

Acute pancreatitis with para-duodenal haematoma in patient with Dengue Fever

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ABSTRACT

Dengue fever is a major public health problem in tropical and subtropical countries. Despite being endemic, atypical presentation mimicking acute abdomen is not uncommon and should be acknowledged. Furthermore, the latter typically associated with higher morbidity and mortality. We report the case of a 24-year-old man who presented with a week history of viral like fever and thrombocytopaenia, presenting with epigastric pain and melaena. Investigations confirmed Dengue Fever and endoscopy showed multiple duodenal ulcers. This was later complicated by pancreatitis and a para-duodenal haematoma which was successfully treated conservatively without any surgery.

Keywords: Dengue fever, acute pancreatitis, para-duodenal haematoma, bleeding ulcer

INTRODUCTION

Dengue Fever (DF) is a major public health problem in both tropical and subtropical countries.^{1, 2} This mosquito borne viral infection is endemic in Malaysia.³ Majority of infected patients are asymptomatic but symptomatic patients typically present with biphasic fever, myalgia, retro-orbital pain, rash and low platelet.² Atypical presentations however can delay diagnosis resulting in development of complications with subsequent higher morbidity and mortality.⁴

Nearly 40% of patients will have abdominal pain at presentation which often associated with severe DF (Dengue Haemorrhagic Fever) but fortunately most were non-specific.^{1, 5} Cases of DF associated hepatitis, cholecystitis, colitis or acute pancreatitis have been reported.⁶ The latter is very rare as only a total of 14 cases has reported so far.^{1,}

² Similarly with para-duodenal haematoma, only two cases have been published until now.^{2, 4} We reported here a case of a 24-year-old man presenting with dengue haemorrhagic fever, complicated by multiple duodenal ulcers and acute pancreatitis with a para-duodenal haematoma which all resolved with conservative management.

CASE REPORT

A 22-year-old gentleman presented with a week history of high grade fever associated with arthralgia and headache. At day three of fever he started to experience upper abdominal pain and passed melaenic stool. His clinical examination was unremarkable except for melaenic stool on per-rectal examination. DF was suspected and this later confirmed with positive NS-1 (non-structural protein 1) antigen and PCR. His initial blood investigations were normal except low platelet count (105×10^3) with raised liver enzymes (Aspartate aminotransferase of 449 u/L (normal less than 35 U/L) and Alanine ami-

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aminotransferase of 368 U/L (normal level less than 45 U/L). He was subsequently managed as DF with warning signs (transaminitis and abdominal pain).

Unfortunately, series of blood investigations revealed progressively drop in the haemoglobin (Hb) count from 14.1 to 11.4 g/dL to 8.7 g/dL and worsening thrombocytopaenia (91 to 75×10^3) within a day. As a result, surgical team was consulted for possible upper gastrointestinal bleeding. An urgent oesophago-gastroduodenoscopy (OGDS) revealed a Forrest 1b duodenal ulcer with nodular lesions together with multiple Forrest III gastric ulcers (Figure 1). The former was injected and clipped. Omeprazole infusion was also started as an adjunctive therapy. A second OGDS was performed a day later (day 9 of illness, day 2 admission) as his Hb count continue to drop (9.6 to 8.2) despite transfusion of two units of pack cells and increasing platelet count (116×10^3). Otherwise he had no evidence of overt re-bleeding (haematemesis or fresh melaena). Endoscopically, his ulcer remained as before (Ib) and again was injected with adrenaline.

Unfortunately, six hours later he developed sudden severe generalised abdominal pain mostly over epigastrium associated with abdominal distension. He rapidly became tachycardic (HR 120 bpm) and had generalised rebound tenderness maximal at the upper abdomen. His blood investigations showed a raised total white count (TWBC) from 8,000 to 17,000/uL and elevated serum amylase (1,452 U/L). A diagnosis of acute pancreatitis was made and this was confirmed by both ultrasound and CT abdomen, showing an oedematous and bulky head of pancreas (Figures 2a). The scan also showed a large para-duodenal haematoma ($7.2 \times 6.7 \times 11.6$ cm).

