Mucocutaneous manifestations in patients with dengue fever

Irfan Ullah[1], Muhammad Majid Paracha[2], Hina Zahoor[3]

Abstract

Objectives: To observe the frequency and types of mucocutaneous manifestations in patients of dengue fever.

Material and Methods: This prospective cross-sectional study was conducted at Khyber teaching hospital Peshawar, from July 2017 to January 2018. Two hundred and twenty eight patients were enrolled in the study. Patients fulfilling the inclusion criteria were subjected to detailed history, clinical, mucocutaneous and systemic examination. Relevant investigations were done. Data was recorded in pre-designed pro forma and analyzed.

Results: Among a total of 228 patients included in the study, 123 were male and 105 were female. The mean age was 34.57±14.9 years. Macular rash was present in 47 patients, purpura in 17 patients, pruritis in 75 patients, burning sensation in 20 patients and other skin rashes were present in 14 patients. Mucosal erythema in 29 patients, oral thrush in 13 patients, aphthous ulcer in 8 patients and mucosal purpura was found in 8 patients.

Conclusion: Mucocutaneous manifestations are important clues in the diagnosis of dengue fever. Early recognition may help in saving life of patients.

Key Words: Dengue fever, mucocutaneous manifestations, shock, purpura, bleeding.

Introduction

Dengue fever is caused by single stranded virus, belonging to Flavivirdae group, which also causes yellow fever and Japanese encehphalitis.1 It has 4 sero-types, DENV-1 to 4. Infection by any of these serotypes generates life-long immunity in the human body against that virus, but do not provide cross protection against other serotypes. 2 A true reservoir and the major vector of dengue fever is a mosquito, Aedes aegepti. A bite of this mosquito causes transfer of virus which preferably feed on human in the daylight hours.3

Dengue virus causes acute febrile illness in about 100 million cases in one year.4 WHO states that about ½ of the population of the world is at risk of developing dengue fever and is endemic in more than 100 countries currently.5 In Pakistan, the disease is prevalent from the past 20 years, but for the past few years the major outbreaks has considerably increased the morbidity and mortality of the disease. Recently, more than 15000 cases had been reported in an outbreak in Lahore. 6

The incubation period of dengue fever is 3-14 days, which is the followed by fever and chills which usually lasts for 6-7 days. It is also found to show biphasic pattern, with a small peak of increase in body temperature at the end of disease.7 Fever is also associated with severe headache and rash which develops after 3-4 days.8 The term “dengue triad” is used for the combination of fever, headache and rash.9

Various studies show that 50 to 82% cases with dengue fever show cutaneous manifestations, with mucosal involvement in 15 to 30% of the cases, but the presentation is variable. During febrile phase, morbilliform, maculopapular and scarlatiniform rash has been observed. Reports also show that petechiae and hemorrhagic manifestations are also observed.10, 11, 12

The type of skin lesions which occur in dengue fever are not well recognized and understood by doctors, and as in some cases, skin lesions may be the presenting feature of the disease, and its recognition may help in early diagnosis of the disease. Dermatologists and general practitioners require clear understanding of skin lesions occurring in dengue fever, and few local studies are available regarding the mucocutaneous manifestations in patients with dengue fever. The purpose of this study was to determine and observe the frequency and pattern of mucocutaneous manifestations in patients with dengue fever.

Materials and methods

The study was conducted in department of dermatology, Khyber Teaching Hospital Peshawar, from July 2017 to January 2018. Patients presenting with positive NS.1 test and diagnosed with dengue fever were enrolled in the study from outpatient and inpatient departments. All ages and both gender were included. Patients with other acute or chronic concurrent ailments besides dengue fever were excluded from the study. An informed consent was taken. A detailed history was obtained. Clinical, mucocutaneous and systemic examination was carried out. Relevant investigations such as hematocrit, platelet count, white blood cells count, coagulation profile, liver function tests, renal function tests, dengue serology (IgG,

1. Department of Medicne
Khyber Teaching Hospital, Peshawar KP
2. Department of Medicine
Lady Reading Hospital, Peshawar KP
3. Department of Medicine
Hayatabad Medical Complex, Peshawar KP

Address for Correspondence:
Mohammad Majid Paracha
Lady Reading Hospital
Cell: 03339637010
Email: Mohammadmajidparacha@gmail.com

IgM) and NS.1 were done. The data was entered in pre-designed pro forma and later analyzed. Frequency of various mucosal and cutaneous findings were noted.

Type of study

Descriptive cross-sectional study.

Statistics

Analysis of results was made using SPSS version 20. Frequencies and percentages were calculated for all the categorical variables like gender, age range, skin lesions and mucosal manifestations. Mean ± standard deviation was calculated for continuous variable like age.

Results

A total of 228 patients were enrolled in the study. There were 123 male and 105 female patients as shown in table 1. The age range was from 1 to 72 years. Mean age was 34.57(±14.9) years. Maximum number of patients belonged to the age group of 21 to 30 years as shown in table 1.

