

BACTERIOLOGICAL STUDIES ON THE CONJUNCTIVAL SAC OF CATARACT PATIENTS

Pages with reference to book, From 10 To 12

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Abstract

Seventy-five per cent of the patients undergoing cataract operation harboured microorganisms in their conjunctiva, out of which 40 per cent were pathogenic species. Preponderance of *Moraxella* was encountered. One third of the pathogenic microorganisms were found to be resistant to most of the antibiotics except Gentamycin. Positive conjunctival cultures were also obtained from 70% controls and 50% staff members. Pathogens were isolated in 25% controls and 8% staff members. Preoperative determination of conjunctival microorganisms and administration of appropriate antibiotics may reduce post operative complications(JPMA 31:10,1981).

Introduction

The presence of both pathogenic and non pathogenic microorganisms have been observed in conjunctival cultures in patients admitted for cataract operation (Winkler and Cason, 1954). The present study was conducted to evaluate the importance of preoperative cultures from the conjunctival sac of patients admitted for cataract surgery and their response to antibiotics.

Material and Method

Conjunctival swabs were taken at bedside from 100 patients admitted for cataract operation in the Eye ward of Jinnah Postgraduate Medical Centre. These patients were between 30 to 90 years of age and were admitted to the hospital 48 hours prior to surgery. Twenty healthy adults and 12 staff members of the Eye Ward were also included in the study as controls. None of them were using any antibiotics.

Collection of Material

For culture a sterile cotton swab was rubbed on the lower conjunctiva and inoculated on blood agar plates. Incubation of the plates was done aerobically at 37°C for 24 hours to 48 hours. Organisms grown were identified on the basis of colony morphology, gram staining and biochemical reactions. Antibiotic sensitivity test of all potentially pathogenic organisms isolated in pure culture was performed by disc diffusion method.

Results

Table I: Cultural Studies on Conjunctival Swabs

<i>Types of Organisms</i>	<i>Cataract patients</i>	<i>Apparently healthy subjects</i>	<i>Staff of Eye Ward</i>
Total positive cultures	75 (75%)	14 (70%)	6 (50%)
Pathogens only	40 (40%)	5 (25%)	1 (8.3%)
Non pathogens only	23 (23%)	6 (35%)	4 (33.3%)
Mixed	12 (12%)	3 (15%)	1 (8.3%)

Table I shows the result of cultural studies on conjunctival swabs. Pathogenic bacteria were more often present in patients than in the two control groups.

The organisms isolated from conjunctival swabs are shown in table II.

Table II: Organisms Isolated from the Conjunctival swabs

<i>Organisms</i>	<i>Cataract patients</i> (100)	<i>Apparently healthy subjects</i> (20)	<i>Staff Eye ward</i> (12)
Moraxella	47 (47%)	8 (40%)	8 (40%)
Staph. albus	27 (27%)	8 (40%)	8 (40%)
Gaffkya tetragena	8 (8%)	4 (20%)	4 (20%)
Staph. aureus	7 (7%)	—	—
Strept. pyogenes	3 (3%)	—	—
Diphtheroid	3 (3%)	—	2 (10%)
Haemophilus	1 (1%)	—	—
Pseudomonas	1 (1%)	—	—

Moraxella was found more frequently than the other organisms in the patients group.

Bacterial flora from the conjunctival swab in the present study was compared with that of Winkler and Cason (1954). The increase in the percentage of cultures of Moraxella and a decrease in the percentage of Staph albus and Dip-theroids was most striking (Table III).

Table III: Bacterial Flora of Conjunctival sac of Cataract Patients

<i>Organisms</i>	<i>Present study</i> (%)	<i>Winkler and Cason</i> (1954) (%)
Moraxella	47.0	Nil
Staph. alb us	27.0	68.0
Staph. aureus	7.0	7.0
Gaffkya tetragena	8.0	Nil
Diptheroid	3.0	33.0
Pneumococci	Nil	<1
Haemophilus	1.0	<1
Pseudomonas	1.0	<1
Strept. pyogenes	3.0	<1

N.B. The results are expressed as percent positive cases for indicated organisms.

Strept. pyogenes was detected in 3% in this series while this organism was infrequently reported by Winkler and Cason (1954).

Gentamycin was found to be the most effective antibiotic against all pathogenic organisms isolated followed by Cloxacillin, Erythromycin, Ampicillin, Tetracycline and Chloramphenicol. Polymyxin B was only effective against gram negative organisms (Table IV).

Table IV: Antibiotic Sensitivity of Organisms

<i>Organisms</i>		<i>Genta- mycin</i>	<i>Cloxac- illin</i>	<i>Erythro- mycin</i>	<i>Ampic- illin</i>	<i>Chloram- pheni- col</i>	<i>Tetra- cycline</i>	<i>Polymy- xin B</i>
Moraxella	(47)	100	86	82	71	62	40	35
Staph. aureus	(7)	100	80	100	80	60	60	0
Strept. Pyogenes	(31)	100	100	100	66	66	100	0
*Haemophilus	(1)	S	S	S	S	S	S	S
*Pseudomonas	(1)	S	R	R	R	R	R	S

N.B. : The results are expressed as percent sensitive strains.

* Only one strain isolated and tested,

Discussion

Bacteriological study on conjunctival cultures of cataract patients and two control groups revealed simultaneous occurrences of both pathogenic and non pathogenic microorganisms. Observations in patients and healthy subjects were similar to those reported in other studies (Burns, 1959; Smith, 1954). Moraxella was most frequently encountered here and Staph albus in England (Winkler and Cason, 1954). The difference in the microorganisms isolated from conjunctival sac from different countries may be due to varying climatic and hygienic conditions (Hardy et al., 1967).

Gentamycin was the most effective antibiotic against pathogenic microorganisms isolated from cultures of conjunctival swabs. The efficacy of this antibiotic was also observed by Halasa (1967) in bacterial conjunctivities.

If preoperative cultures are done and sensitivity determined the chances of post operative complications and emergency of drug resistant strains may decrease significantly by giving proper antibiotics prior to surgery.

References

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