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Research Article

Oral Manifestations in Patients with Dengue Fever: A Prospective Study.

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ABSTRACT

Objectives: The objective of this study was to determine the oral manifestation in patients having dengue fever.

Methodology: This was a descriptive cross-sectional study carried out from district health facilities of Charsadda from June 2023 to November 2023. A total of 200 male and female patients having dengue fever and oral manifestation were included in this study. An approval was taken from the district health officer charsadda. After informed consent taken the data confidentiality were assured. The data was analyzed using SPSS 23. The confidence interval was 95% and level significance was kept at $p \leq 0.05$.

Results: A 38±5 year was the mean age presentation. Males were more than females with ratio of 1.9:1. Bleeding of gums was the most dominant oral manifestation found in male and female 51 (38.3%) and 17 (25.37%) respectively. The second most common oral manifestation was petechiae, 39 (29.3%) were found in males and 16 (23.8%) were in females. In children the most common oral manifestation was bleeding of gums.

Conclusion: This study concluded that bleeding of gums was the most common oral manifestation seen in patients with dengue fever.

Keywords: Dengue, Oral manifestation, Bleeding gums.

INTRODUCTION

Dengue fever is an acute viral illness which is caused by RNA virus. The female Aedes aegypti mosquito, belonging to family Flaviviridae is responsible for dengue fever. There are four serotypes of Dengue virus. [1]Dengue virus causes disruption of endothelial microvascular permeability and thrombo regulatory mechanism resulting in increased rate of protein and plasma loss. Alterations in megakaryocytopoiesis give rise to thrombocytopenia. Hemorrhage arises due to virus induced vasculopathy and coagulopathy.[2]

Widely evolution of dengue in the last 50 years and the predominancy in urban and semi-urban areas, dengue fever surge as an important public health problem.[3]Approximately 2.5 billion people worldwide lived in dengue transmitted areas.[4] The up surging of dengue fever worldwide due to enlarge population growth rate, unexpected urbanization, global warming, inadequate mosquito control and deficient health facilities.[5]

The dengue viral infection exhibited with variety of clinical presentation, the accurate diagnosis mostly depends on laboratory test rather than presentation.[6] The symptoms of dengue fever consists of high fever, headache, back pain, muscle and joint pains, metallic taste in the mouth, loss of appetite, vomiting, diarrhea, abdominal pain and rashes. Organ dysfunction is the severity of dengue fever according to WHO.[7] Approximately 30% patients have oral mucosal involvement.[8]

Overpopulated cities, unsuitable sanitary conditions, lack of safe drinking water and reduced perception about vaccines may prone

Pakistan to hit by dengue epidemics with the large risk.[9] First Dengue fever was reported in 1994 in Pakistan.[10] Dengue virus serotype that is primarily associated with disease spread in Pakistan is DEN-3.The peak incidence is monsoon rain season.[9] Statistically, over 4 thousand cases of DF are reported annually with the numbers increasing to 21,597 with 365 deaths in recent past.[11]

The symptoms present by dengue patients may be overlooked by healthcare professionals.[12] Therefore, this study was conducted to identify the oral manifestations related or associated with dengue fever and clinical implications for healthcare professionals.

METHODOLOGY

A descriptive cross sectional study was carried out in the district health facilities of Charsadda from June 2023 to November 2023. A total of 200 patients of both genders were selected through non-probability convenience sampling technique. Patient age range 10-60 years and those presented with dengue fever without organ dysfunction were included in this study. Diabetic, pregnant, hypertensive, hepatitis patients and those patients with other fever along with dengue fever were excluded from this study. An approval was taken from ethical review committee of District Health Officer Charsadda. The purpose, procedure, risk and benefits were explained to them and an informed consent was taken from them to participate in the study. They were assured of confidentiality of all data. The data was analyzed using SPSS 23. The confidence interval was 95% and level significance was kept at $p \leq 0.05$.

RESULTS

The mean age presentation was 38±5 years. The male patients were 133 (66.5%) while the female patients were 67 (33.5%) as shown in figure 1. Overall the most persistent oral manifestation was bleeding gums 68(34%), followed by petechiae 55(27.5%), xerostomia 22(11%), oral ulcers 21(10.5%) as shown in table 1. The most frequent oral manifestation noted in males were bleeding gums 51 (38.3%) followed by petechiae 39 (29.3%), xerostomia 15 (11.27%) and oral ulcers 08 (4%) respectively. Lip crusting & tongue coating 04 (3.1%), erythema of oral ulcers 3(2.25%), hemorrhagic bullae 5 (3.7%), purpura 4 (3.1%) , ecchymosis 3 (2.25%) and Forchheimer spots 1(0.75%) were rarely seen in males.

