

INTRODUCTION

THE NORMAL EYE harbours bacteria throughout life. The eye and the surrounding structures such as nose and skin may harbour potentially pathogenic organisms which may lead to infections of the eye with deleterious results in the post-operative period. This study was undertaken to determine the normal flora of eyes in Bahrain and to compare the yield of bacteria from four different culture media namely blood agar, chocolate agar, serum telluride broth and thyoglycolate broth.

MATERIALS AND METHODS

Cultures were taken from the conjunctiva of 200 eyes from 100 individuals attending the outpatient eye clinic at the Salmaniya Medical Centre (Bahrain) between Sept. 10th until Oct. 15th, 1979. These patients came for refraction and had no obvious inflammatory condition of the eye. The age ranged between 16 - 60 years.

The following culture media were used :

- Blood agar
- Chocolate agar
- Serum telluride broth.
- Thyoglycolate with 10% serum.

Cultures were taken from the conjunctiva with a sterile saline soaked cotton tipped applicator. The conjunctiva (lower cul-de sac) was touched by the cotton applicator, which was then either smeared on the solid culture media or dipped in the liquid medium. Each eye was cultured separately. The chocolate agar was incubated in 10% carbon-dioxide at 37°C.

Bacterial Flora of Normal Eyes in Bahrain

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The rest of the cultures were incubated at 37°C. All cultures were examined and the results recorded after 2 days.

RESULTS

Out of 200 eyes, 139 eyes (70%) showed positive bacterial growth by one or more culture media. Table I, shows the type of bacteria grown. The most common is Staph. epidermides (68%), followed by Diphtheriodes (19%), Alpha-Haemolytic streptococcus (4%) and Staph. aureus (2%). Table II, shows the types of bacteria grown on each one of the four culture media. The highest yield was obtained from Thyoglycolate (53%), followed by Blood agar (23%), Chocolate agar (14%), and S.T.B. (7%).

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DISCUSSION

Seventy percent of the eyes cultured in the above series showed bacterial growth. Other authors have reported 53%³ and 77%² of growth of bacteria from normal eyes. The preponderance of Staph. epidermides and Diphtheroids in normal eyes have been found by others³. Staph. aureus growth in a series of 7461 patients was found to be 17%⁴. In our series Staph. aureus growth was only 2%.

Out of the four culture media utilized, the highest yield of bacteria occurred with Thyoglycolite (53% of the eyes) followed by blood agar (23%). The yield by other two culture media were low.

In the Ophthalmic laboratory of S.M.C., blood agar culture is routinely utilized to recover organisms from the eye. Blood agar, being a solid medium (Thyoglycolite is liquid) has the advantage of recovering more than one type of bacteria if present and has the added advantage of quantitative assessment of the number of bacteria.

CONCLUSIONS

The bacterial flora of the normal eyes in Bahrain was found to be similar to that reported elsewhere with the exception of the lower incidence of Staph. aureus. Comparing four different media, Thyoglycolite gave the highest yield followed by blood agar, chocolate agar and S.T.B.

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Table I
Type of Bacteria Grown from two hundred
Normal Eyes in Bahrain

| <i>Type of Bacteria</i> | <i>Number of eyes</i> | <i>%</i> |
|-------------------------|-----------------------|----------|
| Staph. epidermides | 94 | 68 |
| Diphtheroids | 27 | 19 |
| Alpha-Hemolytic Strep. | 5 | 4 |
| Staph. aureus | 3 | 2 |
| Saprophytes | 4 | 3 |
| Coliforms | 6 | 4 |
| Total | 139 | 100 |

Table II
Types of Bacteria Grown on four different culture media from
Two hundred Normal Eys in Bahrain

| <i>Type of Bacteria</i> | <i>Culture Media</i> | | | |
|-------------------------|----------------------|-----------------------|---------------|----------------------|
| | <i>Blood agar</i> | <i>Chocolate agar</i> | <i>S.T.B.</i> | <i>Thyoglycolate</i> |
| Staph. epidermides | 26 | 17 | 6 | 83 |
| Diphtheriods | 14 | 4 | 6 | 10 |
| Alpha-Hemolytic Strep. | 4 | 5 | 2 | — |
| Staph. aureus | 1 | 1 | — | 1 |
| Saprophytes | — | — | — | 4 |
| Coliforms | — | 1 | 1 | 5 |

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