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Resumption of Cosmetic Surgery During COVID - Experience of a Specialised Cosmetic Surgery Day-case Hospital

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resumption

Summary The novel coronavirus outbreak (COVID-19) in 2019 resulted in the suspension of all elective hospital procedures during the height of the pandemic in the UK. The Clinic in London is one of the first day-case hospitals to resume cosmetic surgery in a post-COVID-19 clinical environment, whilst also employing the use of virtual consultations. Details of the protocol implemented by the Clinic to allow the safe resumption of cosmetic surgery are stated in this paper.

The volume of procedures at the Clinic saw a significant increase post-lockdown; reasons as to why this occurred are also explored in this paper. The disruption of cosmetic practice during lockdown can be said to have resulted in a backlog of procedures once lockdown restrictions began to ease. Whilst this may be true, we believe that there are other confounding factors regarding what may have influenced the rise in cosmetic surgery during the pandemic, including the privacy of working from home and the increased exposure to video conferencing software. © 2021 British Association of Plastic, Reconstructive and Aesthetic Surgeons. Published by Elsevier Ltd. All rights reserved.

Introduction

The World Health Organisation (WHO) declared the novel coronavirus (COVID-19) outbreak a pandemic on 11 March 2020 [1]. The pandemic caused significant disruption to all elective surgery, including cancer services. The Royal College of Surgeons' (RCS) guidance in prioritisation of surgery during the COVID-19 pandemic classified cosmetic surgery

as priority 4, the lowest priority surgery [2]. As the number of COVID-19 cases started to drop and government restrictions eased, various discussions took place at both local and national levels on the safe resumption of cosmetic surgery services [3].

The Clinic is one of the first hospitals to restart cosmetic surgery and return to full capacity. Founded in 2008 by the senior author, the Clinic amalgamates the work of plastic, oculoplastic, vascular and podiatric surgeons, along with dermatologists and non-surgical practitioners. The site has two fully equipped surgical theatres with facilities for general anaesthetic (GA) and one theatre used for local anaes-

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thetic (LA) procedures. There are two recovery spaces and four day-ward beds.

Following the COVID-19 outbreak, on 24 March 2020, the Clinic suspended all non-urgent elective surgery, thereby adhering to the National Health Service (NHS) guidelines. As a Care Quality Commission (CQC) registered hospital, the Clinic has remained open throughout the COVID-19 crisis to provide urgent diagnostic and cancer removal services, in line with NHS England guidance. In preparing to offer its services to the NHS - initially for any COVID patients and then specifically for skin cancer patients - the Clinic re-assembled theatre staff with training relating to infection control measures. Although the Clinic's facilities and staff were ultimately not required in its attempt to alleviate pressures on the NHS, this early mobilisation - on a personnel and governance front - allowed the facility to resume in-person appointments soon after lockdown measures were eased with all appropriate post-COVID-19 measures in place for a safe patient environment. Whilst also reviewing the international approach to COVID-19 daily, the Clinic took advice from its many medical, surgical and anaesthetic consultants with first-hand experience in working under COVID-19 prevention guidelines, which were then implemented at the facility.

As of 15 June 2020, the Clinic has been working under a low transmission approach with an aim to be working at full functionality in the near future. This approach was signed off by the Clinic's Independent Medical Advisory Committee, including the surgical, anaesthetic and microbiology representatives and retrospectively shared with and approved by the CQC in the following routine inspection calls. Details of the approach implemented by the Clinic are explored in this paper.

Low Transmission Protocol

In early March 2020, prior to the suspension of all elective services, the Clinic had come into contact with a COVID-19 patient and - under Public Health England guidance on this case - closed its theatres for four days for a deep clean of the facilities, and sent the theatre staff home for a 14-day isolation period, as recommended at the time. In response to this incident, the Clinic implemented its low transmission approach to mitigate transmission risk and to safely reactivate its services. This means that there was to be no contact with COVID-19 patients or staff within the hospital, thereby creating a COVID-cold environment, an option unavailable to most London hospitals given their direct treatment of COVID-19 patients. Pre-operatively, there was a great emphasis on open and honest communication between clinician and patient regarding COVID-19 symptoms preceding a procedure, acting as the primary and arguably the most important intervention before testing [4].