He was managed conservatively with

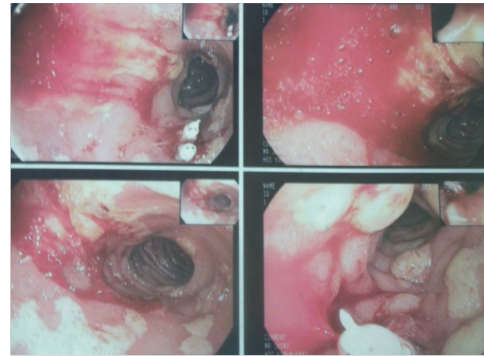
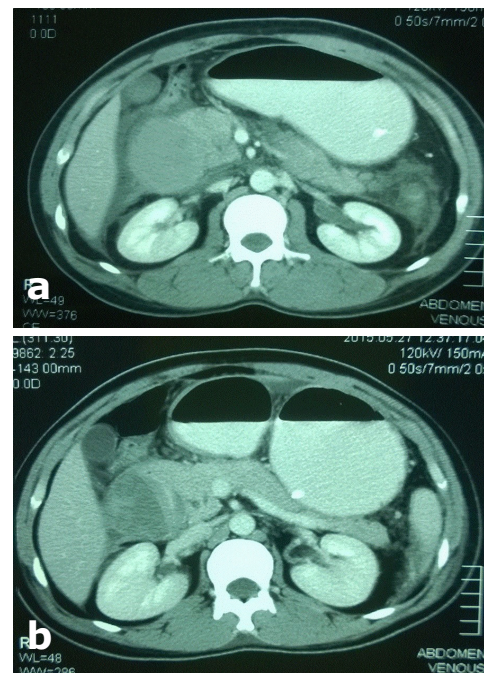


Fig. 1: Endoscopic images showing oozing from a duodenal ulcer (arrow) which was treated with injection and haemoclipping (clip in-situ). Multiple nodular lesions were also demonstrated.

early enteral feeding as he was stable with static Hb and no evidence of gastric outlet obstruction. A final diagnosis of severe DF with acute pancreatitis and para-duodenal haematoma was made. A repeat CT done a week later showed liquefaction of haematoma with no focal pancreatic lesion (Figure 2b). He was subsequently discharged after a total hospital stay of 23 days.



Figs. 2: a) Axial CT scan image showing a bulky head of pancreas with adjacent para-duodenal haematoma (arrow), and b) A repeat scan done a week later revealed partial resolution of haematoma with no peri-pancreatic lesion.

DISCUSSION

The rising incidence of DF in Malaysia is alarming. Its spectrum comprises of DF, Dengue Haemorrhagic Fever (DHF) and Dengue Shock Syndrome (DSS).¹ Based on the latest World Health Organisation (WHO) classification, the former is further subdivided into DF with or without warning signs. DSS were combined into severe DF with severe plasma leakage, haemorrhage or organ impairment.¹¹ DF is often accompanied by abdominal symptoms.⁶ Majority (50%) may present with non-specific abdominal pain even in DHF group.⁵ Khor *et al.* in their series of 328 DHF patients, only 14 patients (4.3%) had established peritonitis.⁵ Acute cholecystitis appeared to be the most common (10 patients) followed by non-specific diffuse peritonitis (three patients) and appendicitis (one patient). Similar findings were also demonstrated by Shamin *et al.* except with a much higher incidence of acute abdomen (12%). Most were due to acute cholecystitis (60%, 26 patients) with only three patients having acute pancreatitis (8.4%).¹ All of the patients were either diagnosed with DHF (39 patients) or DSS (four patients) and presented between the fourth and sixth day of illness.

The incidence of acute pancreatitis in DF believes to be underestimated due to lack of awareness among clinicians.^{2, 9} Most authors have shown that the average time to diagnose AP is around seven days.^{2, 3} The exact pathogenesis of pancreatic involvement in DF is uncertain, possibly caused by direct virus invasion and destruction of pancreatic acinar or autoimmune response as a result of acute viral infection.^{2, 3} Some authors believe resultant plasma leakage and serous effusion with high protein content (mostly albumin) are probably responsible for oedematous and inflammatory changes in the pancreas.¹

