

Ecology of Eye Flu in the Village Khajuri - A Study of Geography of Health

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KEY WORDS Viral Invasion. Epidemic Virus. Social Disease. Hygiene. Ventilation. Avoidance of Crowds. Sandy Atmosphere.

ABSTRACT The present paper is based upon a geographical survey which was conducted during the period from September to November, 1996 in Khajuri village. In the diffusion of the disease, emphasis is placed on the impact of natural environment of the village in the form of geographical location, semi-arid tropical climate (specially bright sun-shine and dusty winds); sandy atmosphere etc. The natural environment perhaps is responsible for enhancing the rate of infection in the area. In the same way, cultural environment in the form of poor hygiene and sanitation, high population density, crowded jeeps and bullock carts, crowded fairs and festivals and low social status of the villagers created favourable conditions for eye flu diffusion. It is concluded that the more we know about the causes of infections, the more rational, will our prevention likely to be; and we shall be more skillful in protecting the people against the hazards of eye flu epidemic.

INTRODUCTION

Eye flu is an acute highly communicable disease. It is a special case among the eye infections and other eye diseases. It is caused by a recently known virus. It is mainly an epidemic disease and it has the ability to travel long distances. Having certain favourable factors, the virus is able to travel by aeroplane from Delhi to Calcutta or even longer distances. In this disease the infectivity is high but mortality is nil.

The effects of viral invasion are determined principally by the virulence of the micro organism and the efficiency of the defence mechanism of the host.

In this study, we have analysed the ecological impacts on the spatial patterns of eye flu prevalences in the village Khajuri, (Tahsil Ambah) of Morena district, Madhya Pradesh.

The Study Village - The village Khajuri is located in Ambah tahsil, district Morena, Madhya Pradesh (Fig.1). Spatially, it falls in the Lower Chambal Basin. Climatically, it is situated in the

semi-arid tropical zone of Central India. It is situated at 26° 42' North latitude and 78° 14' East longitude. Thus, the location of the village, being semi-dry tropical and continental, is favorable for the diffusion of the disease.

ENVIRONMENTAL FACTORS FAVOURABLE FOR THE DIFFUSION OF THE DISEASE

(a) Natural Environmental Factors

Geographical Location : Eye flu is a disease of tropical and subtropical location. Besides, the location of continental characteristics is favourable for its incidences. Thus, the location of the Lower Chambal Basin (which falls in the central India), where the village Khajuri lies, represents an ideal situation for the diffusion of the disease.

The Virus : It is a filterable organism. The infection usually spreads from one person to another directly. Man is the reservoir and carrier of the infection. The virus is discharged in the tears and is highly infectious. It spreads by droplets of tears and by articles soiled by tears through patient contact in the crowded places and by movement of population from place to place. It is mainly an epidemic virus, with the ability to travel long distances.

"To achieve success, whether in prevention of treatment, it is necessary to realize the measures which enhance the recuperative capacity of the host are no less important than those which diminish the attacking power of the virus. Although it is reasonable to assume that there is a temporary stage of Viracmia in many of the virus diseases, the causative organism is capable of growth only inside the eye so that it rapidly becomes inaccessible to the usual methods of treatment. Such localization of the virus in eyes has often occurred by the time the infection becomes manifest, and no practicable method of modifying

