



INVESTIGATION OF A LOCAL OUTBREAK OF LEPTOSPIROSIS IN AN URBAN SLUM IN MUMBAI

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**ABSTRACT**

Leptospirosis, caused by a spirochete of genus *Leptospira*, is considered the most widespread zoonosis in the world. It has a global distribution with a higher incidence in the tropics and subtropics. Leptospirosis is considered an “emerging” zoonosis due to increased contact between animals and humans and the resulting human encroachment into wildlife habitat. Most outbreaks of leptospirosis in India are reported from the coastal regions. Flooding and heavy rainfall have been associated with numerous outbreaks. The Study was planned to investigate the local outbreak of leptospirosis in the urban slum & to study the trend and demographic factors associated with the confirmed cases. During the period 01/10/2022 to 28/02/2023, 730 patients with fever were advised leptospirosis and other tests. Out of the 730 patients with fever for whom the fever profile panel was done, 98 (13.42%) came positive for leptospirosis by IgM ELISA test. Out of the 98 patients tested positive for leptospirosis, 35 were male and 63 were female. The mean age was found to be 26. The minimum age was found to be 1 year and the maximum age was 68 years. 3 of these 98 patients were coinfecting with dengue as well and 33 of the 98 patients had positive titres on Widal test as well. Further investigation is needed to understand the mode of transmission of leptospirosis even in the dry season. Environmental samples need to be checked and studies need to be undertaken to understand the risk factors in the cases affected.

**KEYWORDS :** Leptospirosis, Local Outbreak, Zoonosis, Slum, Fever.

**INTRODUCTION**

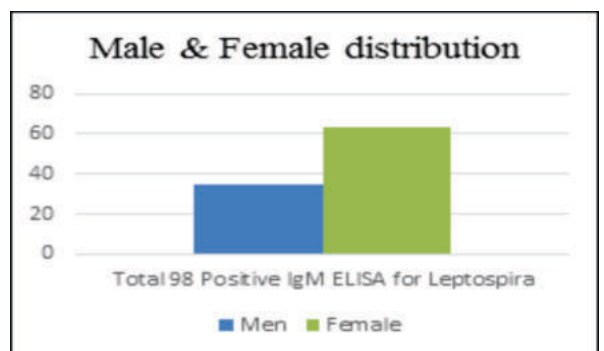
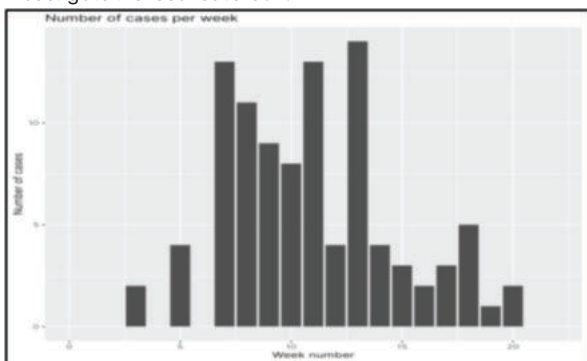
Leptospirosis, caused by a spirochete of genus *Leptospira*, is considered the most widespread zoonosis in the world. It has a global distribution with a higher incidence in the tropics and subtropics, ranging from 10 to 100 human cases per 100,000 individuals. Leptospirosis is considered an “emerging” zoonosis due to increased contact between animals and humans and the resulting human encroachment into wildlife habitat.<sup>[1]</sup>

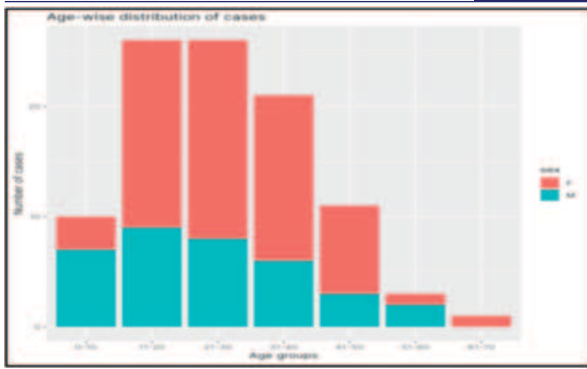
Most outbreaks of leptospirosis in India are reported from the coastal regions of the states of Gujarat, Maharashtra, West Bengal, Orissa, Kerala, Tamil Nadu, Karnataka and the Andaman Islands. Highest rates occur during October to November which coincides with the monsoon season in these parts. A number of leptospirosis outbreaks have occurred in the past few years in different parts of India.<sup>[2]</sup> Flooding and heavy rainfall have been associated with numerous outbreaks of leptospirosis around the world.<sup>[3]</sup> However, in our field practice area, a rise in leptospirosis cases was seen lately, despite the dry season. Hence the study was conducted to investigate the local outbreak.



