Microbial keratitis: a 5-year experience from Bolton Eye Unit

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Introduction

- Microbial keratitis remains as one of the commonest acute eye conditions presenting to Eye Casualty
- Corneal scrapes are often performed to guide treatment but the practice of when and how varies between units
- In Bolton, Levofloxacin, a 3rd generation fluoroquinolone (FQs) is the treatment of choice

Method & Aims

- 5-year retrospective study – Jan 2014 – Mar 2019
- To determine the **yield of positive cultures** from corneal scrapes:
    - To determine the influence of lesion size on a positive yield
    - To determine the effect of pre treatment with chloramphenicol on a positive yield.
- To determine the **distribution of organisms** cultured
- To determine the **antibiotic susceptibility** of the organisms:
    - To determine if empirical treatment with topical Levofloxacin offers sufficient coverage for

Demographics

- 218 eyes
- Mean age: 49.3±2.672 (95% CI)
- Male: 97/218 (43%)
- Female: 127/218 (57%)
- Male to female ratio: 1:1.33

Results

Contact lens wearer

- 42.7% (93/218 cases)

Sizes of ulcers

- Overall yield: 43.6% (95 cases)
- Distribution of sizes of corneal epithelial defect (ED) from which scrapes were performed:
    - Small: ≤ 1 x 1mm
    - Medium: 1.1 x 1.1 – 4 x 4mm
    - Large: > 4 x 4mm

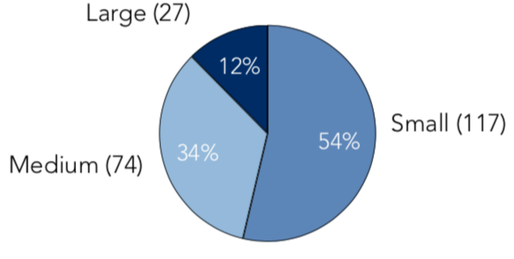


Fig.1 Pie chart showing the distribution of sizes of ED

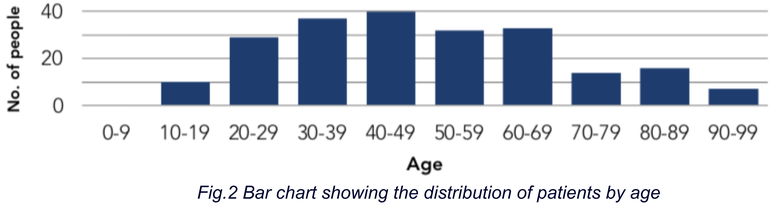


Fig.2 Bar chart showing the distribution of patients by age

Yields of positive culture

- Small ED: **37.6%** (44/117 cases)
- Medium ED: **47.3%** (35/74 cases)
- Large ED: **59.3%** (16/27 cases)

Distribution of organisms

	N (%)
GRAM POSITIVE	**66 (65.3)**
Streptococcus	16 (24.2)
Staph aureus	6 (9.1)
Coagulase negative Staph	32 (48.5)
Others (*Staph saprophyticus, Staph epidermidis, Staph capitus, micrococcus, Bacillus licheniformis*)	11 (16.7)
	N (%)
GRAM NEGATIVE	**28 (27.7)**
Pseudomonas	6 (21.4)
Moraxella	4 (14.3)
Serratia	7 (25)
Others (*E. Coli, Enterobacter, Haemophilus parainfluenza, gram neg bacilli*)	11 (39.3)
FUNGI	**N (%)**
Candida	**7 (100)**
AMOEBAE	**N (%)**
Acanthamoeba	**0 (0)**

Antibiotic sensitivity

- 73.5% of Gram-positive and 88.5% of Gram-negative organisms were sensitive to FQs
- 92.7% (202/218 cases) were commenced on a FQs as the initial empirical therapy
    - Among those 79.7% (161/202 cases) being Levofloxacin
    - A further of 5 cases were changed to Levofloxacin/had Levofloxacin added to the treatment regime
- Total cases on FQs till resolution of ED: 95% (207/218 cases)

Prior Chloramphenicol (CPL) use

- 21 cases reported prior CPL usage before a corneal scrape was performed
- 52.4% (11/21 samples) were culture positive

Conclusion

- **Small ulcers** have a lower yield suggesting that empirical treatment with FQs without scrapes can be considered.
- **Levofloxacin** remains an excellent initial empirical antibiotic therapy.
- **Prior Chloramphenicol use** does not appear to have a significant influence on a positive yield so corneal scrapes should still be performed if clinically indicated.