Table 1: Characteristics of patients with dengue fever (n=228)		
SEX		
Male	123	53.9 %
Female	105	46.1 %
AGE GROUPS		
Up to 10 years	10	4.4 %
11-20 years	31	13.6 %
21-30 years	64	28.1 %
31-40 years	53	23.2 %
41-50 years	38	16.7 %
51-60 years	20	8.8 %
>60 years	12	5.3 %

A total of 173 (75.87%) patients showed skin manifestations. 49 patients had two or more skin manifestations. Among cutaneous manifestations, generalized pruritis was present in 75 (32.8%) patients as shown in table 2. This was followed by maculopapular rash in 47 (20.6%) patients. Burning sensation was present in 20 (8.7%) patients, and purpura on skin was found in 17 (7.4%) patients. Other skin manifestations like petechiae, ecchymosis, desquamation were present in 14 (6.1%) patients including one patient who presented in erythroderma, as shown in table 2.

Table 2: Cutaneous manifestations in patients with dengue fever (n=228)		
CUTANEOUS FINDINGS	**FREQUENCY**	**PERCENTAGE**
Maculopapular rash	47	20.6 %
Purpura	17	7.4 %
Pruritis	75	32.8 %
Burning	20	8.7 %
Other skin rash	14	6.1 %
Total	173	75.87 %

Mucosal manifestations were found in 59 (25.87%) patients as shown in table 3. 55 (24.12%) patients had oral mucosal involvement while only 4 (1.8%) patients had other mucosal involvement as shown in table 3.

Table 3: Frequency of mucosal involvement in patients with dengue fever (n=228)

MUCOSAL FINDINGS	FREQUENCY	PERCENTAGE
Erythema	29	12.7 %
Thrush	13	5.7 %
Aphthous ulcers	8	3.5 %
Purpura	5	2.2 %
Anyother	4	1.8 %
Total	59	25.87 %

Discussion

Dengue fever is an important emerging disease and rapidly growing public health problem, mainly of tropical and subtropical countries. It has been estimated that 50 to 100 million cases of dengue fever has been reported annually.13, 14

A total of 228 patients were enrolled in this study with male to female ratio of 1.17:1. Dengue surveillance data in Singapore 2009 and Philippines 2010 shows male predominance.15 This study also showed more male patients effected with dengue fever. Azfar et al also showed male predominance, with male to female ratio of patients affected with dengue fever being 2:1.16

In this study, maximum number of patients belonged to the age group of 21 to 30 years with mean age of 34.57±14.9 years. This finding was consistent with Saleem et al, where most of the patients affected belonged to younger age group.5 Azfar et al also showed similar findings, stating that dengue fever was observed as an adult health problem rather than the pediatric disease.16

The presentation of dengue fever is variable. It can vary from patients being asymptomatic to those who present in shock and dies of this disease. Cutaneous manifestations of dengue fever has been found to occur in 80% of the patients.17 This study showed that 75.87% patients showed cutaneous manifestations of dengue fever. Thomas et al, however, showed 46.8% patients with dengue viral illness had skin manifestations.12 In another study in Karachi, 68% patients had skin findings who presented with dengue fever.5

In Azfar et al, 31.7% patients had macular and 11.2% had papular rash, and generalized pruritis was present in 69.2% of the patients.16 In another study, macular rash was found in 65% of the cases.5 The possible explanation to this variation is the possibility of different strains of viruses involved in causing dengue fever.18

The rash of dengue fever is usually asymptomatic, but different studies have shown that patients with dengue fever were reported to have pruritis in 16 to 27.6% of the cases.19, 20 In this study 32.8% cases had complaint of pruritis. This was consistent with the study which showed itching of palms and soles present in 30% of the cases with 23% having generalized itching.5 Nouqueiro et al, however, reported 50.5% dengue fever patients with pruritis.21

In this study, on the whole, only 6.1% cases had other skin manifestations like petechiae, ecchymosis and erythroderma, which was contrary to Saleem and Sheikh where 35% and 4% cases had petechiae and ecchymosis respectively.5

Dengue viral infection not only effects oral mucosa, but it is also found to cause conjunctival erythema and scleral injections.12 In this study, 25.8 % patients had mucosal manifestations with maximum number having oral mucosal involvement. Similar findings were found in another study, where oral mucosal involvement was reported to be more frequent. The major finding was erythema of oral mucosa in Azfar et al, which was similar to this study in which 12.7% patients had oral erythema.16

Conclusion

A variety of mucocutanous manifestations has been observed in patients presenting with dengue fever. Pruritis of the skin was the most common complaint of the patients followed by maculopapular rash. Erythema of the oral mucosa was the commonest mucosal finding in these patients. The frequency of dengue fever outbreaks has been increasing over time in our country, and early recognition of mucocutaneous features of patients with dengue fever can help in early diagnosis and timely treatment of patients with this condition.

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