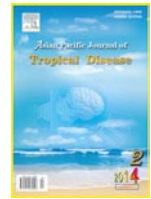


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Appendicular perforation in dengue fever: our experience

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ABSTRACT

Dengue viral infections have become one of major emerging infectious diseases in the tropics. Acute abdomen occurring in dengue viral infection is not uncommon. The spectrums of acute surgical emergencies which raise suspicion of an abdominal catastrophe in patients presenting with dengue fever include acute pancreatitis, acute acalculous cholecystitis, non-specific peritonitis and very rarely acute appendicitis. The presence of low white cell count and platelet count can raise suspicion of a diagnosis of dengue in a patient presenting with acute abdominal pain, during a dengue epidemic. We herein report three patients with dengue fever who had appendicular perforation during the course of their viral fever.

1. Introduction

Dengue viral infection is currently regarded as the most important arboviral disease internationally as over 50% of the world's population live in areas where they are at risk of the disease^[1].

Acute abdomen occurring in dengue viral infection is not uncommon. The varied presentation of acute surgical emergencies which raise suspicion of an abdominal catastrophe in patients presenting with dengue fever mimic those of acute pancreatitis, acute acalculous cholecystitis, non-specific peritonitis and very rarely acute appendicitis^[2,3]. This scenario in patients with dengue fever makes the clinical scenario confusing, and diagnosis of the aetiology and patient management challenging. We herein report three patients with dengue fever who had appendicular perforation during the course of their viral fever.

2. Case report

We herein report three patients with dengue fever who were taken transfer from the medical ward in view of an acute

abdomen requiring emergency surgery. All of them had an intra operative finding of appendicular perforation. There was a history of fever for 3 to 5 d prior to onset of abdominal pain. There was history of nausea and vomiting without any anorexia. On examination, there was tachycardia, with signs of generalised peritonitis in two patients. The third patient had signs localised to the right iliac fossa. The patients underwent haematological, routine biochemical tests along with a coagulation profile and blood cultures, which showed thrombocytopenia, leucopenia and a prolonged activated partial thromboplastin time with normal pro-thrombin time. All patients had positive dengue serology and negative. Chest and abdominal radiographs were normal in all cases. Ultrasound abdomen suggested a diagnosis of appendicular perforation/ acute appendicitis in the first and second patient respectively. However, it was inconclusive in the third patient who underwent contrast enhanced computed tomography of the abdomen which showed minimal free fluid with pneumoperitoneum. The clinical diagnosis and operative procedures performed are summarised in Table 1. All patients were discharged after a satisfactory recovery.

3. Discussion

Dengue viral fever may manifest as asymptomatic disease, mild febrile illness, dengue fever, dengue haemorrhagic fever,

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Table 1

Surgical profile of patients.

Case No.	Duration of fever prior to pain (d)	Pre-operative diagnosis	Surgery performed	Intra-operative finding	Post operative course	Histopathology
1	3	Perforation peritonitis	Exploratory laparotomy	Pyopritoneum, appendicular perforation	Pleural effusion, surgical site infection	Acute appendicitis with perforation
2	5	Acute appendicitis	Appendicectomy	Appendicular gangrene with perforation at the tip	Uneventful	Acute gangrenous appendicitis with perforation
3	4	Perforation peritonitis	Exploratory laparotomy	Pyopritoneum, appendicular perforation, diffuse enteritis	Pleural effusion, surgical site infection	Acute gangrenous appendicitis with perforation

or dengue shock syndrome which can be fatal. The commoner presentation is with an acute febrile illness, retro orbital pain, muscle and joint pains, nausea, vomiting, and a petechial rash^[4]. The spectrum of acute surgical emergencies which raise suspicion of an abdominal catastrophe in patients presenting with dengue fever include acute pancreatitis, acute acalculous cholecystitis, non-specific peritonitis and very rarely acute appendicitis/ appendicular perforation^[2].

Acute abdomen usually results from active bacterial infection^[5]. The clinically overlapping manifestations of dengue virus and bacterial infections make it difficult to distinguish these infectious entities from each other. Thrombocytopenia and leucopenia are commonly seen in patients with dengue haemorrhagic fever. It may, however, also be seen in patients with bacterial sepsis. In cases where there is a high suspicion of dengue fever, a prolonged activated partial thromboplastin time and a normal pro-thrombin time may help differentiate dengue from bacterial sepsis due to selective activation of internal pathway of coagulation^[6]. All our patients had fever prior to onset of abdominal symptoms. Along with a positive dengue serology, thrombocytopenia, leucopenia and raised activated partial thromboplastin time with normal prothrombin time were present in all three patients. Also, blood cultures were negative in all patients.

Premaratna *et al.* reported 12 cases of dengue fever mimicking acute appendicitis. All 12 patients presented with right iliac fossa pain with severe tenderness and eight of twelve patients had leucopenia^[3].

The presence of low white cell count and platelet count though not diagnostic of dengue fever, can raise be suspicious for dengue in a patient presenting with acute abdominal pain, during a dengue epidemic^[4].

The role of surgery in such patients with dengue fever has often been debatable with few authors debating the role of surgery. Khor *et al.* stated in their article that “in view of the blood cultures negative for bacteria growth and the absence of histopathologic evidence of bacterial infection, we believe that the invasive procedures performed on the three patients in this series were unnecessary”. The reason stated was an increased morbidity, longer hospitalisation, need for transfusion and its related complication^[2].

In our study, all patients underwent emergency surgery due to the presence of frank abdominal signs either generalised or localised, with evidence of pneumo peritoneum in the third. The clinical decision to operate was further justified

by the presence of appendicular perforation, confirmed on histopathology.

4. Conclusion

Acute abdomen requiring surgical intervention is uncommon in dengue viral infection. Hence, a delay in diagnosis can occur due to abdominal signs and symptoms that may otherwise accompany dengue. A careful evaluation and management of all patients is necessary to prevent misdiagnosis and at the same time manage patients in an optimum manner.

In these patients, early surgical intervention should be done whenever there is a suspicion of perforation peritonitis based on clinical and radiological findings, in order to minimise further complications in these sick patients.

Conflict of interest statement

We declare that we have no conflict of interest.

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