

## PRELIMINARY SURVEY OF TRACHOMA IN 11 SELECTED VILLAGES IN KHOUZESTAN AND FARS

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### ABSTRACT

A small clinical and serological survey to determine the prevalence and severity of trachoma was conducted in 11 Iranian villages located in the Dezful and Kazerun Areas. No evidence of severe active disease or severe sequelae was found among the 389 individuals examined.

Seventy-seven per cent of those examined were more than 12 years of age. The prevalence of active trachoma by clinical examination was 31% (120/389) for all subjects examined. Normal eyes were observed in 40% (156/389).

The occurrence of antibody to chlamydia in eye secretions tested by immunofluorescence was infrequent. Only 6% (9/146) were positive and only 8% (5/61) were from active trachoma cases.

These findings suggest that severe trachoma is rare in the population which was studied.

### INTRODUCTION

Based on various epidemiological studies, most of which were published about a decade ago, it is apparent that severe trachoma was prevalent in certain parts of Iran (1-6). In the light of much socio-

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economic changes within the past decade, attempts were made to re-examine the prevalence of trachoma in two areas around Dezful (Khouzestan) and Kazeroun (Fars).

Five villages were selected around Dezful (Salmon Sharghi, Khersan, Borom, Beneh Hajat, Doulati) on the basis of their distance to the main roads, difficult accessibility, and scarcity of water. Six villages were similarly selected around Kazeroun area (Talkooshk Deljani, Gorgdan, Robatak, Beed Zard, Molah Anbar, Emamzadeh Peer Abdul Hassan). Children of school age, younger children, and adults accompanying them were examined and scored for gross clinical evaluation. A total of 146 eye secretions were also obtained for antibody screening. In general, severe active trachoma was not seen.

## MATERIALS AND METHODS

### Subjects

No attempt was made to randomize subjects. In general, school children were examined since they were easily accessible. Where possible, pre-school age children and adults were examined to get some idea of the age of onset and severity of sequelae. Occasionally, requests were made by us to see other family members of an active case of trachoma, again to get an impression of the disease within families.

### Clinical Examination

All clinical examinations were made by one person (RN) using a head loup (2 X magnification) with available light or flashlight. It was recognized that very mild cases of active trachoma with very few follicles might be missed as well as evidence of very fine scarring.

However, it was the intent of the survey to identify severe trachoma particularly, and these techniques were more than adequate for this purpose. Therefore, these estimates of the over-all prevalence of trachoma may be somewhat low.

Clinical signs were recorded according to MacCallan's classifications described by Bobb (7).

These were as follows:

1. *Normal*

The tarsal conjunctiva had a pink appearance with a regular vascular pattern. No follicles, papillas or scars were visualized.

2. *Trachoma II.*

This diagnosis was based primarily on the soft, expressible, sago-grainlike follicles scattered over the tarsal conjunctiva.

### 3. *Trachoma III.*

This stage was the same as trachoma II with the added appearance of scar tissue.

### 4. *Trachoma IV.*

This stage consisted of healed or inactive trachoma characterized entirely by scar tissue. There were no follicles present.

## Specimens and Laboratory Analysis

For more accurate assessment of the prevalence of the disease, the presence of antibody in eye secretions was determined. Eye secretions were not collected from every person, but samples were taken from the complete spectrum of normal and diseased eyes.

## Antibody Determination

Eye secretions were collected on sterile WECK-CEL sponges from one or both eyes and placed in 400  $\mu$ l plastic tubes. Samples were kept at 4°C or approximately -10°C during or after field work and then placed at -10°C in Tehran until tested. Eye secretion samples were screened for antibody by immunofluorescence test using a pooled infected yolk sac antigen containing 12 *Chlamydia trachomatis* serotypes. Fluorescein conjugated antihuman globulin was purchased from Wellcome Research Laboratories, Beckenham, Kent, England BK33BSY and used at a dilution of 1:40.

## RESULTS

### Prevalence of Trachoma

The over-all prevalence of active trachoma (trachoma Stage II and III) for the 11 villages examined was 30.9% (120/389). The eyes of 40.1% (156/389) were normal (Table I). Although all age groups were examined, 77% of those seen were more than 12 years of age (Table II). Regardless of the prevalence in various villages, the disease appeared to be mild in most children. None of those examined were graded with 3+ or 4+ follicles.