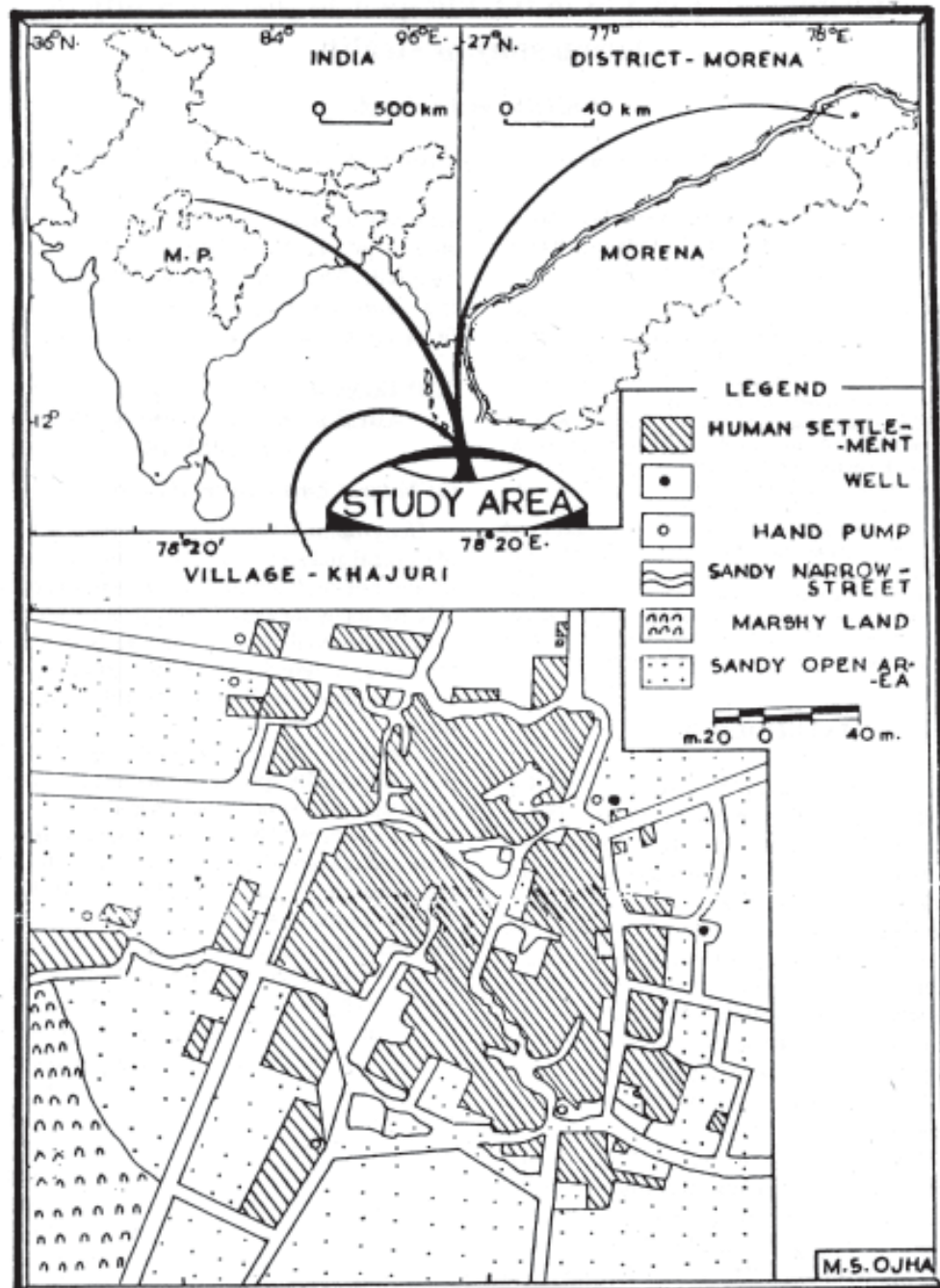


Fig. 1. The study village - Khajuri

the effect after the eye is affected has been devised yet. The specific treatment of virus diseases therefore still remains beyond our reach. (Dunlop, 1958).

Climate and Weather : Generally, tropical and subtropical semi-arid climate is suitable for the viral growth and attack. In semi-arid climatic areas, like the Lower Chambal Basin, the post-monsoon weather is specially favourable for the eye flu epidemic. The eye flu epidemic in this village occurred during the period from September to November, 1996. Thus, the microclimate (during the post-monsoon period), in the form of temperature and humidity had a special contribution in the prevalence of the disease. Besides, the theory of a change of virulence in the virus during epidemic out-break is supported, and a possible climatic influence is suggested through the effect of dry and hot sun-shine after rainy season.

Sand and Dusty Area : The village is surrounded mostly by dry and sandy area. Being situated in the "Puthas" (Sandy heaps) of the Chambal Basin, the village has the sandy and dusty streets throughout the settlement.

(B) Cultural Environmental Factors

Fairs and Festivals : Religious and cattle fairs and festivals contributed to the spread of the disease. Investigations showed that the huge gatherings of the people in fairs and festivals constituted notable grounds of direct virus-man interactions. Hence the crowds of Deshara festival and weekly cattle fair on Thursday of Ambah town (the town which is situated hardly at 2 kilometer distance from the village) contributed partially to the spread of the infection.

The Patient was the Real Danger : "It is now realized that the patient is the real danger there is little risk of infection arising from contamination of the walls, floors or furnishings of the sick room except by means of the dust there on viruses appear to lose their infecting power very rapidly after leaving the human body" (Dunlop, 1958). Thus the patient was directly responsible for the spread of the disease. The eye to eye viral infection was very common in the village.

Household Contact : Eye infections caused a good deal of sickness and loss of efficiency. The infection spreads close household contact with the patient or patient's contact with the family

members. There were differences of these contacts in the different communities of the village. Thus, community or social sector is also linked with the spread of the disease (Table 1).

Table 1: Social sector wise incidences of eye flu in the village Khajuri

Social sector	Total population	Total incidences	% of incidences
Mahore Sector	191	54	28.2
Rathore Sector	225	53	23.5
Tomar Sector	725	151	21.0
Jatav Sector	258	65	25.1
Others	126	28	22.2
Total	1525	351	23.0

High Population Density : High population densities and poor conditions of water supply (for irrigation and domestic purposes), environment and traditional society were also some of the causes of prevalence of the disease in the village.

Poor Hygiene and Sanitation : Poor hygiene and sanitation played the greatest role in the spread of the infection. The higher incidences were found among persons with poor personal hygiene. On the other hand, considerable concentration was found among the poor, illiterate, overcrowded and among those persons who had direct contact with the deplorable sanitation of the village.

Primarily as a Social Disease : Clearly, cultural or social factors were also deeply woven into the problems. The diffusion of infection showed that it is primarily a social disease. The higher incidences of the disease were found in the scheduled caste of the village (Table 2).

