

ORIGINAL ARTICLE

VARIOUS MANIFESTATIONS OF TRACHOMA IN INTERNALLY DISPLACED RURAL POPULATION - A FREE EYE CAMP BASED SURVEY

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Background: The objective of the study is to observe frequency of various clinical manifestations of trachoma in rural population. This observational study was conducted at Khalifa Gul Nawaz Teaching Hospital (KGNTH), Bannu, Pakistan from April 2016 to Jan 2017. **Methods:** Patients visiting for ocular complaints underwent initial screening that included demographic details and documentation of unaided as well as best corrected visual acuity (BCVA) which was followed by detailed slit lamp examination of anterior segment including eversion of upper lid for assessment of changes in upper tarsal conjunctivas by consultant ophthalmologist. A total of 648 patients who had clinical presentation of trachoma were included in the study. Patients who had other forms of conjunctivitis, trichiasis, entropion, corneal opacification and vascularization due to causes other than trachoma were excluded. Patients were categorized according to age in three groups (Group 1–3) and according to stages of trachoma in five groups (TF, TI, TS, TT and TO). **Results:** Six hundred and forty-eight (648) were examined in this cross-sectional survey with a mean age of 14.3+14.2 years. Mean unaided visual acuity and BCVA of the patients was 0.12+0.24 and 0.07+0.18 respectively. Groups-1 comprised of 86.7% of the patients and stage TF of trachoma was the most prevalent stage accounting for 70.06% of the patients. **Conclusion:** Trachoma is a serious community health problem with various clinical manifestations in different age groups. Awareness and educational programs are required to be conducted in schools and vocational training centers regarding its mode of transmission and control.

Keywords: Trachoma; Prevalence; Follicular conjunctivitis

Citation: Babar ZU, Khan MA, Murtaza B, Khattak RA, Shah S, Shahzad K. Various manifestations of trachoma in internally displaced rural population - a free eye camp based survey. J Ayub Med Coll Abbottabad 2019;31(1):32–5.

INTRODUCTION

“Infectious diseases” once labelled as the most common cause of mortality and morbidity, have dramatically declined over the last century owing to invention of antibiotics and vaccines especially in the developed world.¹ However, such diseases still contribute and share a large portion of death and disability worldwide. In some populations especially the developing nations, infectious diseases account for 22% of all deaths.² Trachoma is an ocular infectious disease, a community health problem and among the most common infectious causes of blindness. The word ‘Trachoma’ got its origin from Greek word ‘trácuma’ which means “roughness”. Historically, the incidence of this disease can be traced back to 8000 BC.^{3,4} In late 18th century Trachoma was prevalent in various parts of the world such as Europe, middle east and Africa and the spread of this contagious disease accelerated due to military invasions. It was late 19th century when trachoma spread to America where it was categorized as community health problem and the immigrants who introduced this disease were repatriated back to their native countries.⁵ Like other infectious diseases trachoma and related ocular conditions are

considered as major public health challenges in underdeveloped nations. VISION 2020: the Right to Sight is an initiative that was arranged by World Health Organization (WHO) with an objective to eliminate preventable blindness by the year 2020.^{6–8}

Trachoma is caused by bacteria ‘Chlamydia trachomatis’ which manifests clinically as relapsing chronic conjunctivitis and the primary target site is upper tarsal conjunctiva.⁹ Conjunctivitis caused by trachoma is classified into various clinical stages by WHO simplified clinical grading system.¹⁰ Initially there is follicular reaction (TF) of the upper tarsal conjunctiva, which may persist even after the initial infection. This may be associated with intense inflammation (TI). The infection generally persists in community and recur in cycles. When there is repeated inflammation and infection, the architecture of conjunctiva is destroyed resulting in scarring (TS) of conjunctiva. Finally, the scarred conjunctiva cause trichiasis (TT) and entropion. Repeated rubbing of eyelashes onto the corneal surface induce pannus and corneal scarring (TS) and irreversible blindness.^{10–12}