By ensuring patients were self-isolating for 14 days prior to surgery and once they had undertaken a home RT-PCR swab test, up to 10 days before their procedure, the Clinic strictly adhered to WHO guidelines on transmission prevention [5]. Inconclusive results could be presented to laboratory for re-analysis up until 5 days prior to procedure. Additional administrative staff were hired to supervise the delivery of polymerase chain reaction (PCR) home testing

kits and liaise with laboratory testing facilities. Any pre-operative information, including medical history declaration and informed consent form, was relayed online to minimise transmission via surfaces. Patients were prohibited from using public transport and expected to arrive no earlier than 5 minutes prior to their scheduled appointment; the Clinic provided local care on a strictly proximity basis to patients who were able to access the site without the need for public transport. With the goal to minimise patient movement within the Clinic, waiting rooms and times were restricted. Following the procedure, patients were advised to self-isolate for 7 days and inform the Clinic should they develop any COVID-19-related symptoms.

Figure 1 demonstrates the safety measures undertaken by patients at the Clinic.

The implementation of regular cleaning, with appropriate disinfectants, of all surfaces and the introduction of hand sanitisers in every room have been stressed as perhaps the most important interventions of COVID-19 transmission [6].

The Clinic's low transmission approach regarding staff focused initially on ensuring that returning members were informed on the latest COVID-19 updates and educated via on-line training on infection control. Every member of the staff was offered a confidential risk assessment to enable appropriate workplace safety changes to be made. Guidance was given on the importance of social distancing, handwashing, isolating and self-reporting. Staff were encouraged to regularly check the gov.uk website and follow government's coronavirus guidelines.

To protect its employees, the Clinic installed Perspex screens in the reception area and consultation rooms and made hand sanitisers along with appropriate personal protective equipment (PPE) available to all rooms.

Once staff had returned to the Clinic, there was a strong emphasis on recording cleaning tasks. Cleaning logs for various specific purposes, such as washroom and consulting rooms were updated and scanned on a daily basis. All surfaces and rooms (including the lift) where a patient had been were immediately disinfected and professional deep cleaning of all consulting rooms and theatres took place every night.

Changes in Consultations

Prior to COVID-19, all appointments at the Clinic were held in-person and in-clinic. Before lockdown, the Clinic had not incorporated virtual consultations into its scope of services. Due to lockdown restrictions, a virtual set-up was mobilised and functioning by March 2020.

The use of virtual consultations, or VCons, allowed the Clinic to maintain contact with new and returning patients thereby minimising the impact of COVID-19 on the patient turnover [7]. The added caveat of adhering to general data protection regulation (GDPR) and end-to-end encryption, however, meant that this could not be carried out on popular video-calling platforms, such as Zoom or Skype [8]. The Clinic acquired Doxy.me soon after lockdown, a telemedicine app that complies with GDPR, which is now being used by the hospital's clinicians for consultations.

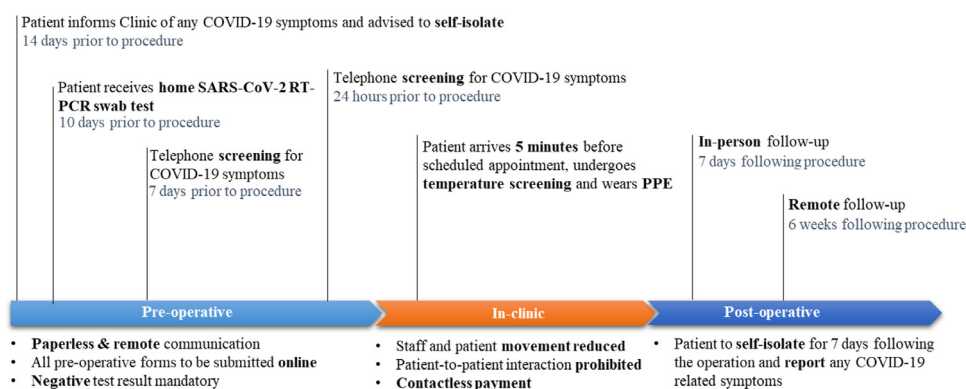


Figure 1 Timeline of preoperative, in-clinic and postoperative safety measures taken by patients.