Table 2 : Social groupwise incidences of the disease in the village (1996)

Social groups	Total population	Patients	Percentage of patients
Scheduled Caste	474	125	26.3
Backward Class	291	68	23.3
General Class	760	158	20.7
Total	1525	351	23.01

Impact of Patients of Minor Degrees of Illness : Patients of minor degrees of illness were also responsible for spreading the disease. Since many people suffering from minor degree of illness, continued their work and spreaded the infection. Therefore, the prevalent virus was constantly present in crowded bullock-carts, fairs

and crowded streets, and the avoidance of contact was virtually impossible.

Age : The highest percentage of the diseases was in 1 to 15 years of age but less in preschool children and progressively decreased among adults with increasing age. Or the lowest percentage was found among people of and over 35 (Table 3).

Table 3 : Age-wise incidences of the disease in the village Khajuri (1996)

Age group (years)	Total population	Total patients	Percentage of patients
01 - 15	800	200	24.72
16 - 35	501	106	21.16
Above 35	215	45	20.93
Total	1525	351	23.01

Sex : Generally, the percentage of disease was higher in males (23.40) than the females (22.62). But the percentage difference was not large enough to show conclusively that there was any significant difference in percentage of the disease between the sexes (Table 4).

Table 4 : Sex-wise incidences of the disease in the village Khajuri (1996)

Sex	Total population	Total incidences	Percentage of incidences
Males	791	185	23.40
Females	734	166	22.62
Total	1525	351	23.01

FACTORS FAVOURABLE FOR CONTROLLING OF INFECTION AND DISEASE

".....The concept that the patient is the centre of a series of concentric circles of infection : this is the most dense at the inner circle, and the constant endeavor must be to prevent spread outwards. The air and dust of the room form the important means whereby the outer circles become contaminated, so that all steps of reduce dust and the careless circulation of air which disturbs dust will tend to limit spread. These measures are not only of importance in preventing the infection of others; the patient himself, especially if nursed alongside other patients, may acquire secondary complications from the implantation of organisms

acquired from infected dust" (Dunlop, 1958).

Thus, all steps to reduce dust will be helpful to check the disease.

Hygiene of Eyes : The nursing procedures, that require emphasis, are the hygiene of the eyes and the environment.

Isolation of Patients : Ideally, person with an infection should be isolated from the community in bed until the eyes have returned to normal.

Free Ventilation : Free ventilation and avoidance of blocked rooms, streets, etc. are advisable.

Avoidance of Crowds : On the outbreak of an epidemic of eye flu the fairs, congested places, overcrowding in bullock carts, jeeps, and overcrowding of every sort should be avoided

Hygienic Living : The houses, roads and streets should be neat and clean and there should be no dusty and smoky environment in the village. In the house, the clothes, beddings, handkerchiefs and the room used by the patients should be completely disinfected. Such hygienic precautions may be very helpful to prevent such type of eye flu infection as appeared during September - November 1996 epidemic of the village (Table 5).

CONCLUSION

The main remedy for the ills, of an underdeveloped or backward area (like the Lower Chambal Basin area), lies in the kind of general socio-economic development in the village. In village development, priorities must be given to approach starting from particular fields, streets, houses, and particular village community ward environment. Prevalence decreased, as stability and standards of life including use of soap improved 12 per cent in Scheduled Caste, 15 per cent in Tomars, and 20 per cent in Brahmins in the village. Eye flu is an important viral infection, and this is a disease where improvement in environmental hygiene ought to bring reductions. And in the end, it is concluded that the more we know about the cause of infections, the more rational will our prevention likely to be; and we shall be more skillful in protecting the people against the hazards of eye flu epidemic.

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Table 5 : Spatial patterns of epidemic of eye flu incidences in the village Khajuri (1996)

Sector	Population incidences	1 to 15 years		16 to 35 years		More than 35		Total		Grand Total
		M	F	M	F	M	F	M	F	
Mahore	Population	39	43	42	35	15	17	96	95	191
	Incidences	19	11	14	9	—	1	33	21	54
Raithore	Population	50	62	42	35	15	21	107	118	225
	Incidences	18	14	06	9	04	2	28	25	53
Tomar (A)	Population	91	95	55	47	128	19	164	161	325
	Incidences	19	22	07	10	4	3	30	35	65
Jatav	Population	58	51	55	43	28	23	141	117	258
	Incidences	16	12	08	14	8	7	32	33	65
Tomar (B)	Population	132	109	58	56	21	24	211	189	400
	Incidences	28	18	11	13	7	9	46	40	86
Brahmin	Population	12	9	5	5	2	2	19	16	35
	Incidences	3	2	1	1	—	—	4	3	07
Barbar	Population	15	12	8	5	3	1	26	18	44
	Incidences	3	4	2	1	—	—	5	5	10
Kandera	Population	10	4	4	4	—	—	14	8	22
	Incidences	3	2	—	—	—	—	3	2	5
Balmiki	Population	9	8	1	1	3	13	12	25	62
	Incidences	4	2	—	—	—	—	4	2	6

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