

Frequency and Severity of Pharyngeal Manifestations in patients of Dengue Fever (Dengue without warning signs-WHO Classification)

AYUB AHMAD KHAN, IMRAN SAEED*, SHAMS UL JALIL**

ABSTRACT

Objective: To determine the frequency & severity of pharyngeal symptoms and signs in dengue fever.

Study design: It was a cross sectional survey study and non-probability purposive sampling.

Place & duration of study: Hameed Latif and Ittefaq Hospital Lahore from 1-6-11 to 30-11-11

Material and method: The sample size was determined to be 73 and these patients were given a questionnaire in which they were required to give their personal data and also answer in regard to two variables. One was the presence or absence of pharyngeal symptoms. Second was the severity of pharyngeal symptoms, which if present were graded into mild intensity pain MIP (1-3), moderate intensity pain MDIP (4-6) and severe intensity pain SIP (7-10) using visual analog pain scale (VAS).

Results: The examination findings were graded into mild involvement MI, moderate involvement MDI and severe involvement SI. The mean age of patients was 35.7 years, with mode of 40 years and median of 35 years and age ranging from 15 years to 75 years. Ratio of males to females was 1:1.6. The frequency of pharyngeal symptoms in dengue fever patients was found to be present in 20.5% patients and absent in 79.5% patients.

Conclusion: Clinicians need to be aware of the abnormal manifestations of dengue fever in the form of pharyngeal involvement and dengue fever should be high in the differential diagnosis of any case presenting with febrile illness and sore throat in the endemic area in the hot and humid season.

Key words: Dengue fever, pharyngeal manifestations frequency and severity.

INTRODUCTION

Dengue is a major public health problem worldwide and continues to increase in incidence¹. Dengue virus (DENV) infection leads to a range of outcomes, including subclinical infection, undifferentiated febrile illness, Dengue Fever (DF), life-threatening syndromes with fluid loss and hypotensive shock, or other severe manifestations such as bleeding and organ failure². The long-standing World Health Organization (WHO) dengue classification and management scheme was recently revised, replacing DF, Dengue Hemorrhagic Fever (DHF), and Dengue Shock Syndrome (DSS) with Dengue without Warning Signs, Dengue with Warning Signs (abdominal pain, persistent vomiting, fluid accumulation, mucosal bleeding, lethargy, liver enlargement, increasing hematocrit with decreasing platelets) and Severe Dengue (SD; dengue with severe plasma leakage, severe bleeding, or organ failure)³. Dengue came to Pakistan about six years back, when cases were reported from Karachi being the port city of the country^{4,5} and came to the Punjab province in 2008⁶. However, last year the city of

Lahore bore the brunt of the disease where more than 25,000 people were affected with the disease and more than 350 deaths recorded occurring because of the disease. Symptomatic dengue virus infections can present with a wide range of clinical manifestations, from a mild febrile illness to a life-threatening shock syndrome⁷. We have tried to determine the frequency and severity of pharyngeal symptoms and signs in dengue fever (dengue without warning signs) patients suspected by bicytopenia on blood complete picture⁸ and confirmed by positive dengue serology⁹.

MATERIAL AND METHODS

The study was carried out at Hameed Latif Hospital and Ittefaq Trust Hospital Lahore on dengue fever patients suspected by bicytopenic blood picture and confirmed by positive dengue serology for a period of six months from 1 June to 30 November 2011. It was cross sectional survey study to determine the frequency and severity of pharyngeal disease including presenting symptoms and signs in patients of dengue fever. For the purpose of study non-probability purposive sampling was used and WHO software was used to determine the sample size. With confidence level of 95%, anticipated population proportion (P) of 0.05 and absolute precision required (d) of 0.05, the sample size (n) was determined to be

Department of ENT, Fatima Memorial Medical College

*Fatima Jinnah Medical College,

**Avicenna Medical College, Lahore

Correspondence to Dr. Ayub Ahmad Khan, Assistant

Professor Email: draakhan64@yahoo.com

73. These 73 patients were given a questionnaire in which they were required to give their personal data in the form of name, age, sex, address and also answer in regard to two variables. One was the presence or absence of pharyngeal symptoms. Second was the severity of pharyngeal symptoms, which if present were graded into mild intensity pain MIP (1-3), moderate intensity pain MDIP (4-6) and severe intensity pain SIP (7-10) using visual analog pain scale (VAS). The third variable was examination findings which were observed by the ENT consultant and endorsed on the same questionnaire. The examination findings were graded into mild involvement MI (congestion of posterior pharyngeal wall), moderate involvement MDI (congestion of tonsils along with posterior pharyngeal wall).