Table 1 Risk factors considered in the patient selection process.

Aged 65 and over
Moderate to severe asthma
COPD, CF, pulmonary fibrosis or other chronic lung disease
Diabetes mellitus
CHF, CAD, congenital heart disease, cardiomyopathy or other serious heart conditions
Obesity with BMI above 30
Cytotoxic or immunosuppressive drugs and diseases leading to immunodeficiency
Liver cirrhosis

Table 2 COVID-19 operating times by segment.

Stage	Duration (min)
Anaesthesia	00:20
Air changes	00:05*
Operation	As per procedure type
Recovery with anaesthetist	00:05
Clean-up	00:15
Air changes	00:05*
Total non-operating time	00:50
Additional time	00:10*

* 99% of contamination removed

Patient Selection

Patients were selected against their relative risk factors (Table 1) and a ceiling of treatments was established [9]. Low-risk patients (i.e. <65 years without risk factors) were offered procedures involving GA. This group of patients was allowed to undergo operations exceeding 3 hours, such as body contouring surgery and high-volume liposuction. Medium risk patients (i.e. <65 with one risk factor) were also considered for operations involving GA, but these were limited to surgeries completed in less than 3 hours and liposuctions up to 3 litres. High-risk patients (i.e. <65 with two risk factors or >65 with one risk factor) were limited to operations which could be safely performed under regional or local anaesthesia with or without an anaesthetist present (IV sedation vs light sedation).

A four-stage case approval process was implemented to confirm suitability for surgical treatment. Initially, the surgeon assesses patient suitability using the Clinic Surgical Patient Screening Checklist (SPSC; Figure 2). Once the patient has been deemed suitable by surgeon, the theatre booking team review the theatre booking form along with the SPSC. Then, the patient's medical history form and pre-operative psychological assessment are evaluated by the nurse, surgeon and anaesthetist. At the final stage of the process, an assessment of each case is made by the medical or surgical director, culminating in an approval, rejection or postponement of the procedure.

Changes in Theatre (Operating Theatre Protocol)

Changes were made in the operating theatre protocol in order to reduce patient movement. An extra 10 minutes were added to all lists to allow for further air changes and thus reducing chances of contamination (Table 2). When endotracheal intubation was required, this was performed with anaesthetist and ODP alone in the theatre. The surgeon and surgical scrub team were instructed to enter the theatre once patient was asleep and leave before patient was extubated. This was initially 20 minutes but reduced to 5 minutes, in line with NHS accepted protocols. A COVID-19 specific post-operative advice leaflet was given to all patients.

Method

A retrospective cohort study was undertaken to assess the Clinic's activity in both the delivery of surgical services (June to August 2020) and consultations (January to August). A broad scope of data, including individual types of surgeries and methods of consultation, was obtained as well as specific data regarding surgical procedures during the June-August periods in 2019 and 2020. These figures were analysed numerically and graphically using Microsoft Excel®. Moreover, patient cancellations were investigated, and reasons explored.

Surgical Patient Screening Checklist

- To be used in all Surgical Consultation during COVID restrictions
- To be submitted alongside booking form – mandatory

PATIENT DETAILS

Patient Name: _____
 Patient ID: _____
 Date: _____
 Screened by: _____
 Proposed procedure: _____

PLANNED ANAESTHETIC

LA
 Regional (please circle)
 IV Sedation
 GA

PATIENT INFORMATION

Age _____
 Asthma – moderate to severe
 Chronic lung disease – COPD, cystic fibrosis, pulmonary fibrosis
 Diabetes
 Serious heart conditions – heart failure, coronary artery disease, congenital heart disease, cardiomyopathy
 Obesity – BMI > 30
 Immunocompromised – cancer treatment, transplant including bone marrow, immune deficiency, HIV with low CD4, medication causing immunosuppression including long-term steroids
 Liver disease – cirrhosis

RISK CATEGORY EXAMPLE

CC Category 1	Low risk	<65 years with no risk factors
CC Category 2	Medium risk	<65 years with 1 risk factor
CC Category 3	High risk	>65 years with 1 or more risk factor <65 years with 2 or more risk factor

Adapted from: Re: during non-urgent trauma and orthopaedic care. J R Soc Med. 2020.

