Original Research Paper

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A Study of Abdominal Ultrasonography in Dengue Fever in Rajkot Region

Medical Science

KEYWORDS : dengue fever,Gall bladder wall tickening,ultrasonograpgy of abdomen.

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ABSTRACT

Dengue fever is the most rapidly spreading mosquito-borne viral disease in the world. Dengue virus is transmitted by female mosquitoes mainly of the species Aedes aegypti. It is a self-limiting acute disease characterized by fever, headache, muscle & joint pains, rashes, nausea & vomiting. Some infections result in Dengue Haemorrhagic Fever (DHF) and its severe form,Dengue Shock Syndrome (DSS).Aim of the study is to see abdominal ultrasonographic findings in dengue fever. Material & method: Study was done in 100 patients diagnosed as dengue fever and Ultrasonography of abdomen was performed in all patients. Out of 100 patients, Usg findings were,64% had gall bladder wall thickening,43% had ascites,32% had splenomegaly and 15% had Hepatomegaly. In areas where DF is epidemic, DF should be strongly considered in a febrile patient with gall bladder wall thickening, ascites, splenomegaly and/or Hepatomegaly.

INTRODUCTION

Dengue is the most rapidly spreading mosquito-borne viral disease in the world. In the last 50 years, incidence has increased 30-fold with increasing geographic expansion to new countries and, in the present decade, from urban to rural settings[1].Dengue virus is transmitted by female mosquitoes mainly of the species Aedes aegypti and to a lesser extent, Aedes albopictus. Dengue is a self-limiting acute disease characterized by fever, headache, muscle & joint pains, rashes, nausea & vomiting. Some infections result in Dengue Haemorrhagic Fever (DHF);and its severe form,Dengue Shock Syndrome (DSS) can threaten the patient's life primarily through increased vascular permeability and shock due to bleeding from internal organs.[2,3]

AIM: to study of abdominal ultrasonographic findings in dengue fever.

MATERIAL & METHOD: Study was carried out in P.D.U govt. hospital after taking permission from Institutional Ethics Committee, in 100 patients admitted in hospital and diagnosed as

dengue fever. Patients included in this study were between 18-60 years with IgM or NS1 positive. Patients with pregnancy, pre-existing chronic liver, kidney or heart disease & h/o of hematological disorders were excluded. Usg of abdomen was performed in all patients on ESAOTE MYLAB 50 and MYLAB 20 X VISION & PHILIPS IU22 at Radiology Department.

RESULTS:

Table-1: Age & Sex distribution in dengue fever.

Age (years)	No.of cases			% of cases
	M	F	Total	
18-30	53	18	71	71%
31-40	9	6	15	15%
41-50	4	4	8	8%
51-60	5	1	6	6%
Total	71	29	100	100%

In our study, most of the cases belong to the age group 18-30 years. 71 cases were from 18-30 years age group, as dengue fever seen more in younger age group.15 cases were between 31- 40 years age group, 8 were from 41-50 years age group and 6 were between 51-60 years age group. Sex distribution shows 71 were males & 29 were females.

Usg findings	No.of cases	% of cases
Gb wall thickening	64	64 %
Ascites	43	43 %
Splenomegaly	32	32 %
Hepatomegaly	15	15 %

Table-2: Abdominal ultrasound findings in

Dengue fever

Abdominal sonography had done in all 100 patients, out of which 64% of patients had Gb wall thickening, 43% of patients had ascites, 32% of patients had splenomegaly and 15% of patients had hepatomegaly.

DISCUSSION:

Study shows maximum no. of patients (71%) affected between 18-30 years age group. Our study consistent with Ghosh G et al[4],where mean age group affected was 21-30 years & also with Farhan F & Birdar S[5] study, where maximum cases were affected between the age group 21-30 years.

In our study 71 male patients and 29 female patients are affected. The male to female ratio is 2.44:1. It corresponds to the other studies done by Advani Sonia et al [6] which shows 75% were male patients and 25% were female & the male to female ratio is 3:1. In the study done by Ayyub M et al [7] male to female ratio was 3.3:1.

Abdominal sonography was done in all 100 paients, out of which 64% of patients had Gb wall thickening, 43% of patients had ascites, 32% of patients had splenomegaly and 15% of patients had hepatomegaly. Our study findings are supported by study done by Keng-Liang Wu et al[8], 59% had Gb wall thickening, 24% of patients had ascites, 22% of patients had splenomegaly, and also supported by study by P M Venkata Sai et al[9], 56% of patients had Gb wall thickening, 53.2% of patients had ascites, 15% of patients had splenomegaly and 34% of patients had hepatomegaly.

The ultrasound findings in DF include GB wall thickening, pericholecystic fluid, ascites,hepatomegaly,splenomeg

aly, pleural effusion, pericardial effusion and in cases of severe forms of the disease are characterized by fluid collection in the perirenal and pararenal region, hepatic and splenic subcapsular fluid, pericardial effusion, pancreatic enlargement and hepatosplenomegaly.[9] The transient nature of the leakage implies a functional increase in vascular permeability. Disruption in the endothelial glycocalyx layer has been implicated, through immune-mediated mechanisms by the virus or the NS1 antigen adhering to the endothelial layer. The NS1 antigen is a glycoprotein secreted from dengue-infected cells and is required for viral replication. Studies have shown that NS1 can selectively bind to heparan sulphate in the glycocalyx layer of microvascular endothelial cells. Thus facilitating immune complex formation and antibody-dependent complement activation causing the endothelial damage and microvascular leakage.[10,11]

several studies suggesting severe dengue is more common in a secondary infection with DENV2. During the second infection with a different dengue serotype, pre-existing antibody from the first infection fails to neutralize and may instead enhance viral uptake and replication in mononuclear cells. The resulting higher viral load has been linked to disease severity.[10]

Conclusion:

To conclude ultrasonography of abdomen in dengue fever shows Gb wall thickening, ascites, splenomegaly & hapatomegaly.

In areas where DF is epidemic, DF should be strongly considered in a febrile patient with gall bladder wall thickening, ascites, splenomegaly and/or Hepatomegaly.

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