RESULTS

The study included 73 patients (n=73) of dengue fever suspected by bicytopenic blood picture and confirmed by positive dengue serology. In the study mean age of patients was found to be 35.7 years, with mode of 40 years and median of 35 years and

age ranging from 15 years to 75 years (Table 1). Ratio of males to females was 1:1.6 (Table 2). Demographically the area most commonly affected was Shadman, Lahore (Table 3) with maximum number of patients (16.4%). The frequency of pharyngeal symptoms in dengue fever patients was found to be present in 20.5% patients and absent in 79.5% patients (Table 4). As far as the severity of pharyngeal symptoms (Table 5) were concerned, maximum (11%) were found to have moderate intensity of pain (MDIP) in the throat (VAS 4-6) while 5.5% patients had mild intensity of pain (MIP) in throat (VAS 1-3) and 4.1% had severe intensity of pain (SI) in throat (VAS 7-10). Examination findings (Table 6) correlated well with the symptoms and maximum number of patients (11%) were found to have moderate grade involvement (MDI) of pharyngeal area (congestion of tonsils along with posterior pharyngeal wall) while 5.5% had mild grade involvement (MI) of pharyngeal area (congestion of posterior pharyngeal wall) and 4.1% patients had severe grade of involvement (SI) of pharyngeal area.

Table 1: Age (n=73)

Valid	Frequency	Percent	Valid percent	Cumulative percent
15.00	1	1.4	1.4	1.4
17.00	3	4.1	4.1	5.5
19.00	2	2.7	2.7	8.2
20.00	3	4.1	4.1	12.3
21.00	1	1.4	1.4	13.7
22.00	1	1.4	1.4	15.1
23.00	2	2.7	2.7	17.8
24.00	2	2.7	2.7	20.5
25.00	3	4.1	4.1	24.7
26.00	2	2.7	2.7	27.4
28.00	2	2.7	2.7	30.1
29.00	4	5.5	5.5	35.6
30.00	1	1.4	1.4	37.0
32.00	3	4.1	4.1	41.1
33.00	2	2.7	2.7	43.8
34.00	4	5.5	5.5	49.3
35.00	1	1.4	1.4	50.7
37.00	3	4.1	4.1	54.8
38.00	1	1.4	1.4	56.2
39.00	3	4.1	4.1	60.3
40.00	5	6.8	6.8	67.1
41.00	1	1.4	1.4	68.5
42.00	3	4.1	4.1	72.6
45.00	5	6.8	6.8	79.5
46.00	1	1.4	1.4	80.8
47.00	4	5.5	5.5	86.3
49.00	2	2.7	2.7	89.0
50.00	2	2.7	2.7	91.8
52.00	2	2.7	2.7	94.5
56.00	1	1.4	1.4	95.9
59.00	1	1.4	1.4	97.3
65.00	1	1.4	1.4	98.6
75.00	1	1.4	1.4	100.0

Table 2: Sex (n=73)

Valid	Frequency	Percent	Valid percent	Cumulative percent
Male	28	38.4	38.4	38.4
Female	45	61.6	61.6	100.0

Table 3: Address (n=73)

Valid	Frequency	Percent	Valid percent	Cumulative percent
Johar Town, Lahore	11	15.1	15.1	15.1
Mugulpura, Lahore	5	6.8	6.8	21.9
Sanatnagar, Lahore	6	8.2	8.2	30.1
Gulberg, Lahore	3	4.1	4.1	34.2
Shadman, Lahore	12	16.4	16.4	50.7
Ichra, Lahore	11	15.1	15.1	65.8
Model Town, Lahore	10	13.7	13.7	79.5
Bahar Colony, Lahore	4	5.5	5.5	84.9
Gor III, Lahore	3	4.1	4.1	89.0
Govt Employees Housing Society, Lahore	2	2.7	2.7	91.8
Shama, Lahore	4	5.5	5.5	97.3
Shah Jamal, Lahore	2	2.7	2.7	100.0

Table 4: Pharyngeal symptoms (n=73)

Valid	Frequency	Percent	Valid percent	Cumulative percent
Present	15	20.5	20.5	20.5
Absent	58	79.5	79.5	100.0

