

Case Report

Management and diagnostic difficulties of dengue haemorrhagic fever with acute appendicitis: a case report

K Samuel Rajeen¹, P Mayurathan²

¹Teaching Hospital, Batticaloa, Sri Lanka, ²Eastern University, Sri Lanka

Keywords: dengue infection, dengue hemorrhagic fever, acute abdomen, acute appendicitis, ultrasonography

Corresponding Author: K Samuel Rajeen, E-mail:< ksamuelrajeen@gmail.com >  <https://orcid.org/0000-0003-0952-7645>
Submitted: 17 Feb 2022, Accepted: 22 Mar 2022, Published: 30 June 2022
Competing Interests: Authors have declared that no competing interests exist

© Authors. This is an open-access article distributed under a Creative Commons Attribution-Share Alike 4.0 International License (CC BY-SA 4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are attributed and materials are shared under the same license.



Introduction

Dengue fever can mislead the clinician. We discuss a case where a patient presenting with fever and acute abdomen was found to have “dengue haemorrhagic fever with acute appendicitis”. When dengue fever accompanies an acute abdomen, it can cause a diagnostic dilemma [1]. In dengue endemic areas, such as tropical countries, dengue fever is a recognized non-surgical cause of acute abdomen [2,3].

Our case emphasizes the importance of early diagnosis and careful investigations to exclude other causes of acute abdomen in dengue patients which can pave way to early surgical intervention.

Case Presentation

A 22-year-old female patient who was previously well was admitted to Teaching Hospital, Batticaloa, with a complaint of fever for three days and abdominal pain for two days. She complained of headache, joint pain, muscle pain, nausea and two episodes of vomiting. She had right iliac fossa pain but did not have migrating abdominal pain. She did not have a history of urinary symptoms or altered bowel habits.

She was febrile (100.3 F). Capillary refilling time was less than 2 seconds. Her pulse rate was 92 beats per minute, regular in character of good volume. Her blood pressure was 110/70mmHg with no postural drop. Respiratory rate was 18 per minute. Abdominal examination revealed tenderness in the right iliac fossa associated with guarding and rebound tenderness. In addition, mild hepatomegaly was noted with no clinical evidence of free fluid. Bowel sounds were normal.

Investigations showed a white cell count of $3.32 \times 10^3/\mu\text{l}$ (neutrophils 26.3% lymphocytes 53.8% Haemoglobin was 10.8g/dl, haematocrit (HCT) was 32.2%, platelet count was $44 \times 10^9/\text{l}$ and her urine full report was normal. CRP was 29 and ESR was 28mm/1st hour. Her SGOT and SGPT levels were 299u/L and 208U/L respectively, creatine was 51 $\mu\text{mol/L}$, sodium was 137mmol/L and potassium was 3.8mmol/L (Table1).

Table 1: Laboratory values

	On admission	After 5days	Normal range
WBC ($10^9/\text{L}$)	3.2	7.25	4.0-10.0
Neutrophils	26.3%	36.3%	50%-70%
Lymphocytes	53.8%	43.91%	20%-40%
HCT	32.2%	32.2%	37%-47%
Hb (g/dL)	10.8	11.3	11.0-15.0
PLT ($10^9/\text{L}$)	44	101	150-450
Blood Urea (mmol/L)	3.6	0.9	1.8-6.3
Serum Creatinine ($\mu\text{mol/L}$)	57	60	53-88
Serum Sodium (mmol/L)	137	140	136-145
Serum Potassium (mmol/L)	3.8	3.5	3.5-5.1
SGOT(U/L)	299	40	15-37
SGPT(U/L)	208	55	12-78
C-reactive protein(mg/L)	29	03	0-5
ESR (mm/1 st hour)	28	11	0-29

Hb - haemoglobin, WBC - white blood cell count, PLT - platelets, SGPT- serum glutamic pyruvic transaminase, SGOT-serum glutamic- oxaloacetic transaminase, CRP-C-reactive protein and ESR-erythrocyte sedimentation rate

Her dengue NS1 antigen test was positive, and we managed as dengue haemorrhagic fever according to the national guidelines. A clinical diagnosis of acute appendicitis was made by the surgical team. Ultrasound scan of the abdomen showed features of acute appendicitis without rupture or peritonitis. There was no pericolic fluid collection (Figure 1).

