Original Article

# Abdominal Pain: A Common Presentation of Dengue Fever

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## ABSTRACT

Dengue fever (DF) is a mosquito born viral disease caused by dengue virus and is endemic in large areas of southeast of Asia. Pakistan is an endemic country for dengue virus infection. Abdominal pain is a commonly reported symptom in dengue fever (DF). The most common causes of abdominal pain are acalculus cholecystitis, ascites, acute pancreatitis, acute hepatitis, pleural effusion and peptic ulcer disease.

**Study design:** A Case Series Study.

**Place and Duration of Study:** This study was conducted at Mayo and Lady Willingdon Hospitals, Lahore from September and October 2011.

**Materials and Methods:** 105 patients with fever and abdominal pain admitted to Mayo and Lady Willingdon Hospitals, Lahore during months of September and October 2011 were included in the study. A provisional diagnosis of dengue fever was made based on the presence of acute febrile illness and two of the following features :headache, retro orbital pain, myalgia, arthralgia , skin rash, hemorrhagic manifestations and leucopenia. The diagnosis was confirmed by enzyme immunoassay based serology. The cause of pain was determined by blood tests (Serum Amylase , serum lipase, liver function tests {LFTs} ) and radiology ( ultrasound, contrast enhanced CT {CECT} and chest xray {CXR} ) except for pregnant patients. 67 patient had dengue fever and 38 patient had other causes of fever and abdominal pain. In patient with dengue fever causes of abdominal pain were acalculus cholecystitis, ascites, acute pancreatitis, acute hepatitis, pleural effusion and peptic ulcer disease. Among 67 patients 2 were pregnant, one at 28 weeks and other at 32 weeks of gestation.

**Results:** Results of this study show that among 105 patients having fever and abdominal pain, 67 patients had serologically proven dengue fever. Table I shows that among patients with serologically proven dengue fever 29 had acalculus cholecystitis, 14 had ascites, 9 had acute pancreatitis, 11 had gastrointestinal disorder and 4 had bilateral pleural effusion. Among 3 patients with menorrhagia 2 had acalculus cholecystitis and 1 had gastrointestinal disorder. 2 patients were pregnant at 28 and 32 weeks of gestation. Both of them had peptic ulcer disease. Among 67 patients, 47 were male and 20 were female. Ages of patients range from 15 to 62 years. All patients had temperature ranging from 101°F to 104°F while mean duration of fever was 5 days.

In patient with dengue fever etiology of abdominal pain should be aggressively looked into for proper and better management.

**Conclusion:** If carefully looked into, the etiology of abdominal pain in dengue fever can be found and appropriately managed.

**Key Word:** Dengue Fever **(**DF), Abdominal Pain, Acalculus Cholecystitis, Ascites, Acute Pancreatitis, Pleural Effusion.

## INTRODUCTION

Dengue fever (DF) is a mosquito born viral disease caused by dengue virus and is endemic in large areas of southeast of Asia [1]. Pakistan is an endemic country for dengue virus infection. Dengue virus infection may be asymptomatic or present as undifferentiated fever: DF or dengue hemorrhagic fever (DHF) [2]. Dengue shock syndrome (DSS) may lead to hypovolemic shock. Abdominal pain is a frequently reported symptom in patients with dengue fever[3]. The protean character of dengue fever ranges from mild febrile illness to profound shock. The common symptoms in dengue infection are fever, malaise, headache, musculoskeletal pain, nausea, vomiting , bleeding , acute renal failure and seizure [4, 5]. Other complications include acute myocarditis[6, 7] , acute hepatic failure, ascites [8] , dengue encephalitis [9, 10] , acute pancreatitis[11], acalculus cholecystitis and pleural effusion[ 12]. In September 2011 Lahore faced a severe endemic of dengue infection with highest case level and deaths. In this endemic frequent occurrence of abdominal pain was noted in patients presented to Mayo and Lady Willingdon Hospitals Lahore, Punjab, Pakistan.

