Impact of the COVID-19 pandemic on the incidence and characteristics of microbial keratitis presenting to a tertiary eye hospital in the UK

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Introduction:

The COVID-19 pandemic led to drastic changes to the daily lives of those living in the United Kingdom. We hypothesized that the effect of the imposed lockdown on both human behaviour and social interaction had the potential to influence the characteristics of microbial keratitis presenting to Manchester Royal Eye Hospital – a major tertiary eye centre in the UK.



Methodology:

Retrospective case note review of all positive corneal scrape cultures identified by our local microbiology laboratory during the one year since the announcement of lockdown measures in the UK (23/03/20-23/03/21). Culture results were compared with previously collated, published 'baseline' data from prior to the onset of the COVID-19 Pandemic (between 2004-2019). Statistical analysis was undertaken, predominantly looking at the incidence of microbial keratitis and the variety of cultured pathogens.

			Outcome		
			Culture positivity		
			Positive	Negative	Total
(P=0.096)*	Intervention	Pre-lockdown	128 (35%)	236 (65%)	364
		Lockdown	91 (29%)	221 (71%)	312

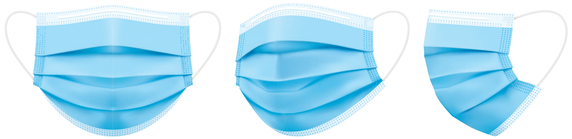
Table 1. Crosstabulation of scrape positivity vs. pre- and lockdown period. * p-value for Chi-square test

Organism	Mean (+/- SE) Pre-lockdown	Lockdown	P-value
Fungi	7.8 (1.3)	1	0.196*
Acanthamoeba	3.1(0.7)	2	1.000**
Gram Positive	77.9 (4.0)	63	0.366*
Gram Negative	37.7(1.9)	25	0.087*

Table 2. Comparing the mean number of keratitis subtypes prior to lockdown with the number of cases during Lockdown, including P-values * two sample t test, ** Mann-Whitney U test)

Results:

A total of 6243 corneal scrape results were reviewed. The COVID-19 pandemic and subsequent lockdown did not show a significant change in the incidence of culture positive microbial keratitis: Mean of annual positive samples 2004-2019: 128 (35%) vs. 91 (29%) during lockdown, (P=0.096) (Table1). No statistically significant shifts in the incidence of organism subtypes: fungi, acanthamoeba, gram positive bacteria, gram negative bacteria were identified (P=0.196, 1.000,0.366, 0.087 respectively) (Table2).



Conclusion:

This study suggests that the imposed lockdown, novel infection prevention practices and changes in the social behaviour of our local population did not appear to significantly affect the incidence or characteristics of microbial keratitis presenting to Manchester Royal Eye Hospital. The findings of this study could be used to inform infection control measures and protocols for patients with microbial keratitis presenting to ophthalmic services in the UK.

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