



# Per-operative COVID-19 modifications for oculoplastic service: patients perspective and regional review of practice of a protective draping technique

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## Abstract

**Purpose** COVID-19 has posed problems for oculoplastic surgeons. One issue we felt needed to be addressed was the way patients are draped for surgery. Traditionally patients are draped with their full face exposed, and as a result, aerosols generated from both the patient and surgical team put the other party at risk.

**Methods** We created a new draping technique which would create a physical barrier. A regional survey was undertaken to compare regional oculoplastic draping practices with our practice locally in light of the COVID-19 pandemic. A patient satisfaction survey was also completed to understand the impact of our change in practice.

**Results** Our regional survey generated 22 consultant responses. 36% (8) continued with their normal practice with the full face exposed. 18% (4) of the responders had modified a cataract drape and 45% (10) used a bespoke drape with or without a mask. We started using this modified drape in June 2020 and in the patient survey, 100 percent of patients felt the drape was comfortable and 30% of the patients

commented on the relief that they did not have to wear a face mask during surgery.

**Conclusions** Our draping technique provides an alternative to the traditional full face exposure draping. It is simple, inexpensive, and readily available. It also addresses and resolves the issue of safety of the oculoplastic surgeon and surgical team whilst maintaining comfort for the patient throughout, particularly when risks of COVID are ongoing and with the potential of more viruses in the future.

**Keywords** Surgical drape · Aerosols · Oculoplastic surgery · Safety · Patient satisfaction

## Introduction

COVID-19 was declared a Public Health emergency of international concern by the World Health Organization on January 30, 2020 [1]. Since then it has affected many lives across the world and impacted significantly on medical and surgical services. As a respiratory virus, it is spread easily through droplets, and recent studies suggest that the virus can persist in the air for 3 h and on surfaces for up to 72 h [2]. Ophthalmologists, by the nature of their work, are often in close contact to patients and are therefore at increased risk of contracting the virus.

COVID-19 has posed problems for oculoplastic surgeons. One issue we thought needed to be looked at was the way patients are draped for surgery.

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Traditionally during oculoplastic surgery under local anaesthesia, patients are draped with their full face exposed. The concept of social distancing is impossible. Both the patient and the surgical team will be in close contact for significant periods of time, and as a result, aerosols generated from both the patient and surgical team put the other party at risk of contracting COVID-19.

We therefore set out to devise a full-face surgical draping technique for oculoplastic patients, thereby creating a physical barrier between the patient and surgical team.

## Method

COVID-19 pandemic prompted us to devise a new draping technique to protect all parties involved during surgery, whilst being able to monitor the patient and keeping the patient comfortable.

The steps are described below. We undertook a prospective study and applied this method to all patients undergoing oculoplastic surgery at the University Hospital Coventry, United Kingdom from June 2020 until January 2022, under one Oculoplastic Consultant. The study was conducted in accordance with the declaration of Helsinki.

### Steps

1. Adaptation of a '3 M Steri-Drape U-Drape 1015' (Orthopaedic drape), which is a transparent polyethylene film, with a U shape cut out with an adhesive edge, which was trimmed (Fig. 1a).
2. Nasal oxygen cannula provided oxygen beneath the drape (Fig. 1b).
3. 0.5% Proxymetacaine Hydrochloride drops were instilled into both eyes for topical anaesthesia. Then Povidone Iodine 5% drops were instilled to offer additional conjunctival sac sterilisation; as the COVID-19 virus has a predilection for the conjunctiva [3–5].
4. Following a standard head wrap and full body drape, the 3 M Steri-Drape was carefully applied (Fig. 1c, d) by sticking down the adhesive edge just above the tip of the nose (Fig. 1e), lateral walls and cheeks Fig. 1f), and on top of the head drape (Fig. 1g), thus isolating both the mouth and nose from the operative field. The transparent

drape allowed the anaesthetist to visually monitor the patient especially important when administering sedation.

5. The 3 M Steri-Drape was then draped over a raised bar attached to the operating table, in order to tent it up keeping the drape away from the nose and mouth, minimising any feeling of claustrophobia (Fig. 1h, i).
6. The residual drape cut off from the initial trim was used to secure the bipolar wire over the bar (Fig. 1j).

A regional survey was undertaken in the West Midlands to compare regional oculoplastic draping practices with our practice locally in light of the COVID-19 pandemic. We asked 25 Oculoplastic consultants in the West Midlands region about their draping technique during surgery in July 2020. We asked them what their current draping practise was, whether they had made any modifications in light of the COVID-19 pandemic and what these modifications were. A patient satisfaction survey was also completed to understand the impact of our change in practice. This self-administered questionnaire was given to all our patients following surgery over a three month period from July 2020 to October 2020. Questions one and two required dichotomous yes or no responses, whilst question three was an open question. We also allowed respondents the chance to add additional comments if they felt it necessary.