**OBJECTIVE**

To investigate the local outbreak of leptospirosis in the urban slum and to study the trend and demographic factors associated with the confirmed cases.





**METHODOLOGY**

During the period 01/10/2022 to 28/02/2023, 730 patients with fever were advised leptospirosis and other tests. Blood samples were taken by Venepuncture & tested for IgM ELISA for leptospira Antibody. Positive reports were analysed for the trend, demographic factors and risk factors.

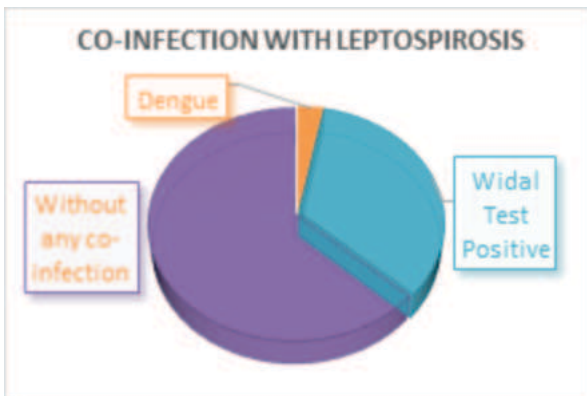
**RESULTS**

Out of the 730 patients with fever for whom the fever profile panel was done, 98 (13.42%) came positive for leptospirosis by IgM ELISA test. A sharp rise in the cases was seen from 12/11/2022 and the peak was seen between 24/12/2022 and 30/12/2022. No cases were seen after 17/02/2022.

Out of the 98 patients tested positive for leptospirosis, 35 were male and 63 were female. The mean age was found to be 26. The minimum age was found to be 1 year and the maximum age was 68 years. 3 of these 98 patients were coinfectd with dengue as well and 33 of the 98 patients had positive titres on Widal test as well. None of the leptospirosis cases were coinfectd with malaria.

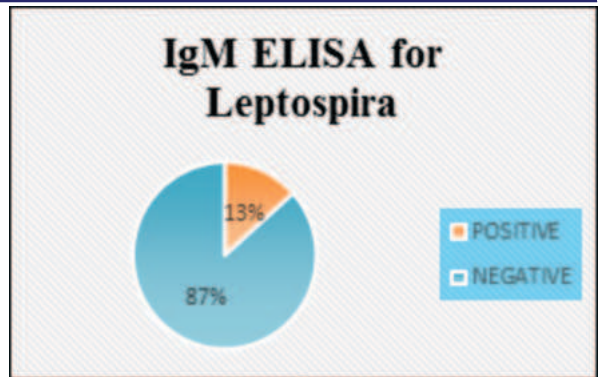
**CONCLUSION**

A local outbreak was seen in our field practice area in an urban slum in Mumbai between October 2022 and February 2023. A sharp rise in cases is seen from 12/11/22 and the peak is seen between 24/12/22 and 30/12/22. No cases were seen after 17/02/23. Contrary to previous literature,[4] most of the cases were females rather than males. Most of the cases were seen in adolescents and young adults i.e. in the age group of 11-30 years, however cases were seen in a wide range of ages from 1 year to 68 years of age. The commonest coinfection with leptospirosis was found to be typhoid and 33 of the 98 patients (33.6%) were Widal positive. This outbreak in the dry season requires further investigation to understand the causes and suggest preventive measures.



**Recommendations**

Further investigation is needed to understand the mode of transmission of leptospirosis even in the dry season. Environmental samples need to be checked and studies need to be undertaken to understand the risk factors in the cases affected.



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