

# Prevalence of trachoma in chronic conjunctivitis, Birjand, Islamic Republic of Iran

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معدلات انتشار التراخوما في التهاب الملتحمة المزمن في بيرجاند، جمهورية إيران الإسلامية  
غلام حسين يعقوبي، غلامرضا أناني

**الخلاصة:** وقد تم تقييم 80 مريضاً مصاباً بالتهاب الملتحمة المزمن ممن راجعوا العيادة العينية في جامعة بيرجاند للعلوم الطبية بشكل متعاقب خلال الفترة بين كانون الثاني/يناير 1999 وكانون الأول/ديسمبر 2000، وذلك من حيث إصابتهم بالتراخوما وبالعدوى بالمتدثرات. وقد استخدم اختبار الأضداد التآلقي المباشر لكشف التراخوما، في حين استخدم التلوين بملون غيمزا لكشف العدوى بالمتدثرات. وقد تم كشف التراخوما في 10٪ من المرضى في حين تم كشف العدوى في 6.3٪ من المرضى. وقد كانت النتائج متشابهة لدى كل من الذكور والإناث. ورغم أن الموجودات كانت متركزة في المستشفيات فإن معدل الانتشار لم يكن مرتفعاً إلى حد يكفي لاقتراح استعمال الأيزثروميسين وقائماً (كما نص على ذلك، بروتوكول منظمة الصحة العالمية) لاستئصال التراخوما من بين سكان بيرجاند. ويوصى بإجراء المزيد من الدراسات الوبائية.

**ABSTRACT** Between January 1999 and December 2000, 80 consecutive patients with chronic conjunctivitis presenting in the eye clinic of Birjand University of Medical Sciences were assessed for trachoma and chlamydial infection. Direct fluorescent antibody test was used to assess trachoma and Giemsa staining to detect chlamydial infection. Trachoma was detected in 10% of the patients and chlamydial infection detected in 6.3%. The results were similar for both sexes. Although the findings are hospital-based, the prevalence was not so high as to suggest prophylactic use of azithromycin (World Health Organization protocol) for eradication of trachoma in the Birjand population. Further epidemiological studies are recommended.

## Prévalence du trachome dans la conjonctivite chronique, Birjand (République Islamique d'Iran)

**RESUME** Entre janvier 1999 et décembre 2000, 80 patients consécutifs atteints de conjonctivite chronique qui se sont présentés à la consultation ophtalmologique de l'Université des Sciences médicales de Birjand ont fait l'objet d'une évaluation pour le trachome et l'infection chlamydiale. Un test d'immunofluorescence directe a été utilisé pour évaluer le trachome et la coloration de Giemsa pour dépister l'infection chlamydiale. Un trachome a été dépisté chez 10 % des patients et une infection chlamydiale chez 6,3 % d'entre eux. Les résultats étaient similaires pour les deux sexes. Bien qu'il s'agisse de résultats hospitaliers, la prévalence n'était pas si élevée pour suggérer l'utilisation prophylactique d'azithromycine (protocole de l'Organisation mondiale de la Santé) pour l'éradication du trachome dans la population de Birjand. Il est recommandé de procéder à d'autres études épidémiologiques.

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## Introduction

Trachoma is one of the most ancient of known diseases. It was recognized as a cause of trichiasis as early as the 27th century BC, affecting all races [1]. It is an infectious disease occurring in communities with poor hygiene and inadequate sanitation. It affects approximately 400 million individuals worldwide and is a leading cause of preventable blindness [2].

Because of its disappearance from developed countries, trachoma has been largely forgotten as a public-health issue, e.g. in the United States of America. Infection with *Chlamydia trachomatis* is better known as a sexually transmitted disease than as an ocular infection [3].

Clinically latent infection has been found in adults with conjunctival scarring living in hyperendemic communities. This infection is suspected to play an active role in the continued pathogenesis of scarring. The detection of chlamydial antigen suggests that cryptic infection may continue to drive the progression to severe scarring and trichiasis. Clearly, epidemiological studies are needed to determine the importance of cryptic or persistent infection in the development of the blinding complication of trachoma. The aim of our study was to investigate the prevalence of chlamydia infection in patients with chronic conjunctivitis attending the outpatient eye clinic of the university hospital.