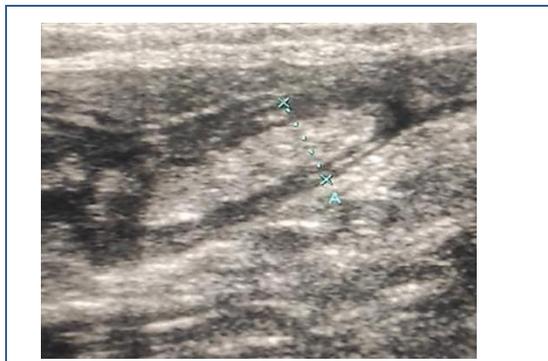


Figure 1: inflamed appendix without rupture or peritonitis

An urgent multidisciplinary team meeting involving physicians, surgeon, and microbiologist was arranged and a decision was made to manage acute appendicitis conservatively with only antibiotics. On the opinion of the microbiologist intravenous meropenem 1g three times daily and intravenous metronidazole 500mg 8hourly was started. Intravenous antibiotics were continued for 5 days while monitoring clinical parameters such as BP, PR, RR, SPO₂, capillary refilling time and urine output with clinical evaluation for features of ruptured appendix and peritonitis.

The patient showed gradual clinical improvement with very little abdominal pain. She was reviewed by a consulting surgeon and examination revealed a soft abdomen. Her vital parameters were normal. Laboratory parameters improved [Table 1]. She was discharged on oral antibiotics for two further days, based on a decision by the multidisciplinary team.

Discussion

Dengue is a well-recognised viral infection in South Asia especially in Sri Lanka [4,5]. Dengue can present as a simple viral fever, or dengue haemorrhagic fever with or without shock syndrome [4,6-7].

Severe plasma leakage, diagnosed as dengue shock syndrome, can present with respiratory distress, severe bleeding, and severe organ impairment such as acute liver failure, acute renal failure, encephalopathy, cardiomyopathy or other unusual manifestations [4,7-10]. One of the presentations of dengue infection is acute abdomen [6,11]. Other causes of acute abdomen in dengue patients are enlarged mesenteric lymph nodes with serous fluid collection and oedema, cholestasis with gall bladder distention and cystic duct spasm, non-specific peritonitis and acute pancreatitis [2,12-13].

C - reactive protein and erythrocyte sedimentation rate are important inflammatory markers which are elevated in acute appendicitis [14]. Usually, they are normal in dengue fever and dengue haemorrhagic shock [15]. Our patient had nausea, vomiting and abdominal pain with an elevated C - reactive protein (CRP). However, we had difficulty in diagnosing acute appendicitis because of the possibility of plasma leakage stage of dengue fever presenting as an acute abdomen. Ultrasonography confirmed features of acute appendicitis in our patient.

With the involvement of a multidisciplinary team, including the surgical, medical and radiological teams and the microbiologist, we managed acute appendicitis conservatively in this patient. Any delay in the diagnosis of acute appendicitis would have led to serious complications in this patient with dengue haemorrhagic fever.

Moreover, immediate surgery for acute appendicitis in dengue hemorrhagic fever may lead to devastating consequences. Many case reports suggest conservative management with antibiotics rather than surgery.

Conclusions

It is not uncommon for patients to present with acute abdomen in dengue haemorrhagic fever. A diagnosis of acute appendicitis in dengue haemorrhagic fever should be followed by careful clinical and radiological evaluation and management by multidisciplinary teams.

