

Dermatological Manifestations in Dengue Fever

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ABSTRACT

Objective: To assess the frequency of skin & mucosal manifestations in dengue fever patients.

Study design: Cross-sectional study.

Place and duration of study: Patients admitted in dermatology & medicine departments of Akhtar Saeed Trust Hospital Lahore were included in the study.

Method of study: This cross-sectional study was conducted in departments of dermatology & medicine at Akhtar Saeed Trust Hospital Lahore for a period of 3 months from Separation 3021 till December 2021. After taking consent a total of 60 patients of suspected dengue fever were enrolled for this study. Their demographic data was noted down with skin & mucosal findings in a predesigned performa. Their frequencies were calculated & analysed in SPSS version 11.

Results: Out of 60 patients, 38 patients (63.3%) were males & 22 patients (36.6%) were females. Mean age of patients was 35.20 years. 13 patients (21.6%) had no skin findings and 47 patients (78.4%) had skin findings. The commonest skin finding was pruritus present in 24 patients (40%), followed by facial flushing in 15 patients (25%). Petechial rash and burning sensation were found in 7 patients (11.6%). Among the mucosal findings, eye involvement was the commonest present in 15 patients (25%).

Conclusion: Cutaneous and mucosal manifestations are an important part of dengue fever. These findings also help in assessing the disease progress.

Key words: Dengue fever, cutaneous manifestations.

INTRODUCTION

Dengue virus belonging to genus flavivirus is a single stranded RNA virus causing dengue fever. It is most found in tropical countries. It is transmitted by the by the vector *Aedes aegypti*, *Aedes albopictus* & Asian tiger mosquitoes. There are four serotypes dengue virus 1,2,3 & 4 (DENV-1, DENV-2, DENV-3, DENV-4).

When the mosquito bites an infected person during viremia i.e., within 6 days, it can be a cause of transmission of dengue virus. The incubation period varies from 3-14 days & can affect any age. Dengue fever clinically varies from mild fever to dengue shock syndrome. Patients suffering from dengue fever complain of fever (high grade), headache & skin rash. Body aches are very severe so called breaking bone fever. Along with classic dengue fever characteristics, development of haemorrhagic manifestations is dengue haemorrhagic fever. Dengue haemorrhagic fever & dengue shock syndrome can lead to mortality so timely management is required.

A variety of skin manifestations are associated with dengue fever. Almost 50% of dengue fever cases present with cutaneous manifestations. The rash in dengue occurs in two stages. First rash occurs within 24-48 hours of disease. Initially flushing of face, neck & chest occurs, followed 3-6 days after fever by generalised macular eruption & islands of normal skin with petechial lesions. When fever settles down then these skin lesions are mostly followed by generalised pruritus with exfoliation of skin. Petechial & ecchymotic lesions are most observed in dengue shock or haemorrhagic fever. Mucosal (eye, nasal, oral, and genital) involvement is also seen in cases of dengue fever about 15-30% of patients. This involvement varies from mild congestion, itching & haemorrhage.

So adequate understanding of cutaneous manifestations of dengue fever is needed. As these can be the early manifestations of dengue fever, so can help in timely diagnosis & management of this disease & even decrease the mortality associated with it. So, the main purpose of this study is to help in early diagnosis of dengue fever with the help of observing the cutaneous changes in patients. This will decrease the hospitalisation of patients, decrease morbidity & mortality associated with it.

MATERIALS & METHODS

This cross-sectional study was performed in department of dermatology & medicine at Akhtar Saeed trust hospital Lahore from September 2021 till December 2021. Permission was taken from ethical committee of institutions. Suspected cases of dengue irrespective of sex & age were enrolled from outpatient & inpatient departments. An informed consent was taken & predesigned performa was filled after taking detailed history & doing clinical & dermatological examination of patient. Relevant investigations for confirming dengue (serum IgM & IgG) and other relevant investigations like hematocrit, platelet count & liver function tests were done.

Exclusion criteria included patients having chronic ailments like diabetes mellitus, chronic liver disease, chronic renal disease & other connective tissue disorders.

The data was entered & analysed using SPSS version 11. Frequencies of different cutaneous findings were noted.

