



## EPIDEMIOLOGICAL INVESTIGATION OF MALARIA IN A VILLAGE OF NORTH KASHMIR, INDIA

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### ABSTRACT

Malaria is a vector borne disease transmitted by anopheles mosquitoes. In last two to three decades, many diseases, which were either forgotten or were restricted to a few foci, have re-emerged with vast spatial distribution. With an objective of describing the epidemiological characteristics of the indigenous case of Malaria, the investigation was carried out. Our investigation revealed that anopheles mosquito could have travelled through any one the trucks placed near the residence of the index case and accounted for Malaria.

**KEYWORDS :** Malaria, Epidemiological investigation, Seelu village

### INTRODUCTION

Malaria is a parasitic disease caused by four species of Plasmodium parasite, i.e., *P. vivax*, *P. falciparum*, *P. malariae*, and *P. ovale* and transmitted by anopheline mosquitoes.<sup>1</sup> There is no evidence suggesting the occurrence of indigenous cases of Malaria over past few decades in Kashmir. Although Malaria isn't indigenous to Kashmir but recent emergence of the disease in places like parts of Himachal Pradesh and Uttarakhand where the disease wasn't present in past has depicted the vulnerability and risk of transmission to the non endemic areas. In last two to three decades, many diseases, which were either forgotten or were restricted to a few foci, have emerged or re-emerged with vast spatial distribution.<sup>2</sup> Global warming, changes in vector dynamics, surge in travel and tourism etc could play a pivotal role in the spread of disease to the non endemic areas. Transmission may increase due to delay in diagnosis when index of suspicion of malaria is low.<sup>3</sup>

### BACKGROUND

A case of Malaria was uploaded by SKIMS Medical College Srinagar through IHIP-IDSP portal and an alert was generated. While verifying the details of the case it was noticed that an 8 year old male belonging to Seelu village of Sopore had been clinically diagnosed and lab confirmed case of Malaria with no history of travel outside Kashmir and had no history of blood transfusion from past one month.

### Response

In response to the indigenous case of Malaria in Kashmir, an epidemiological investigation was carried out by Division Kashmir RRT with support from district RRT members who initiated the investigation by visiting the area of the index case.

The Division RRT (IDSP) comprised of State Epidemiologist, Consultant Trainings/ Public health specialist, State Microbiologist and State Entomologist.

With an objective of describing the epidemiological characteristics, the investigation was executed.

### Epidemiological Investigation:-

Seelu village lies in the block Sopore with Baramulla as district headquarter. It is located at a distance of 45 kms from capital Srinagar.

4 kms away from the area. The total population of the village is 7508 with 1051 population below the age of 5 years. The total number of pregnant cases is 129.

Though farming is the chief occupation of the village but a good number of residents of the area are truck drivers who often place the trucks overnight in the village.



### METHODOLOGY

The team initiated the investigation by visiting Subcentre Seelu which lies 100 mts away from the site of index case. The purpose of our visit was explained to the Subcentre staff and details on vital statistics, prevalent diseases of the area, details of stakeholders of the community etc was sought.

Visit was made to the residence of the index case where medical examination and particulars on the disease under investigation was assessed.

Using standard case definition for Malaria, a structured questionnaire was formulated and house to house survey for fever cases was conducted in the vicinity of index case to find out more cases of the disease.

Two blood samples from household members of index case were taken as a part of contact survey. In addition three blood samples were also taken from the community members who fulfilled the standard definition of the disease under surveillance.

The village is catered by Subcenter Seelu and SDH Sopore is

All the blood samples were packed and sent to GMC

Baramulla for testing.

A thorough entomological surveillance was conducted to augment the diagnosis and prevent further transmission of the disease.

Environmental samples (larvae and adult mosquitoes) were taken from area surrounding the house of index case and nearby water body.

## RESULTS

- Our investigation revealed that anopheles mosquito could have travelled through any one the trucks placed near the residence of the index case, bitten the case and accounted for Malaria, although a clear epidemiological link couldn't be established
- The microbiological test (microscopy) result of the blood samples taken from household members of the index case and community were all negative for Malaria parasite.
- Breeding sites for mosquitoes surrounding the house of index case was present in abundance.
- Entomological examination of the larvae and adult mosquitoes revealed that all the samples belonged to Culicini specie.
- Larval density in the nearby water body was found to be zero.
- Recommendation
- Instructions were given to the District Surveillance unit (DSU) and Subcentre staff to regularly monitor the health status of the contacts and neighbours of the index case.
- Those cases that fulfill the criteria of standard definition of the disease under surveillance should be tested and immediately reported to the designated health care centre.
- Breeding sites for mosquitoes in the neighborhood of the index case should be destroyed.
- Changing environmental and ecological conditions could result in spread of Malaria to non endemic areas, hence a vigilant surveillance should be carried out for Vector borne diseases on regular basis.

## CONCLUSION

The case of Malaria under our epidemiological investigation is a rare indigenous case which could have resulted from being bitten by an infected anopheles mosquito that probably travelled through any one the trucks placed near the residence of the index case.

## Acknowledgement

Our team is highly thankful to Dr Mushtaq Rather (Director Health Services, Kashmir) for guiding and providing us with technical and physical support to carry out the investigation.

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