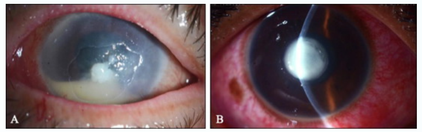
Microbiological growth from corneal scrapes performed in a district general hospital in the South of England

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Background

Microbial keratitis is a common ophthalmic presentation, with corneal scraping for microbiological identification playing a key role in investigating the underlying organism. This procedure has a variable culture-positive rate in the literature, ranging from 25-78%.[1-5] Scrapes are often performed by junior ophthalmic clinicians who may, due to lack of experience, collect insufficient material.



Aim

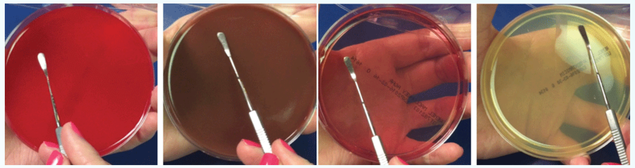
To review data for all corneal scrapes at our trust and identify factors for positive yield.

Methods

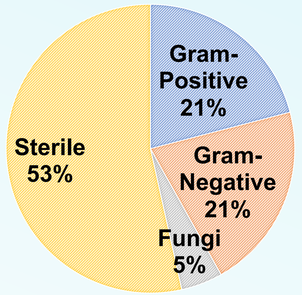
We retrospectively collected data for all corneal scrapes performed in 2018 at the Royal Bournemouth Hospital, using our local microbiology database and the ophthalmological record to isolate the organism, diagnosis, risk factors for infection, and level of clinician performing the scrape.

Results

We identified 53 corneal scrapes performed in 2018, 20 (37.7%) of which yielded a culture-positive result.



Collecting a Corneal Culture. https://www.reviewofoptometry.com/article/collecting-a-corneal-culture.



Level of clinician

The majority (32) were performed by specialty registrar-grade doctors, with a positive yield of 34%. In contrast to this, 54% of the 11 consultant-performed scrapes were positive (p= 0.18).

Clinician Level	Positive Yield	Number of cultures performed
Consultant	54%	11
Optometrist	0%	1
SAS	0%	2
SpR	34%	32
Unknown	42%	7

Risk factors

There were 16 contact lens related microbial keratitis which required corneal scrape; 5 yielded culture-positive results (31%). 4 of these grew *Pseudomonas* species, and 1 a *Fusarium* fungi.

Of 5 graft-related scrapes for microbial keratitis, 4 yielded positive culture results: *Acinetobacter lwoffi*, *Coliform* sp, *Staphylococci*, and *Streptococci pseudopneumoniae*.

There were 33 negative corneal scrapes. 6 scrapes had the following risk factors: marginal keratitis (1), linear IGA (1), neurotrophic ulcer (1), HSK related (1), PUK (1). 14 patients had no risk factors recorded.

Conclusion

Our corneal scrape yield is comparable to that reported in the literature in the UK with a similar spectrum of organisms[1-5], though highlights scope for improvement.

We report the organisms isolated from our hospital, which includes a single case of *Acinetobacter* (the first reported case in the U.K.).

The most common risk factor was contact lens use, with *Pseudomonas* being the most common organism grown. There was a high rate of sterile scrape in contact lens related microbial keratitis which suggests possible inaccurate diagnosis of microbial keratitis in some cases.

We found that clinician grade affected the positive yield of scrapes, which could highlight issues with experience.

Suggestions for Improvement

We suggest robust education to junior ophthalmic clinicians in recognition of microbial keratitis and scrape technique. Furthermore, a discussion with microbiology may be beneficial on how to streamline process- e.g. single corneal scrape sent to the microbiology laboratory in a liquid transport culture medium[6], as opposed to multiple Petri dishes.

References

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