The most common haemorrhagic manifestations of DF are epistaxis, gum bleeding and mucosal bleeding of gastrointes-

tinal tract.² DF complicated with upper gastrointestinal bleeding is a life threatening condition⁴ and typically appears between the third and fifth day of illness (fever) and often coincides with lowest platelet level.¹⁰ Reported prevalence of gastrointestinal bleeding in DF is between five and 30% where haemorrhagic gastritis is the most common followed by gastroduodenal and oesophageal ulcers.¹⁰ Chiu *et al.* reported in a large series of patients diagnosed with DF who developed complication of gastrointestinal bleeding, the median time of onset of bleeding was at day four of illness/fever (range 1-9 days of fever) with an incidence of 8.4%.¹⁰ The role of endoscopy in a dengue patient with upper gastrointestinal bleeding is not well established.¹⁰ In the same study, they clearly demonstrated that endoscopic injection is not an effective adjuvant therapy in patients with DF who later developed upper gastrointestinal bleeding and may even increase the possibility of recurrent bleeding. Therefore, blood transfusion is the mainstay of treatment regardless of the type of ulcer.¹⁰

The occurrence of para-duodenal haematoma in DF is extremely uncommon and there are only two cases reported in English literature so far.^{2, 4} Its pathophysiology is not fully understood but postulated as a result of bleeding diathesis.⁴ There are few peculiar features can be seen from the published cases as in Table 1. All of them were young man who typically presented with abdominal pain and melaena at the sixth day of illness when the platelet count was at the lowest. In contrast, our patient manifested quite late (day 9 -10 of illness) and his platelet was already in upward trend (Table 1). The haematoma is obviously associated with bleeding duodenal ulcers. We have yet to see any reported case of dengue related para-duodenal haematoma without a duodenal ulcer. Para-duodenal haematoma that complicates acute pancreatitis with DF may cause duodenal obstruction

Table 1: Reported cases of para-duodenal haematoma in Dengue Fever patients.

Author (year)	Age/gender	Diagnosis from onset	Presentations	Platelet count at diagnosis	Acute pancreatitis	Endoscopic findings	Endoscopic intervention	Repeat endoscopic findings
Lee <i>et al.</i> (2013)	47/ male	Day 6	Pain and melaena	33,000	Yes (confirmed by raised serum amylase and CT scan)	DU at D1 and D2 (nodular margins, adherent clots and visible vessels)	Yes (injection: 9 ml of distilled water)	Yes (on day 26 admission) / oedematous duodenum with area of scarring
Liang Boo <i>et al.</i> (2015)	31/ male	Day 6	Pain and melaena with palpable mass	62,000	Serum Amylase wasn't taken (? not suspected) CT findings?	DU (Forrest 1 type)	Yes (adrenaline injection and APC)	Yes (on day 8 and 11 admission) / persistent IIb ulcer requiring repeated injection.
Present case	22/ male	Day 10	Pain and melaena	116,000	Yes (confirmed by raised serum amylase and CT scan)	DU at D1 (Forrest Ib, with nodules) and GU (Forrest III)	Yes (adrenaline injection and clip)	Yes (on day 3 of admission) / persistent Ib DU

which may interfere with early enteral feeding. The latter has been shown to be beneficial in acute pancreatitis.

We believe DF associated ulcer behaves differently compares to commonly seen bleeding peptic ulcer especially with the presence of duodenal haematoma as been demonstrated by reported cases (table 1). Two out of three cases (66%) re-bled which require repeated haemostatic intervention. In contrast, re-bleeding rate was low and quite comparable between DF related peptic ulcer without haematoma compared to non-DF related peptic ulcer (6.7% vs 9.2%).^{10, 12} In addition to that, Chiu *et al* have also demonstrated that those DF associated ulcer has similar re-bleeding rate and mortality regardless of whether it has stigmata of recent haemorrhage or not (2.4% vs 0%, $p > 0.5$).¹⁰

Sign and symptom of acute abdomen has to be elicited in all dengue patients. Definite diagnosis has to be made promptly as it affects morbidity and mortality. Shamim *et al.* observed that mortality in those with acute abdomen was 4.6% but none in those without it.¹ Acute pancreatitis in particular has to be aggressively managed as all three cases from their series developed ARDS and two of them died.¹

In conclusion, the cause of abdominal

pain or acute abdomen in dengue patient has to be actively investigated and objectively diagnosed. An uncommon but surgically related problem such as acute cholecystitis, appendicitis, pancreatitis or para-duodenal haematoma has to be considered. The role of endoscopy in bleeding gastro-duodenal ulcer in dengue patient is limited to diagnostic purposes only as its intervention is potentially harmful.

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