## Methods

During a 10-month period between January 1999 and December 2000, 80 consecutive patients presenting at the eye clinic of the Imam Reza Hospital at Birjand University of Medical Sciences and who had chronic conjunctivitis (redness and mucopurulent discharge of more than 4 weeks) without

accepted signs of other forms of conjunctivitis were enrolled in the study. All patients who had clinically chronic conjunctivitis or clinically suspected trachoma (more than five follicles) were examined for trachoma by an ophthalmologist. Many older patients had sequelae of trachoma but juveniles tended to have chronic conjunctivitis in which trachoma was suspected.

We prepared two slides from upper tarsal conjunctiva, harvested by an applicator, one for Giemsa staining for cytologic examination and the other for immunofluorescent antibody assay. In the assay, slides were air-dried, fixed in acetone for 5 minutes, again air-dried and then stained with direct fluorescent antibody reagent (anti-chlamydial monoclonal antibody conjugated with FITC) (DAKO, Denmark). The slides were rinsed in phosphate buffered saline and the air-dried slides were read under a fluorescence microscope for confirmation of morphology. A specimen was scored positive when 10 or more characteristic apple-green elementary bodies were observed.

## Results

The results of this study are shown in Table 1. Of the 80 patients' specimens tested, 8 (10%) were positive for chlamydia. While Giemsa staining detected chlamydia in 5 (6.3%) of the specimens, the fluorescent antibody assay confirmed 8 (10.0%). Immunofluorescent assay was positive in two boys under 10 years; in the whole sample both sexes had a similar trachoma prevalence (Table 1).

## Discussion

It has been demonstrated that immunofluorescent antibody assay is a useful method

**Table 1 Age and sex distribution of patients with chronic conjunctivitis, and prevalence of trachoma**

Variable	Patients with chronic conjunctivitis		Those positive for trachoma	
	No.	% of total	No.	% of variable
<b>Sex</b>				
Male	39	48.8	4	10.3
Female	41	51.2	4	9.8
<b>Age (years)</b>				
≤ 10	6	7.5	2	33.3
>10	74	92.5	6	8.1
Total	80	100.0	8	10.0

for confirming the presence of chlamydia infection. This study has provided useful data on the prevalence of trachoma in the Birjand population. It shows that, in spite of improvement in public health, the disease has not been eradicated and active inflammatory disease is still present.

A number of the patients coming to the eye clinic in Immam Reza hospital suffer from chronic conjunctivitis. Some of them are clinically diagnosed to have vernal keratoconjunctivitis, and a few teenagers are suspected trachoma.

Most of the patients with chronic conjunctivitis in our research area either do not use any medicine or they use an antiallergic drug. It is not considered cost-effective for an eye clinic to use the necessary laboratory testing for active disease. This factor among others seems to play an important role in the spread of trachoma.

In our hospital-based descriptive study, all cases were in stages I to III trachoma with stage III trachoma being the most prevalent. This finding agrees with those of

Guraksin [4]. The prevalence of trachoma was shown to be 10% in our selected patient sample. We can estimate therefore that the prevalence of trachoma in the population is lower than 10%. If this is correct, this relatively low of trachoma prevalence in chronic conjunctivitis without any trachoma specific intervention is similar to that in the Dolin report [5]. Although WHO has recommended repeating mass drug administration (single dose of azithromycin) in hyperendemic areas as a part of their global initiative to eliminate blinding trachoma by the year 2020 [6], there seems to be no need for a prophylactic project in the Birjand area; to confirm this an epidemiological survey is, however, indicated.

## Conclusions

This study has also shown that clinical diagnosis is a rapid and useful screening method, and that it is the cheapest and easiest form of examination in areas with endemic disease. It also makes it possible to reach a precise diagnosis in many patients, in line with the results of other researchers [4,7,8]. The direct fluorescent antibody test, following clinical examination, can be recommended as the most suitable method for confirming the diagnosis of suspected cases.

This study was not designed to replace an epidemiological survey and the true prevalence of trachoma in this area should not be inferred from our study. However, it is a useful tool for determining the order of priority for intervention in communities at risk. Our study indicates that active trachoma is still found in the Birjand area. A regular epidemiological study is recommended before decisions are made regarding elimination procedures.

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