The recommended management for this serious health problem is multifold and labelled as SAFE (surgery, antibiotics, facial hygiene and environmental control) strategy which can tackle this

condition in various stages. Surgery for trichiasis and entropion, antibiotics for treatment of active infection, facial hygiene and environmental control to prevent reinfection in the community.¹³ The antibiotic treatment is generally recommended to be given as single oral dose of 1 gm azithromycin annually in the endemic areas. This medication should be given to community if the prevalence of TF stage is more than 10% of paediatric population.¹⁴

The impetus behind conducting this study in our population was to study the prevalence and various clinical presentations of trachoma in our rural population especially the internally displaced individuals. This will help us understand the pattern of disease and educate the people to control and treat this potentially blinding community health problem.

MATERIAL AND METHODS

This cross-sectional study was conducted at Army Field hospital, KGNTN district Bannu, Pakistan from April 2016 to Jan 2017. The population dependent on this hospital comprises of rural population including the temporary displaced families from federally administered tribal areas (FATA). Ethical approval was obtained from ethical review board of Army field hospital, Khalifa Gul Nawaz Teaching Hospital (KGNTN), Bannu. Informed consent was taken from all the patients or parents/guardians in case of children. In addition to the patients visiting the outpatient ophthalmology department of hospital, three free eye camps were established in the surrounding rural population to provide health facilities at doorstep. Non-probability purposive sampling was carried out to select subjects and collect the data. Sample size was calculated on the basis of WHO calculator which appeared to be about 500 eyes. Each eye of the patient was considered separately. All the patients visiting for ocular complaints underwent initial screening that included demographic details and documentation of unaided as well as best corrected visual acuity (BCVA). This was followed by slit lamp examination of anterior segment including eversion of upper lid for assessment of changes in upper tarsal conjunctivas by consultant ophthalmologist. After screening of about 15,364 (children- 3654) patients over the study period, 648 eyes of 324 patients who had clinical presentation of trachoma were included in the study. Excluded were the patients who had other forms of conjunctivitis such as allergic, infectious or inflammatory, trichiasis, entropion, corneal opacification and vascularization due to causes other than trachoma. Patients were categorized on the basis of age and stages of trachoma. Three age groups included Group 1 ranged from 5 to 20 years, Group 2 from 21 to 40 years while Group 3 included patients with age more than 40 years. Patients were also classified according to WHO stages of Trachoma into TF, TI, TS, TT and TO.

All the patients were managed on the basis of SAFE strategy. Which indicate surgery, antibiotics, facial hygiene and environmental control as four pillars of management in a case of trachoma. Oral single dose of 1gm azithromycin was prescribed as single annual dose to all cases and their family members who were categorized as follicular (TF) stage of trachoma.

Statistical analysis of data was performed using SPSS-22.0 for windows. Both categorical and continuous variables were analyzed. Mean and standard deviation for continuous variables such as visual acuity and age while frequency distribution for gender, age groups and stages of trachoma were recorded.

RESULTS

Six hundred and forty-eight (648) eyes of 324 patients were examined in this cross-sectional survey with age ranging from 5 to 65 years with a mean of 14.35±14.2 years. The mean unaided visual acuity of the patients on log MAR scale (logarithm of Minimum angle of Resolution scale) was 0.12±0.24 while the mean BCVA was 0.07±0.18. The frequency distribution of patients in three different age groups is given in table-1, which clearly shows the younger age group primarily involved by the disease. Distribution of various WHO stages of trachoma are given in table-2, which depicts the follicular stage (TF) to be the most prevalent stage. The distribution of patients in various stages of trachoma in relation to the age groups is given in table-3.

