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THE VALUE OF MICROTRAK CHLAMYDIA TRACHOMATIS DIRECT SPECIMEN TEST IN THE DIAGNOSIS OF TRACHOMA

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The clinical diagnosis of trachoma in florid cases can be established with ease. However milder forms are often difficult to diagnose solely by examination and required confirmatory laboratory test. None of the available tests are highly sensitive.

A retrospective study was conducted on 79 trachoma patients seen at King Abdulaziz University Hospital to evaluate the Microtrak Chlamydia trachomatis direct specimen tests. Only 36.7% of the patients had positive test results. Most of those patients had florid trachoma changes and required no confirmatory test.

Our study showed that the Microtrak direct test has limited value in trachoma patients.

Trachoma is the second leading cause of blindness in Saudi Arabia[1]. Approximately 22% of the Saudi population suffers from trachoma; only 6.2% have active lesions[2].

The diagnosis of trachoma is based mainly on the clinical presentation with mild cases often difficult to diagnose solely by examination. The Giemsa stain and the chlamydia culture are the most frequent confirmatory tests used. These tests are time consuming and require an experienced and specially trained microbiologist. The chlamydia culture test is highly specific but not very sensitive test. The aim of this study is to look for other confirmatory tests[3].

The Microtrak Chlamydia trachomatis direct specimen test (Microtrak direct test) of Syva company Palo Alto, CA, USA has been found to be highly sensitive (98%) and specific (100%) to chlamydia inclusion conjunctivitis[4,5].

This study evaluates the Microtrak direct test in trachoma patients in King Abdulaziz University Hospital.

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METHODS

The Microtrak direct test (Syva Co, Palo Alto, CA, USA) is a laboratory method for detecting Chlamydia trachomatis in the conjunctiva, using fluorescein conjugated monoclonal antibodies against the major outer membrane protein and the elementary and the reticulate bodies in the organism. The conjunctival smear is applied directly to the slide and then dried and stained with the fluorescein-antibodies. A rinse step removes unbound antibodies. The slides are then viewed under a fluorescence microscope. Positive smears for chlamydia show apple-green elementary or reticulate bodies, contrasted by the reddish brown background of the counter stained cells.

The Microtrak Chlamydia trachomatis Direct Specimen (Microtrak direct) test results of all of 101 patients diagnosed to have trachoma during the period between February 1988 to February 1990 at King Abdulaziz University Hospital were examined. Dawson's criteria[6] were applied and these include the presence of two of the following: pannus, conjunctival follicles, typical conjunctival scar, limbal follicle or Herbert's pits.

Clinical data were collected from the medical records of patients regarding age, sex, symptoms (itching and discharge) and signs (follicle, papillae, Herbert's pits, conjunctival scar and corneal scar).

Standard statistical techniques were used to analyse the data. Chi-Square and logistic regression tests were used to assess if there were any association between independent variables (symptoms and signs) and the dependent variable (Microtrak direct test). The odds ratio had been calculated for every independent variable.

RESULTS

Of the 101 patients in this study, 79 patients had complete clinical data, on whom the statistical analysis was performed.

There were 49 (62%) males and 30 (38%) females. Their ages were ranged between 5 days to 74 years old, (mean SD 30.818 years old).

The Microtrak direct test was positive in 29 (36.7%) patients. The distribution of patients with positive Herbert criteria was as follows: 32 (40.5%) patients with itching while 47 (59.5%) had no itching. Similarly there were 18 patients (22.8%) with discharge, 39 (49.4%) with conjunctival follicle, 15 (19%) with papillae, 19 (24.1%) with pannus, 5 (6.3%) with Herbert's pits, 25 (31.6%) with conjunctival scar and 7 (8.9%) with corneal scar.

Using the multiple linear logistic model technique, each symptom or sign was entered to the model by itself as an independent variable in relation to Microtrak direct test as dependent variable. Table 1 show the odd ratio and probability for positive Microtrak test. Those who had Herbert's pits, corneal scar, conjunctival scar, papillae, pannus or discharge were more likely to have positive Microtrak direct test than those who were negative. This relationship was not statistically significant. The odd ratio for those who tested positive to follicle was 0.48. This means that they were less likely to have positive Microtrak direct test.

Table 1: Odds ratio and probability for positive Microtrak according to symptoms and signs

Symptom & Sign	Odds ratio	P
Follicle	0.48	
Papillae	1.88	0.77
Herbert's pits	2.77	0.28
Pannus	1.79	0.27
Discharge	1.52	0.44
Conjunctival scar	2.01	0.16
Corneal scar	2.51	0.25

Table 2 show the relationship between the age of the patients and the positive Microtrak test. Patients above 50 years old were about two times more likely to have positive Microtrak direct test than those who were in the age group below

10 years old. In spite of increase positive Microtrak direct test with age; this relationship was not statistically significant (P=0.15).

Table 2: The relationship between age and positive Microtrak direct test

Factor	Age (years)						Total
	<10	10-	20-	30-	40-	50-	
Positive No. Microtrak*	4	3	4	6	4	8	29
%	(13.8)	(10.3)	(13.8)	(20.7)	(13.8)	(27.6)	(36.7)

p* = 0.15

DISCUSSION

Our study showed that only 36.7% of patients diagnosed clinically to have trachoma had positive Microtrak direct test. Those with severe trachoma changes (corneal and conjunctival scar, Herbert's Pits) and over 50 years of age were more likely to have positive test results. Most of these cases had florid trachoma and did not require confirmatory test. So the Microtrak direct test was of limited value as a confirmatory test in our study.

The infrequent demonstration of chlamydial infection in patients with mild trachoma by all diagnostic methods is well documented[7-9]. Dawson et al using both Giemsa staining and polyclonal antibody immunofluorescent cytology was able to detect chlamydia in only 4% of Tunisian children with mild trachoma, 20% of those with moderate disease, and 56% of those with the severe disease[6]. Wilson et al using the Microtrak direct test detected trachoma in 9 children out of 457 screened Mexican children3. Over 30% of cases with severe trachoma and 85% of mild cases can be misdiagnosed with culture test[3]. The reason for the low rate of positive test results, even in severe trachoma cases, in our study and others, is still unknown.

CONCLUSION

All the currently available tests for the diagnosis of trachoma are not confirmatory tests and the clinical diagnosis will continue to be the best means of assessment.

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