## MATERIALS AND METHODS

105 patients with abdominal pain and fever who presented to emergency and outdoor of Mayo and lady Willingdon Hospitals, Lahore in the month of September and October 2011 were included in the study and 67 patients had serologically proven DF. A provisional diagnosis of DF was made if the patient had acute febrile illness with two or more of the following manifestations : headache, retro orbital pain, skin rash,

myalgia, arthralgia, hemorrhagic manifestations and leucopenia[2]. The diagnosis was confirmed by presence of IgM antibodies against dengue virus using the immunocomb II dengue Bispot IgM and IgG test. This test is solid phase enzyme immunoassay, based on an immunocapture principle the sensitivity and specificity of the test is 97.5% and 97.7% respectively. Diagnosis of DHF was made if following features were present [1] :fever lasting 2 to 7 Day [2] hemorrhagic tendencies e.g; positive tourniquet test , petechiae, ecchymosis, bleeding from mucosa, gastrointestinal haematamesis or maleena, menorrhagia [3]thrombocytopenia (<100,000 platelets /mm3),[4] evidence of plasma leakage due to increased vascular permeability , manifested by either a rise in the haematocrit equal to or greater than 20% above average for age/sex or drop in the haematocrit following volume replacement and sign of plasma leakage such as pleural effusion, ascites or hypoproteinemia. All patients underwent abdominal ultrasound. CXR and CECT were done of every patient except pregnant patients. The platelet count of every patient was done at presentation and every alternate day. It was done every day in patients of DHF with thrombocytopenia. Among pregnant patients obstetrical complications were ruled out.

# RESULTS

Results of this study show that among 105 patients having fever and abdominal pain, 67 patients had serologically proven dengue fever. Table I shows that among patients with serologically proven dengue fever 29 had acalculus cholecystitis, 14 had ascites, 9 had acute pancreatitis, 11 had gastrointestinal disorder and 4 had bilateral pleural effusion. Among 3 patients with menorrhagia 2 had acalculus cholecystitis and 1 had gastrointestinal disorder. 2 patients were pregnant at 28 and 32 weeks of gestation. Both of them had peptic ulcer disease. Among 67 patients, 47 were male and 20 were female. Ages of patients range from 15 to 62 years. All patients had temperature ranging from 101°F to 104°F while mean duration of fever was 5 days.

Among rest of 38 patients presenting with abdominal pain and fever, 15 had cholelithiais with acute cholecystitis, 9 acute viral hepatitis, 9 typhoid fever, 3 obstructive jaundice and 2 had amoebic hepatic abscess. 49 patients had hemorrhagic manifestations. Table 2 shows distribution of hemorrhagic manifestations in these patients.

**Table No.1:Causes of abdominal pain n=67**

| | |
|---|---|
| Acalculus cholecystitis | 29 (43.28%) |
| ascites | 14 (20.89%) |
| GI disorders( peptic ulcer disease) | 11 (16.41%) |
| Acute pancreatitis | 9 (13.43%) |
| Bilateral pleural effusion | 4 (5.97%) |

While table 3 shows results of laboratory investigations in patients suffering from Dengue fever. Highest number of patients had thrombocytopenia while hypoproteinemia was least common.

**Table No.2: Hemorrhagic manifestations n= 49**

| | |
|---|---|
| Tourniquet test | 30(61.22%) |
| Bleeding from mucosa | 5(10.20%) |
| Petechiae | 4(8.16%) |
| GIT haematamesis/ maleena | 4(8.16%) |
| Ecchymosis | 3(6.12%) |
| Menorrhagia | 3(6.12%) |

**Table No.3: Laboratory investigations n= 67**

| | |
|---|---|
| Thrombocytopenia | 65 (97%) |
| IgM antibodies | 65 (97%) |
| Rise in haematocrit | 60(89.55%) |
| IgG antibodies | 8(11.94%) |
| Hypoproteinemia | 7(10.44%) |

# DISCUSSION

Abdominal pain is a common feature in patient with DF[13, 14]. It needs to be differentiated from obstetrical complications among pregnant patients and dysmenorrhia in patients suffering from menorrhagia. Abdominal pain with fever may be may be caused by cholelithiasis, acute cholecystitis, acute viral hepatitis, typhoid fever and many other abdominal conditions. In patients with DF this abdominal pain could be attributed to acalculus cholecystitis, ascites, pancreatitis and GIT disorders. The pathogenesis of abdominal pain in dengue fever is not clearly understood however lymphoid follicular hyperplasia seems to play an important role and plasma leakage through damaged capillary endothelium had been proposed[15, 16]. It might be the possible cause of subserosal fluid collection and thickened gall bladder wall associated with dengue fever. The specific organ involvement in viral hepatitis, acute pancreatitis and gastrointestinal disorder can also produce abdominal pain.

# CONCLUSION

If carefully looked into, the etiology of abdominal pain in dengue fever can be found and appropriately managed.

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