The most dominant oral manifestation in females were bleeding gums 17 (25.37%) followed by petechiae 16 (23.8%), oral ulcers 13 (19.4%), lip crust & tongue coating 08(11.94%), xerostomia 07 (10.44%) erythema of oral ulcers 04 (5.9%). Erythema of oral ulcers and lip crust & tongue coating were more in females than males. Purpura was also seen in females but the rest of manifestations were not shown in females as compared to males. The total number of patients and percentage of oral manifestations of patients with dengue fever is shown in table 1.

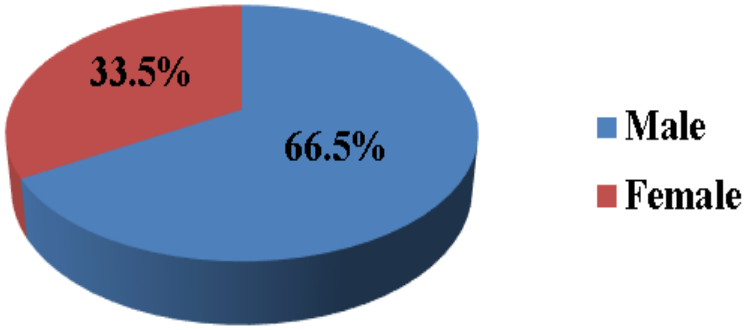


Figure 1. Gender Distribution

Table 1. Total number of patients and percentage.

S.No.	Oral Manifestations	Male Patients		Female Patients		Total		P value
		Number (N)	Percentage (%)	Number (N)	Percentage (%)	Number (N)	Percentage (%)	
1.	Petechiae	39	29.3%	16	23.8%	55	27.5%	0.38
2.	Bleeding of Gums	51	38.3%	17	25.37%	68	34%	0.06
3.	Oral Ulcers	08	6.01%	13	19.4%	21	10.5%	0.06
4.	Xerostomia	15	11.3%	07	10.44%	22	11%	0.8
5.	Lip Crust & Tongue coating	04	3.1%	08	11.94%	12	6%	0.21
6.	Erythema of oral Ulcers	03	2.3%	04	5.97%	07	3.5%	0.07
7.	Hemorrhagic Bullae	05	3.7%	0	0%	05	2.5%	0.06
8.	Purpura	04	3.1%	02	2.98%	06	3%	0.35
9.	Ecchymosis	03	2.3%	0	0%	03	1.5%	0.15
10.	Forchheimer Spots	01	0.75%	0	0%	01	0.5%	0.95
	Total	**133**	**100%**	**67**	**100%**	**200**	**100%**	

DISCUSSION

The global resurgence of DF/DH is a major public health problem concern today. Rapidly growing population, uncontrolled urbanization, increased air and road travel, lack of control of vector growth, lack of awareness and the poor performance of the public health sector are the factors responsible for this resurgence. The risk factors of dengue virus infection are increased with density of the mosquito vector, reinfestation with A. aegypti of a new geographical area, hot and humid climate, increase in population density, pattern of water storage in houses, storage of junk in open spaces, including tires and coconut shells, etc., which trap rainwater and the introduction of new serotypes of the virus, etc. There are no graduates vaccines or antiviral therapies for the prevention or treatment, although there are some in development.[13]

The research discloses a limited study on the oral manifestations of dengue fever. Oral manifestations are haphazardly distributed in dengue fever and most commonly found in hemorrhagic dengue fever with different characteristics in different literature but the most prominent oral feature includes the bleeding gums, petechiae, lip crust & tongue coating, xerostomia and oral ulcers.[14,15]

This study revealed bleeding of gums was the most dominant oral manifestation seen which is in consistent with study conducted by Shahid et al.[14] Shahid et al[14] also disclosed that petechiae was the second most common manifestation which is also in consistent with this study.

In another study conducted by Govindaraj et al[16] demonstrated that patechiae was thye most common oral manifestation followed by bleeding of gums, oral ulcers and xerostomia which contradicts this study in which bleeding of gums is the most prominent oral manifestation of dengue fever.

The identification of oral manifestations of dengue fever is relevant and contributory in establishing early diagnosis of pathology. This study may guide the dental professionals to be aware of the implications of performing the dental procedures in dengue patients because of the hallmark of hemorrhage in these patients. The study focuses on both adults and children.

The limitation of this study is the small sample size. The sample size includes only those patients who have dengue fever. Males were more than females and only four children were included in this study which may not be adequate for pediatric patients and further study may be required.

CONCLUSION

The study concluded that the most common oral manifestation found in dengue patient was bleeding of gums followed by petechiae in both gender.

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