Table 5: Severity of symptoms (visual analog score for intensity of pain) (n=73)

Valid	Frequency	Percent	Valid percent	Cumulative percent
Mild intensity of pain (MIP)	4	5.5	5.5	5.5
Moderate intensity of pain (MDIP)	8	11.0	11.0	16.4
Severe intensity of pain (SIP)	3	4.1	4.1	20.5
Absent	58	79.5	79.5	100.0

Table 6: Examination findings (grade of involvement of pharyngeal area) (n=73)

Valid	Frequency	Percent	Valid percent	Cumulative percent
Mild involvement (MI) of pharyngeal area (congestion of posterior pharyngeal wall)	4	5.5	5.5	84.9
moderate involvement (MDI) of pharyngeal area (congestion of tonsil with posterior pharyngeal wall)	8	11.0	11.0	95.9
severe involvement (SI) of pharyngeal area (follicular tonsillitis)	3	4.1	4.1	100.0
Mild involvement (mi) of pharyngeal area (congestion of posterior pharyngeal wall)	4	5.5	5.5	84.9

DISCUSSION

The city of Lahore bore the brunt of the dengue disease in 2011 where more than 25,000 people were affected with the disease and more than 350 deaths recorded occurring because of the disease. Symptomatic dengue virus infections can present with a wide range of clinical manifestations, from a mild febrile illness to a life-threatening shock syndrome. However, there are certain clinical presentations which remained unrecognized and amongst them are the pharyngeal manifestations. Therefore; in this article we have tried to determine the frequency and severity of pharyngeal symptoms and signs in dengue fever (dengue without warning

signs-according to latest WHO classification) patients suspected by bicytopenia on blood complete picture and confirmed on positive dengue serology.

The study was carried out at Hameed Latif Hospital and Ittefaq Trust Hospital Lahore for a period of six months from 1 June to 30 November 2011. It was a cross sectional survey study and non-probability purposive sampling was used. The sample size was determined to be 73 and these patients were given a questionnaire in which they were required to give their personal data and also answer in regard to two variables. One was the presence or absence of pharyngeal symptoms. Second was the severity of pharyngeal symptoms, which if present were graded into mild intensity pain MIP (1-3),

moderate intensity pain MDIP (4-6) and severe intensity pain SIP (7-10) using visual analog pain scale (VAS). The third variable was examination findings which were observed by the ENT consultant and endorsed on the same questionnaire. The examination findings were graded into mild involvement MI (congestion of posterior pharyngeal wall), moderate involvement MDI (congestion of tonsils along with posterior pharyngeal wall) and severe involvement SI (follicular tonsillitis). The results were compiled and it was found that the mean age of patients was 35.7 years, with mode of 40 years and median of 35 years and age ranging from 15 years to 75 years. Ratio of males to females was 1:1.6. Demographically the area most commonly affected was Shadman, Lahore with maximum number of patients (16.4%). The frequency of pharyngeal symptoms in dengue fever patients was found to be present in 20.5% patients and absent in 79.5% patients. Out of those in which pharyngeal symptoms were present, maximum (11%) were found to have MDIP in the throat while 5.5% patients had MIP and 4.1% had SIP in throat. Examination findings correlated well with the symptoms and maximum numbers of patients (11%) were found to have MDI of pharyngeal area while 5.5% had MI and 4.1% patients had SI of pharyngeal area.

A comparative analysis of results with various studies conducted in the literature was done and following observations were made. Mean age in our study was 35.7 while in the study conducted by Ali N¹⁰ the mean age was 29.7 this was probably since in this study the pediatric age group was also included with age range of 6-74 years while age range in our study was 15-75 years. However, male to female ratio in our study was 1:1.6 while in the study conducted by Ali N¹⁰ it was 1.6:1. Demographically the area most commonly affected was Shadman, Lahore with maximum number of patients (16.4%) and since there were no previous studies carried out in Lahore so a comparative analysis could be made in this regard. A thorough search was made of the literature^{7,11,12} in regard to clinical manifestations of dengue fever but only two forms of presentations have been described one is with fever, headache, myalgia, arthralgia and skin rash¹³ and the second one is with gastrointestinal symptoms like nausea, vomiting and diarrhea along with fever^{14,15} but no supportive or contradictory evidence was found as far as pharyngeal manifestations are concerned. Even as far as abnormal presentations of dengue are concerned there is only mention of neurological^{16,17,18}, cardiac¹⁹ or ophthalmic^{20,21} presentation. However in our study, the frequency of pharyngeal symptoms in dengue fever patients was found to be present in 20.5% patients and absent in 79.5% patients. Out of those in