Table 1

Prevalence of Trachoma, Conjunctivitis, other Eye Pathology and Normal Eyes  
in Eleven Iranian Villages (1977)

Village	Number Examined	Normal No.	Active Trachoma		Inactive Trachoma	Conjunctivitis No.	Other No.
			TR II No.	TR III No.			
Salmon Sharqi	29	15	4		4	4	2
Khersan	4				1	3	
Borom	17	8	1	1		6	1
Bonet Hajat	41	15	5	5	10	4	2
Dowlati	60	26	14	4	8	8	
Talkooshk Dijani	39	15	5	1	8	10	
Gorgdan	60	20	16	10	1	13	
Robatak	26	8	7	2	3	6	
Beede Zard	64	32	21	2		9	
Molah Anbar	24	9	6		5	4	
Amamzadeh Peer							
Abdul Hassan	25	8	13	3	1		
<b>Totals (%)</b>	<b>389 (100%)</b>	<b>156 (40.1%)</b>	<b>92 (23.7%)</b>	<b>28 (7.2%)</b>	<b>41 (10.5%)</b>	<b>67 (17.2%)</b>	<b>5 (1.3%)</b>

Table II

Age Distribution of Individuals examined in Eleven Villages (Iran 1977)

Village	No. Examined	Age in years					
		0-2	3-6	7-12	13-19	20-39	40+
Salmon Sharqi	29	2	9	12		2	4
Khersam	4	1	2				1
Borom	17	9	5	1		4	2
Bonet Hajat	41	3	13	6	5	4	10
Dowlati	60	7	14	23	3	9	4
Talkooshk D.	39	10	7	7	2	9	4
Gorgdan	60	6	13	37	3	1	4
Robatak	26	1	6	15	2	1	1
Beede Zard	64	4	6	41	13	4	
Molah Anbar	24	9	8	2			
Amamzadeh	25	11	7	4	3		
Peer A. Hassan							
Totals (%)	389 (100%)	63 (16.2%)	90 (23.1%)	148 (38.1%)	31 (8.0%)	30 (7.7%)	27 (6.9%)

**Table III**  
**Results I. F. Antibody to Chlamydia in Eye Secretion**

Areas	Clinical DX							Total
	Normal	TR II	TR III	TR IV	Conj.	No.DX		
<b>Dezful</b> Totals No. Positive/Total	0/1	0/9	1/5	0/3	1/8	1/1		3/27 (11%)
<b>Kazerun</b> Totals No. Positive/Total	0/32	2/39	2/8	0/9	2/31	—		6/119 (5%)
<b>Total Both Areas</b> No. Positive/Total	0/33	2/48	3/13 (8%)	0/12	3/39	1/1		9/148 (6%)

## Prevalence of Chlamydia Antibody in Eye Secretions

Only 6% (9/146) of the eye secretions sampled were positive by immunofluorescence for chlamydial antibody. Of those with clinically active trachoma (Stage II, III), only 8% (5/61) were antibody positive. This apparently reflects the mildness of disease (Table III).

### CONCLUSIONS

A preliminary survey of trachoma in two parts of Iran was conducted with two objectives in mind. First, in order to study a new approach for control of trachoma, i.e. comparison of conventional methods of therapy vs health education and/or environmental improvement, an area with high incidence of severe trachoma is required. This search was undertaken to identify such areas. Second, due to a great deal of socio-economic changes, it was of interest to compare the existing situation with that of over 15 years ago when reportedly severe trachoma and its detrimental sequelae were prevalent. The findings were encouraging, as far as the second objective is concerned, trachoma in these areas is mild and hence the areas surveyed could not be used effectively to test any new approach of trachoma control.

The selection of subjects for this study was not done by randomization. Therefore, the findings may not be representative of trachoma prevalence in the areas. However, we tried to be non-selective except when a case of obvious severe infection was identified. In those cases, attempts were made to see the household members of the patient. In this way the results may even be skewed in favour of higher frequency than would otherwise have been obtained. In this way the actual frequency may indeed be lower than observed.

It must be noted that with our method of examination very mild trachoma could have been missed. Slit lamp examination may have revealed higher number of cases. However, with the first objective in mind (mentioned above), the method of examination served the purpose. Severe trachoma would not be missed and therefore one may conclude that factors involved in socio-economic changes including health delivery systems and improvements in standards of living were effective in partial control of this disease.

The results reported here indicate that mild trachoma does not usually produce detectable antibody in the eye secretion. Hence, for evaluation of the prevalence of trachoma, screening tears for antibody is not a reliable method in areas with mild disease. It may well be that injuries produced by reinfection increase the severity thereby permitting the appearance of detectable antibody in the eye secretion. What-

ever the mechanism, it can be concluded that antibody screening of eye secretions should not be used as a means to detect mild trachoma in a population.

Although severe trachoma was not prevalent in the population, mild trachoma was seen in most of the villages surveyed. This should indicate to health authorities that trachoma is by no means eradicated and more efforts must be made towards this goal.

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