The incidence of SARS-coV-2 positive cases presenting with conjunctivitis at a north east London eye casualty department.

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INTRODUCTION

The pandemic caused by severe acute respiratory syndrome, coronavirus–2 (SARS-CoV-2), has had a devastating impact on the global economy and human life. As of May 6th 2021, there has been 151,533 deaths from SARS-CoV-2 in the UK since the pandemic status was declared by the World Health Organisation in January 2020 (1). Respiratory complications with this virus have been widely documented and there have been few studies highlighting an association with the presence of conjunctivitis in COVID positive patients with respiratory disease (2). However even less is known about whether isolated conjunctivitis could be an initial manifestation of SARS-CoV-2 with only limited case reports of this (3). During the 2020 "lockdown" in London where local minor eye condition services (MECS) were largely closed or run on an extremely limited basis and where patients were limited to seeking local assistance only by a lack of public transport, we noted the increased attendance of patients with conjunctivitis to secondary care. This study, therefore, aimed to determine the incidence of SARS-CoV-2 in patient presenting with conjunctivitis to our Eye emergency Unit in East London.

METHODS

This Retrospective case note review was conducted at the Eye casualty department at Whipps Cross Hospital Eye Treatment Centre (ETC) in east London from March 23rd to June 24th2020. Base on the ETC infection control screening protocol, we **excluded** all patients with measured temperature >37.5º C who gave a positive history of either cough, shortness of breath, nasal congestion, loss of taste and smell, recent contact with COVID positive patient, or recent travel to China by questionnaire. These patients were instead seen in the main A/E department.

All patient presenting with a ***"Red eye"*** during this period was offered nasopharyngeal and eye swabs (as shown in *figure 1)* for real-time reverse transcriptase polymerase chain reaction (RT-PCR) testing using the ORF1a and the E genes as targets. Additionally, standard virology and bacteriology testing were done on all eye swabs. Investigators wore full PPE which included gloves, a full-face shield, and FFP3 mask.

From case notes sample, our **inclusion criteria** were all patients 18 years and over, with a diagnosis after slit lamp examination of conjunctivitis (whether suspected bacterial, viral , allergic and blepharocojunctivitis). The main outcome measured is the overall Positive RT-PCR swab for SARS-cov-2 virus at the conjunctiva with or without positive swab results for the throat or nose. Statistical recording was done with Microsoft Excel.



Fig 1: Illustration of method to collect nasophargeal and eye swab (A) nasopharyngeal swab (B) Collection of eye swab (C) sampling and collecting media for rRT-PCR and standard virology samples and (D) bacteriology sample.

RESULTS

During the study period, 36 patients presented with "*Red eye*" to ETC . A total of 35 nasopharyngeal and 34 eye swabs were taken. One patient refused both. Only 19 patient and 20 eyes met the inclusion criteria with diagnosis of conjunctivitis. We summarise our patient characteristics in *Table1*. We collected 19 nasopharyngeal swabs and 17 eye swabs for SARS-CoV-2 RT-PCR testing using ORF1a and E genes as targets. No eye swab was received from 3 persons.

Characteristic	Total Patients (n=19)
Age, years(mean ± SD)	46.1 ± 19.6
Gender	Male- 10 Female-9
Ethnicity	Black – 7 Asian- 8 White- 3 No response- 1

Table 1: Summary of patient characteristics.

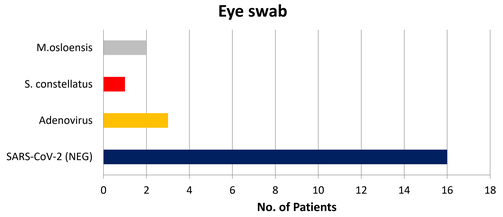


Fig 2: Bar Chart showing the number of patient and the micro-organism detected. Moraxella osloensis (M. osloensis) Stretoccus constellatus (S. contellatus).

All RT-PCR nasopharyngeal swabs where negative for ORF1 a and E genes targets. All 17 eye swab were negative for RT-PCR SARS-CoV-2 using ORF1a and E genes as targets. Of the 17 eye swabs, 3 where positive for Adenovirus DNA, 1 positive for Streptococcus constellatus and 2 positive for Moraxella osloensis *Figure 2*.

DISCUSSION

None of the patients with positive clinical signs of conjunctivitis were positive for the SARs-Cov2 virus either in the conjunctiva or the nasopharynx. Since these patients were discharged with conventional treatment it is unknown as to whether they subsequently were found to have the virus. Since we are now aware the virus is airborne, the complete absence of virus may be attributed to a protective barrier effect of the conjunctiva or the presence of IgA [4]. Our small sample size and easing of London lockdown on June 15th 2020 were also limiting factors.

CONCLUSION

Although there have been several reports of conjunctivitis as an initial manifestation of SARS-CoV-2 we found no patient presenting with conjunctivitis due to SARS-CoV-2.

References:

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