  
**Month of Publishing :** 02-2024

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**Figure 1: (a) Non-contrast computed tomography (CT) axial image showing hyperdense subcapsular collection near the inferior pole of spleen. (b) Post-contrast CT axial image showing hyperdense subcapsular collection near the inferior pole of the spleen**



**Figure 2: (a) Non-contrast computed tomography (CT) coronal reconstructed image showing hyperdense subcapsular collection near the inferior pole of spleen. Minimal reactionary perisplenic fluid collection is also seen. (b) Post-contrast CT coronal reconstructed image showing hyperdense subcapsular collection near the inferior pole of spleen. Minimal reactionary perisplenic fluid collection is also seen**

## DISCUSSION

The dengue virus, which causes fever, is spread by female *Aedes* mosquitoes, which act as the disease's vector. A dengue infection can have a wide range of clinical presentations, from mild fever or no symptoms at all to severe, potentially fatal hemorrhagic symptoms and shock syndrome. The infection has three stages: the critical phase, the convalescent (recovery) phase, and the febrile phase. Most patients go through the fever phase and recover without any problems. Patients who enter the critical phase may experience bleeding, shock, organ impairment, and plasma leakage. Acute kidney injury, internal bleeding, encephalopathy, pulmonary effusion, ascites, and disseminated intravascular coagulopathy are among the complications that result from this.<sup>[2]</sup>

An uncommon consequence linked to infections, hematological disorders, or tumors is spontaneous splenic rupture. Spontaneous splenic rupture in dengue fever is an uncommon manifestation; however, splenic congestion linked to severe dengue has been suggested as the cause of spontaneous rupture. Adjacent parenchymal engorgement

and vascular occlusion may lead to reticuloendothelial cell secondary hyperplasia. About 15% of the autopsies revealed subcapsular hemorrhages. It has been proposed that vascular anomalies, decreased coagulation factors, and thrombocytopenia all contribute to spontaneous rupture.<sup>[3]</sup>

There are two types of splenic rupture: Non-traumatic and post-traumatic. A non-traumatic, spontaneous splenic rupture is one that takes place in a spleen that is histologically normal. Numerous infections, such as infectious mononucleosis, typhoid, malaria, infective endocarditis, Q-fever, varicella, influenza, aspergillosis, and dengue, have been linked to spontaneous splenic rupture.<sup>[1]</sup>

Every case of post-dengue spontaneous splenic rupture that has been previously documented happened during the acute phase of the illness, either the critical phase or the viraemic stage. Though the precise mechanism of splenic rupture in dengue is not well understood, it is thought to be caused by a combination of coagulation factors and severe thrombocytopenia. Both theories are refuted by the fact that this happened to our patient during the recovery phase when the coagulation profile was normal and platelet count was increasing. Severe splenic congestion resulting in laceration with formation of subcapsular hematoma is one mechanism that could be proposed.<sup>[1]</sup>

In a dengue fever patient, the primary presenting symptom of splenic rupture is abdominal pain. Because acalculous cholecystitis, a known dengue fever complication that manifests as abdominal pain and is typically treated conservatively, it is possible that physicians will not consider splenic rupture unless it is specifically requested.<sup>[4]</sup> The natural course of splenic rupture is expected to be poor especially when the diagnosis is missed, the survival observed in these cases should be attributed to prompt diagnosis and management.<sup>[5]</sup>

The preferred course of treatment for spontaneous splenic rupture with hemoperitoneum is splenectomy; however, a number of reports also support a trial of initial conservative management. The patient's hemodynamic status determines the best course of treatment; in cases where conservative therapy is not working, a splenectomy is required. We continued to treat the patient conservatively, and she responded well.<sup>[5]</sup>

## CONCLUSION

Despite being a recognized side effect of dengue fever, spontaneous splenic rupture should be suspected at any stage of the illness. After the healing phase, dengue patients should continue to be closely watched, and if any signs or

symptoms point to splenic rupture, there should be serious suspicion. Early detection and treatment can save lives.

## REFERENCES

1. de Silva WT, Gunasekera M. Spontaneous splenic rupture during the recovery phase of dengue fever. *BMC Res Notes* 2015;8:286.
2. Pahari S, Basukala S, Kunwar P, Thapa K, Khand Y, Thapa O. Spontaneous splenic hematoma secondary to dengue infection: a rare case report. *Ann Med Surg (Lond)* 2023;85:1030-3.
3. Padyana M, Gopaldas JA, Karanth S. A stitch in time - dengue with spontaneous splenic rupture. *Radiology of Infectious Diseases*. 2020;7:145-8.
4. Bhaskar E, Moorthy S. Spontaneous splenic rupture in dengue fever with non-fatal outcome in an adult. *J Infect Dev Ctries* 2012;6:369-72.
5. Mukhopadhyay M, Chatterjee N, Maity P, Patar K. Spontaneous splenic rupture: A rare presentation of dengue fever. *Indian J Crit Care Med* 2014;18:110-2.

**How to cite this article:** Singh A, Singh AK, Kumar S, Kumar S, Girdhar S. A Rare Case Report of Spontaneous Splenic Rupture in a Hemodynamically Stable Dengue Patient. *Int J Sci Stud* 2024;11(11):1-3.

**Source of Support:** Nil, Conflicts of Interest: None declared.