which pharyngeal symptoms were present, maximum (11%) were found to have moderate intensity of pain (MDIP) in the throat (VAS 4-6) while 5.5% patients had mild intensity of pain (MIP) in throat (VAS 1-3) and 4.1% had severe intensity of pain (SIP) in throat (VAS 7-10). Examination findings correlated well with the symptoms and maximum number of patients (11%) were found to have moderate grade of involvement (MDI) of pharyngeal area (congestion of tonsils along with posterior pharyngeal wall) while 5.5% had mild grade of involvement (MI) of pharyngeal area (congestion of posterior pharyngeal wall) and 4.1% patients had severe grade of involvement (SI) of pharyngeal area (follicular tonsillitis).

RECOMMENDATIONS

In view of our study we would like to give the following recommendations

1. Further studies need to be undertaken on this subject so that cause and effect relationship can be better understood with complete spectrum of presentations of dengue fever.
2. Clinicians need to keep a high index of suspicion for dengue fever in febrile patients in endemic areas in the warmer months of the year and refer patients with fever and sore throat to ENT specialists so that pharyngeal presentations of dengue fever can be further studied.
3. ENT specialists need to be aware of this abnormal presentation of the dengue fever and add dengue fever in the list of differential diagnosis of fever with sore throat /throat pain.
4. Public awareness also needs to be created and spread through print and electronic media that dengue fever can manifest in this abnormal form and antibiotics are not a contraindication in dengue fever.

CONCLUSION

The clinicians need to be aware of the abnormal manifestations of dengue fever (dengue without warning signs-WHO classification) in the form of pharyngeal involvement and dengue fever should be high in the differential diagnosis of any case presenting with febrile illness and sore throat in the endemic area in the hot and humid season.

REFERENCES

1. Hemungkorn M, Thisyakorn U, Thisyakorn C. Dengue infection: a growing global health threat. *Bioscience trends*. 2007;1(2):90-6. Epub 2007/10/01.
2. Ross TM. Dengue virus. *Clinics in laboratory medicine*. 2010;30(1):149-60. Epub 2010/06/02.
3. Narvaez F, Gutierrez G, Perez MA, Elizondo D, Nunez A, Balmaseda A, et al. Evaluation of the traditional and revised WHO classifications of Dengue disease