RESULTS

A total of 60 patients of dengue were enrolled in the study. 38 patients were male & 22 were female. Male to female ratio was

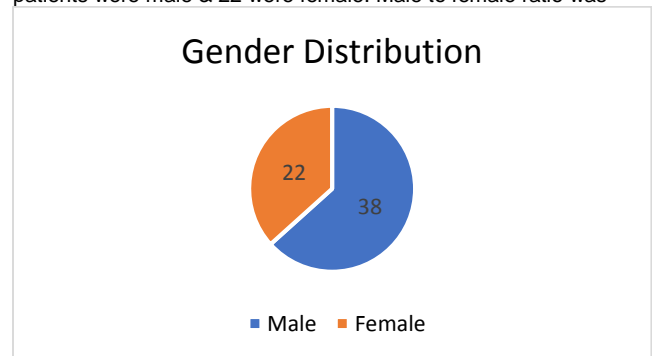


Fig 1:

The age range was from 12-80 years of age. Mean age was 35.20 years. Most of the patients were from age group 31-40 years, followed by 21-30 years.

13 (21.6 %) patients out of 60 patients did not have any skin or mucosal manifestations. The most common skin manifestation in patients of dengue was generalised pruritis which was found in 24 (40%) of patients, followed by facial flushing present in 15 (25 %) of patients. Petechial rash & burning sensation was present in 7 (11.6 %) of patients each. Burning sensation was mostly present on hands & feet. 3(5%) of patients had macular rash on trunk & 2 (3.4%) of patients suffered from ecchymosis on limbs. All these are shown in Table 2.

Regarding mucosal manifestations it was present in 28 (46.6%) of patients. The most common mucosa involved was eye mucosa present in 15(25%) patients, followed by oral and nasal mucosae in 11(18.4%) patients each.

Table 1: Cutaneous manifestations seen in dengue fever (n=60)

Cutaneous features	N (%)
Pruritis	24 (40%)
Facial flushing	15 (25%)
Burning sensation	7 (11.6%)
Petechial rash	7 (11.6%)
Macular rash	3 (5%)
Ecchymosis	2 (3.4%)

Table 2: Frequency of mucosal involvement in patients of dengue fever

Mucosa involved	N (%)
Oral	11 (18.4%)
Nasal	11 (18.4%)
Eye	15 (25%)
Genitals	3 (5%)

DISCUSSION

Dengue fever is endemic in Pakistan, in 2021 total of 48,906 cases including 183 deaths were reported, mostly from Lahore district. It has become a public health problem for underdeveloped countries. Global warming, poor living conditions, urbanisation & inadequate waste disposal might be the reason for this surge.

A total of 60 cases were enrolled in our study. Male patients were more in our study as compared to females. This male preponderance is seen in other studies done in Asia, Anker et al, Khan et al & Kumar et al.

In our study the mean age of patients was 35.20 and, in another study, it was 31.5 and 35 years. Most of the patients were from age group 31-40 years followed by 21-30 years, almost comparable to the study done by Nadia et al & Saleem et al.

Out of total 60 patients 47 (78.4%) had skin changes & 13 (21.6%) of patients had no skin and mucosal findings. Similar to our study, in other studies it was found in 80% of patients & in 65% of patients.

Out of the cutaneous changes pruritus was found to be the commonest, present in 24 (40%) of patients in our study. In some other studies it ranges from 16% to 27.6%. Release of cytokines is probably the reason for pruritis in dengue. During first 3 days of fever Th 1 cytokines are released & Th2 cytokines are released during later stage.

Facial flushing was found in 15 (25%) of patients. It is sensitive & specific predictor of dengue infection. The most likely cause of high fever with facial flushing are dengue infection, influenza & scarlet fever. Burning sensation & petechial rash was found in 7 (11.6%) of patients each. It is almost comparable to frequency of petechial rash in another study done in North India by Thomas et al. In most cases it is due to decreased platelet count & malfunction. But in cases where platelet count is normal then liver functions like alanine transferase are deranged.

Mucosal involvement was present in 40 (66.6%) of patients in our study, which is almost comparable to a study from France in which mucosal involvement was 46.15% and 46.6% in another study done na Nadia et al. Out of the mucosal involvement the most common mucosa involved was eye mucosa in 15 (25%) of patients which is comparable to other studies done in North India 20.9% & 40 (36.7%) in study done by Khadijah et al. Among the

eye mucosa changes congestion and haemorrhage were the commonest findings.

CONCLUSION

Patients of dengue fever present with various cutaneous findings as they were observed in this study. These help out in early diagnosis and treatment of dengue fever. These also give a clue of disease progression.

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