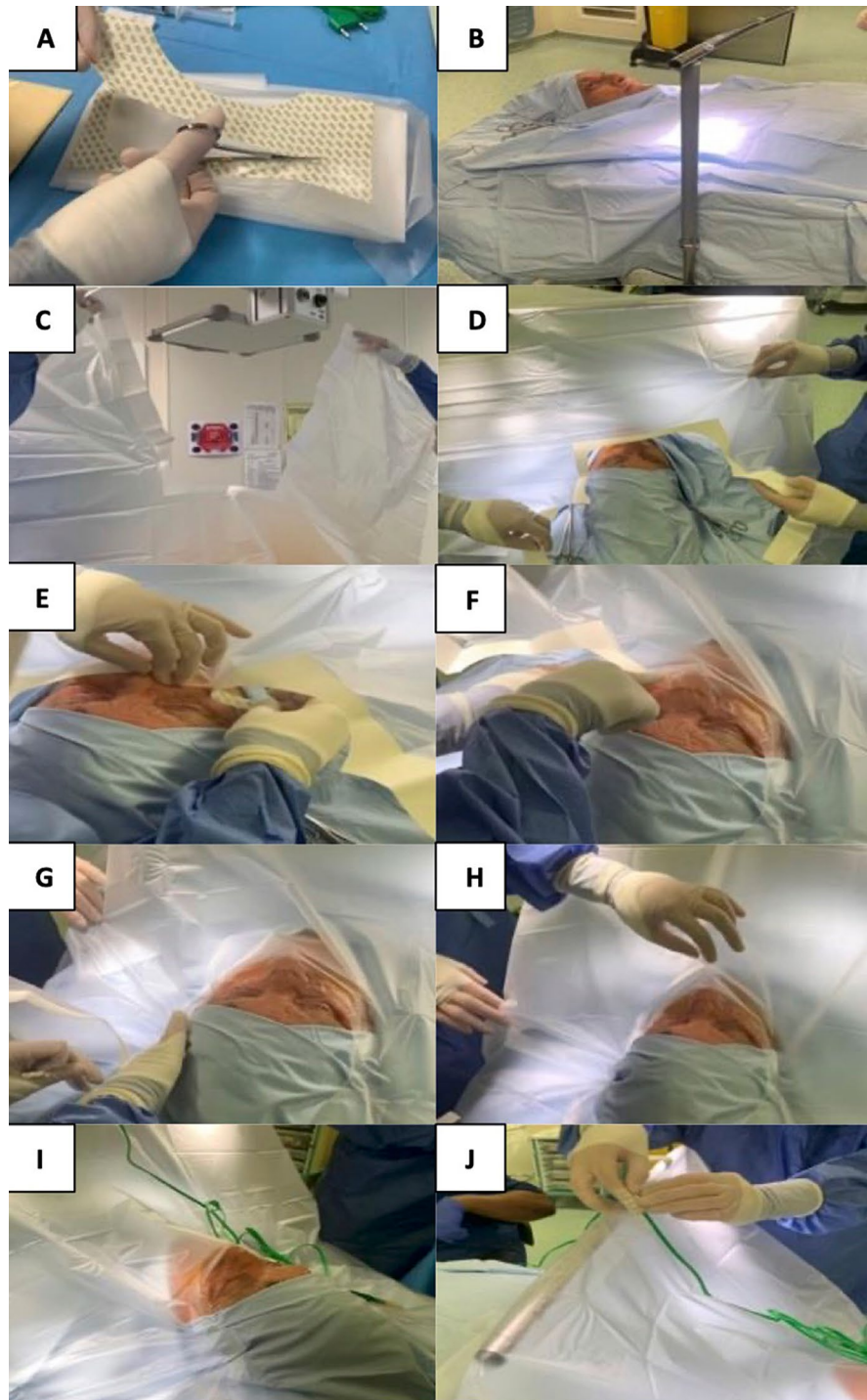
### Patient satisfaction survey questions

1. 'Was the drape comfortable during the procedure?'
2. 'Did you feel any sense of claustrophobia?'
3. 'If you have had had any previous Oculoplastic surgery, how did this drape compare?' 'Any further comments?'

## Results

Our regional survey generated 22 consultant responses. 36% (8) continued with their normal practice with the full face exposed. 18% (4) of the responders had modified a cataract drape by fashioning a larger hole to expose the lids. 45% (10) respondents either got patients to wear a fluid resistant mask,

**Fig. 1** **a** Drape with a U shape cut out with an adhesive edge, is trimmed. **b** Nasal oxygen cannula provides oxygen beneath the drape. **c, d** Following a standard head wrap and full body drape, the 3 M Steri-Drape is carefully applied. **e** The adhesive edge is stuck just above the tip of the nose. **f** The drape is also stuck to the lateral walls and cheeks. **g** The drape is stuck to the top of the head thus isolating both the mouth and nose from the operative field. **h, i** The 3 M Steri-Drape is then draped over a raised bar attached to the operating table, to tent it up keeping the drape away from the nose and mouth. **j** The residual drape cut off from the initial trim, is used to secure the bipolar wire over the bar



whilst others removed the mask underneath a bespoke drape.