- severity. PLoS neglected tropical diseases. 2011;5(11):e1397. Epub 2011/11/17.
4. Ahmed S, Arif F, Yahya Y, Rehman A, Abbas K, Ashraf S, et al. Dengue fever outbreak in Karachi 2006--a study of profile and outcome of children under 15 years of age. JPMA The Journal of the Pakistan Medical Association. 2008;58(1):4-8. Epub 2008/02/27.
 5. Riaz MM, Mumtaz K, Khan MS, Patel J, Tariq M, Hilal H, et al. Outbreak of dengue fever in Karachi 2006: a clinical perspective. JPMA The Journal of the Pakistan Medical Association. 2009;59(6):339-44. Epub 2009/06/19.
 6. Humayoun MA, Waseem T, Jawa AA, Hashmi MS, Akram J. Multiple dengue serotypes and high frequency of dengue hemorrhagic fever at two tertiary care hospitals in Lahore during the 2008 dengue virus outbreak in Punjab, Pakistan. International journal of infectious diseases : IJID : official publication of the International Society for Infectious Diseases. 2010;14 Suppl 3:e54-9. Epub 2010/02/23.
 7. Esler D. Dengue - Clinical and public health ramifications. Australian family physician. 2009;38(11):876-9. Epub 2009/11/07.
 8. Gregory CJ, Santiago LM, Arguello DF, Hunsperger E, Tomashek KM. Clinical and laboratory features that differentiate dengue from other febrile illnesses in an endemic area--Puerto Rico, 2007-2008. The American journal of tropical medicine and hygiene. 2010;82(5):922-9. Epub 2010/05/05.
 9. Butt N, Abbassi A, Munir SM, Ahmad SM, Sheikh QH. Haematological and biochemical indicators for the early diagnosis of dengue viral infection. Journal of the College of Physicians and Surgeons--Pakistan : JCPSP. 2008;18(5):282-5. Epub 2008/06/11.
 10. Ali N, Usman M, Syed N, Khurshid M. Haemorrhagic manifestations and utility of haematological parameters in dengue fever: a tertiary care centre experience at Karachi. Scandinavian journal of infectious diseases. 2007;39(11-12):1025-8. Epub 2007/09/14.
 11. Cavalcanti LP, Coelho IC, Vilar DC, Holanda SG, Escossia KN, Souza-Santos R. Clinical and epidemiological characterization of dengue hemorrhagic fever cases in northeastern, Brazil. Revista da Sociedade Brasileira de Medicina Tropical. 2010;43(4):355-8. Epub 2010/08/31.
 12. Itoda I, Masuda G, Suganuma A, Imamura A, et al. Clinical features of 62 imported cases of dengue fever in Japan. The American journal of tropical medicine and hygiene. 2006;75(3):470-4. Epub 2006/09/14.
 13. Kittigul L, Pitakarnjanakul P, Sujirarat D, Siripanichgon K. The differences of clinical manifestations and laboratory findings in children and adults with dengue virus infection. Journal of clinical virology : the official publication of the Pan American Society for Clinical Virology. 2007;39(2):76-81. Epub 2007/05/18.
 14. Laferl H, Szell M, Bischof E, Wenisch C. Imported dengue fever in Austria 1990-2005. Travel medicine and infectious disease. 2006;4(6):319-23. Epub 2006/11/14.
 15. Seet RC, Ooi EE, Wong HB, Paton NI. An outbreak of primary dengue infection among migrant Chinese workers in Singapore characterized by prominent gastrointestinal symptoms and a high proportion of symptomatic cases. Journal of clinical virology : the official publication of the Pan American Society for Clinical Virology. 2005;33(4):336-40. Epub 2005/07/23.
 16. Mendez A, Gonzalez G. [Abnormal clinical manifestations of dengue hemorrhagic fever in children]. Biomedica : revista del Instituto Nacional de Salud. 2006;26(1):61-70. Epub 2006/08/26. Manifestaciones clinicas inusuales del dengue hemorragico en ninos.
 17. Kamath SR, Ranjit S. Clinical features, complications and atypical manifestations of children with severe forms of dengue hemorrhagic fever in South India. Indian journal of pediatrics. 2006;73(10):889-95. Epub 2006/11/09.
 18. Sinha N, Gupta N, Jhamb R, Gulati S, Kulkarni Ajit V. The 2006 dengue outbreak in Delhi, India. The Journal of communicable diseases. 2008;40(4):243-8. Epub 2009/07/08.
 19. Thomas L, Brouste Y, Najjoulah F, Hochedez P, Hatchuel Y, Moravie V, et al. Prospective and descriptive study of adult dengue cases in an emergency department, in Martinique. Medecine et maladies infectieuses. 2010;40(8):480-9. Epub 2009/12/03.
 20. Dellamonica P. [Dengue fever: clinical features]. Archives de pediatrie : organe officiel de la Societe francaise de pediatrie. 2009;16 Suppl 2:S80-4. Epub 2009/10/20. La dengue: aspects cliniques.
 21. Ghosh M, Banerjee M, Das S, Chakraborty S. Dengue infection with multi-organ involvement. Scandinavian journal of infectious diseases. 2011;43(4):316-8. Epub 2010/12/07.
 22. Hanafusa S, Chanyasanha C, Sujirarat D, Khuankhunsathid I. Clinical features and differences between child and adult dengue infections in Rayong Province, southeast Thailand. The Southeast Asian journal of tropical medicine and public health. 2008;39(2):252-9. Epub 2008/06/21.
 23. Wang CC, Lee IK, Su MC, Lin HI, Huang YC, Liu SF, et al. Differences in clinical and laboratory characteristics and disease severity between children and adults with dengue virus infection in Taiwan, 2002. Transactions of the Royal Society of Tropical Medicine and Hygiene. 2009;103(9):871-7. Epub 2009/06/09.
 24. Chai LY, Lim PL, Lee CC, Hsu LY, Teoh YL, Lye DC, et al. Cluster of Staphylococcus aureus and dengue co-infection in Singapore. Annals of the Academy of Medicine, Singapore. 2007;36(10):847-50. Epub 2007/11/08.