References

1. Jayasundara B, Perera L, de Silva A. Dengue fever may mislead the surgeons when it presents as an acute abdomen. *Asian Pacific Journal of Tropical Medicine*. 2017 Jan 1;10(1):15-9. <https://doi.org/10.1016/j.apjtm.2016.12.010>
2. Senanayake MP, Samarasinghe M. Acute appendicitis complicated by mass formation occurring simultaneously with serologically proven dengue fever: a case report. *Journal of Medical Case Reports*. 2014 Dec;8(1):1-3. <https://doi.org/10.1186/1752-1947-8-116>
3. Kyle JL, Harris E. Global spread and persistence of dengue. *Annu. Rev. Microbiol.* 2008 Oct 13; 62:71-92. <https://doi.org/10.1146/annurev.micro.62.081307.163005>
4. Ministry of Health-Sri Lanka National Guidelines Guidelines on Management of Dengue Fever & Dengue Haemorrhagic Fever In Adults. . www.epid.gov.lk.
<http://www.epid.gov.lk>.
5. Ministry of Health-Sri Lanka Guidelines for Clinical Management of Dengue Infection in Pregnancy. . www.epid.gov.lk. <http://www.epid.gov.lk>.
6. Méndez A, González G. Abnormal clinical manifestations of dengue hemorrhagic fever in children. *Biomedica*. 2006 Mar 1;26(1):61-70.
<https://doi.org/10.7705/biomedica.v26i1.1395>
7. Dengue and severe dengue. (n.d.). Retrieved November 12. (2021).
<https://www.who.int/news-room/fact-sheets/detail/dengue-and-severe-dengue>.
8. Lee K, Lee WH, Liu JW, Yang KD. Acute myocarditis in dengue hemorrhagic fever: a case report and review of cardiac complications in dengue-affected patients. *International Journal of Infectious Diseases*. 2010 Oct 1;14(10): e919-22.
<https://doi.org/10.1016/j.ijid.2010.06.011>
9. Weerasinghe, W. S., & Medagama, A.: Dengue hemorrhagic fever presenting as encephalitis: A case report. *Journal of Medical Case*. 2019, 13:1.
<https://doi.org/10.1186/s13256-019-2201-x>
10. Lima EQ, Gorayeb FS, Zanon JR, Nogueira ML, Ramalho HJ, Burdmann EA. Dengue haemorrhagic fever-induced acute kidney injury without hypotension, haemolysis or rhabdomyolysis. *Nephrology Dialysis Transplantation*. 2007 Nov 1;22(11):3322-6.
<https://doi.org/10.1093/ndt/gfm431>
11. Weerakoon KGAD, Chandrasekaram S, Jayabahu JPSNK, S.Gunasena,S.A.M kularatne: Acute abdominal pain in dengue haemorrhagic fever: A study in Sri Lanka, 2009.
12. Khanna S, Vij JC, Kumar A, R, Tandon.: Etiology of Abdominal Pain in Dengue Fever. 2005. 29 (ed): 2005. 29:

<http://doi.org/10.4038/jpgim.8375>

13. Prasad A, yasmeeen M., Prasad S, Md. Rashid Taj, Gagan Saxena.: Study of acute acalculous cholecystitis as an atypical manifestation in dengue fever. *International Journal of Medical Science and Public Health*. 2015, 4:1231.
<https://doi.org/10.5455/ijmsph.2015.01042015269>
14. Kalayanarooj S, Nimmannitya S.: A study of erythrocyte sedimentation rate in dengue hemorrhagic fever. *The Southeast Asian Journal of Tropical Medicine*. 1989, 20:325-330.
15. Souza LJ, Reis AF, Almeida FC, Souza LA, Abukater M, Gomes MA, Abicair OA, Gonçalves PA. Alteration in the erythrocyte sedimentation rate in dengue patients: analysis of 1,398 cases. *Brazilian Journal of Infectious Diseases*. 2008 Dec;12(6):472-5.
<https://doi.org/10.1590/S1413-86702008000600005>