We started using this new modified drape in June 2020 and until January 2022 we have completed 566

procedures using this draping technique to date. In the survey, 100 percent of patients felt the drape was very comfortable for the duration of the procedure. For those patients who had previous oculoplastic

surgery pre-COVID, none of the patients (8) reported any notable difference between having their face exposed or use of the new drape. In addition, 30% of the patients commented on the relief that they did not have to wear a face mask during surgery. Only one patient reported nausea during the procedure, but this was more likely to be attributable to the sedation used during the procedure rather than the drape.

## Discussion

Since the start of COVID-19, Ophthalmologists have faced several challenges. As the viral load is greater in the nasal cavity, operations involving the nasolacrimal area can result in a higher risk for oculoplastic surgeons [1]. These procedures, defined as aerosol-generating procedures, include lacrimal procedures, orbital surgery using power tools, open suctioning, procedures involving the nasal or sinus cavities [1]. Furthermore, traditionally in oculoplastic surgery, the drapes used to create a sterile field are wrapped around the head and face, leaving full face exposed. The surgical team operates in close proximity to the patient's face increasing the risk of exposure to aerosols generated from the patient by breathing, coughing, and sneezing [1].

Although advice from various oculoplastic societies was swift there were no standardised international guidelines for oculoplastic surgeons. In the United Kingdom, the British oculoplastic surgery society (BOPSS) recommended, at the height of the pandemic, that in any oculoplastic procedure surgeons would benefit from wearing a fluid repellent surgical gown, disposable gloves, eye protection and face shield and a fluid resistant face mask (surgical mask) [6]. For higher risk patients or in aerosol generating procedures they advised as previous, however with a filtering FFP3 face mask instead of the surgical mask [6]. In addition to personal protection they also recommended optimising theatre airflow, minimising dialogue, surgical time, increasing surgical distance and adhesive drapes to form a barrier to the exhaled air between the patient and the surgeon [6]. However, these various recommendations do not specify the way in which adhesive drapes can be used. This is reflected in the variability and lack of consensus in the way oculoplastic patients are draped in our regional survey. Furthermore, in the literature various

practices have been used and discussed with varying success and comfort, such as leaving the surgical mask on the patient and securing with micropore or covering the patient's mouth and nose with the surgical drape [7]. One study showed in simulated Ophthalmic surgery that even when the patient is wearing a surgical mask respiratory droplets are still found on the surgical field and in fact a complete surgical seal with a drape with or without a mask is more effective at reducing spread of respiratory droplets [8].

We therefore felt that the usual draping method with the full face exposed was no longer suitable and fit for purpose. Hence, we set out to devise a new draping technique which would create a physical barrier between the surgical team and the patients undergoing oculoplastic surgery. The new draping method needed to maintain patient comfort during the procedure, avoid feelings of claustrophobia, allow the application of nasal cannula for supplemental oxygen if needed, as well as permit direct observation of the patient by the anaesthetic team.

The advantages of this drape and draping technique are numerous. It is a simple and easy method to create a sterile operating field, without obscuring it. The drape allows for the surgical team to be in close contact with the patient but by forming a physical barrier between them aims to reduce the risk of droplet exposure [6]. The transparency of the drape allows the anaesthetist to visualise and monitor the patient especially when using sedation, as well as avoiding feelings of claustrophobia for the patient and thereby improving per-operative patient comfort. It also removes the requirement for the patient to wear a surgical face mask during surgery. The drape itself is latex free, inexpensive, and readily available. One disadvantage is the need to adapt an existing orthopaedic drape and its application, and it requires an extra step compared to the usual technique, although the 11 additional seconds spent outweigh the extra protection it offers.

## Conclusions

COVID-19 continues to pose many challenges and appears likely to continue into the foreseeable future. In addition, COVID-19 has highlighted the risk of further viruses that may arise in the future. Our draping technique provides a solution going forward, and

an alternative to the traditional full face exposure draping used in oculoplastic surgery. It is a simple, inexpensive, and readily available method which therefore does not add to the burden of healthcare. It also addresses and resolves the issue of safety of the oculoplastic surgeon whilst maintaining comfort for the patient throughout the procedure. As COVID-19 continues unrelentingly a viable option is beneficial.

**Author's contribution** All authors contributed to the study conception and design. Material preparation, data collection and analysis were performed Emma Samia-Aly and Rupinder Chahal. The first draft of the manuscript was written by Emma Samia-Aly and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

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#### Declarations

**Competing interests** The authors declare no competing interests.

**Conflict of interest** The authors declare that there is no conflict of interest and the study was in accordance with the declaration of Helsinki.

**Ethical approval** This study was performed in line with the principles of the Declaration of Helsinki. Ethical approval is not required for this study.

**Informed consent** Informed consent was obtained from all individual participants included in the study.

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