Table-1: Age and gender-based distribution of patients

Variable	Subgroups	Proportion of patients	Percentage
Gender	Female	411	63.4
	Male	239	36.8
Age Groups	Group 1 (5–20 yrs)	562	86.7
	Group 2 (21–40 yrs)	61	9.41
	Group 3 (> 41 years)	25	3.85

Table-2: Frequency distribution of trachoma stages

Stages of Trachoma	(n=648)	Percentage
Follicular (TF)	454	70.06
Intense inflammation (TI)	106	16.35
Scarring (TS)	44	6.79
Trichiasis (TT)	32	4.93
Opacity (TO)	12	1.85

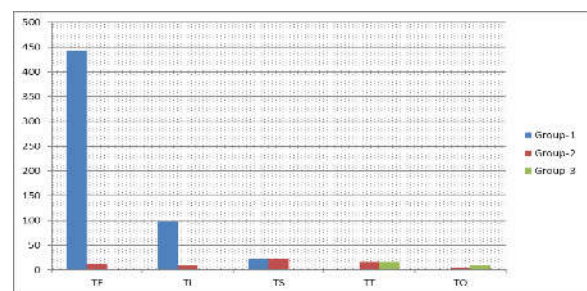


Figure-1: Distribution of stages of trachoma in three age groups

DISCUSSION

Trachoma is a common community health problem in almost all developing countries worldwide especially where the health care facilities are insufficient due to paucity of resources. In a recent survey by WHO, there are 2.2 million people suffering from visual impairment related to trachoma and 3.2 million have trichiasis. The community based distribution of oral azithromycin have been recommended by WHO in order to reduce the incidence of blindness caused by trachoma and eliminate this menace by year 2020.¹⁵

In our study the overall proportion of patients suffering from various stages of trachoma was 4.4%, while considering only the younger population it accounts for 17.40%. The overall prevalence of trachoma in southern Sudan was estimated to be 36.7% while in a study conducted by Yalew and his colleagues in Ethiopia, this appeared to be 22.51% which was relatively lower.^{16,17} Similarly a study conducted in Nigeria and Tanzania also revealed the overall prevalence of trachoma to be 17.5%.^{1,18} The reasons for varying prevalence of trachoma even within the developing nations across the globe is manifold. 'Awareness of disease' is one of them. A study conducted in Tanzania and southern Ethiopia concluded that lack of access to information, education and insufficient knowledge about trachoma and its mode of transmission are important factors responsible for its prevalence.^{1,19,20} Some authors believed that the distance of functional latrines from household affect the vector borne transmission and the prevalence of trachoma.²¹

Trachoma is categorized in five clinical stages and out of total, follicles (TF) and inflammation (TI) were among the most prevalent two stages especially in younger age group. The other stages such as scarring (TS), trichiasis (TT) and corneal opacity (TO) were less common. The last two stages were seen mainly in elderly patients group. Study conducted by Xue W *et al* in Chinese population also revealed follicular stage to be the most prevalent stage and regarded corneal opacity (TO) to be the least common stage.²² With regard to prevalence of trachoma in males and females, we observed that more female children suffered from trachoma in our sample. The rationale for this is probably the overcrowding and limitation of mobility of females in IDP camps. However, this increased prevalence of trachoma in female population has been debatable in various studies.²³

We, in our study not only considered the various manifestations of trachoma in relation to different age groups but also treated the patients in active stage with oral azithromycin. Patients who required surgery especially for Trichiasis and

entropion were referred to tertiary care center. Despite the detailed analysis of clinical manifestations and management, we could not consider the environmental and personal factors such as distances of latrines from household, flies protective measures, sanitation facilities, facial hygiene, incidence of other infectious diseases and total no of family members living per house.

CONCLUSION

To best of our knowledge, this study is the first community ophthalmology project that has been carried out in FATA and rural areas of district Bannu, Pakistan. Although frequency of trachoma in our sample cannot be generalized to all the rural population of Pakistan and larger nation-based survey is required to be conducted to reveal more comprehensive results, we believe our findings are important and the disease should be considered as a serious community health problem that requires attention by health authorities. Awareness and educational programs related to factors associated with incidence and transmission of trachoma as well as personal, domestic and environmental measures taken to control the disease are required to be conducted in schools, educational and vocational training centers. This will help to deal with this serious community health issue.

AUTHORS' CONTRIBUTION

ZB: Conception, design. MSK: Designed and drafting. BM: Conception and review. RAK: Final critical review. S & K: Data collection.

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Submitted: 12 April, 2017

Revised: 4 August, 2017

Accepted: 22 May, 2018

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