CIRCLE RISK CATEGORY

CC Category 1
Low risk

CC Category 2
Medium Risk

CC Category 3
High Risk

CONSIDERING THIS RISK, IS PATIENT WILLING FOR TREATMENT TO PROCEED?

YES
 NO

If no, what are the reasons?

Fear of contracting COVID-19
 Work restrictions
 Self-isolation difficulties
 Symptoms do not warrant risk
 Risk to others re: COVID-19
 Carer responsibilities
 Other (give details) _____

CONSIDERING THE MEDICAL RISKS IS THE SURGICAL TEAM WILLING FOR TREATMENT TO PROCEED?

YES
 NO

SURGICAL PATIENT SCREENING OUTCOME

Proceed when appropriate
 Defer surgery until safer
 Unsuitable for operation

Figure 2 Clinic Surgical Patient Screening Checklist.

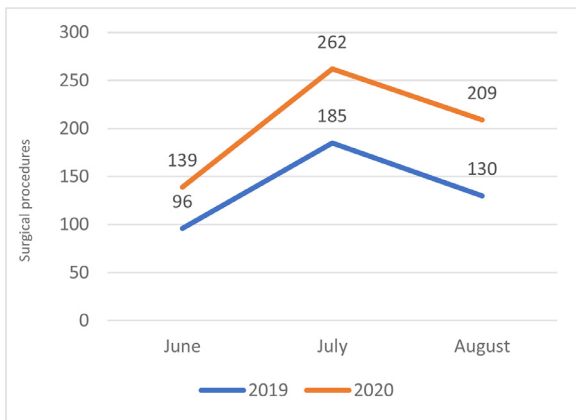


Figure 3 Total number of surgical procedures in the June to August period in 2020 compared with the same period in 2019.

RESULTS

Comparison between frequency of surgeries during the Jun-Aug period in 2019 and 2020

Cumulative surgical procedures undertaken from 15 June to August 2020 saw a 48% increase compared with 2019 (Figure 3). Interestingly, procedures involving sedation increased by 314% during the summer months in 2020, largely unfazed by the decreased trends in other anaesthetised procedures displayed in June 2020 (Figure 4). Procedures involving LA increased by 26% during the summer months,

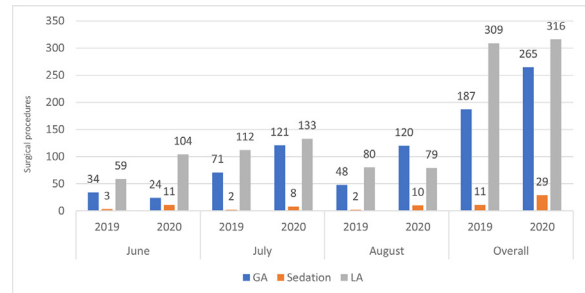
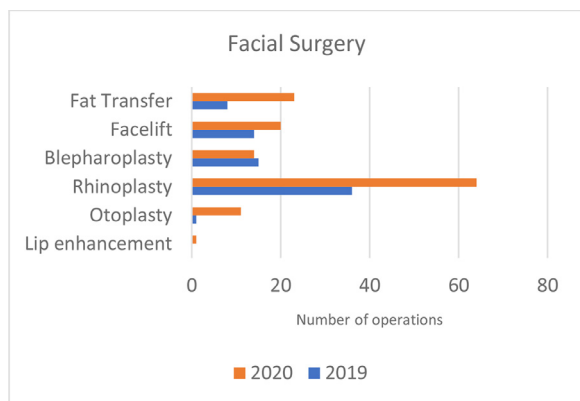
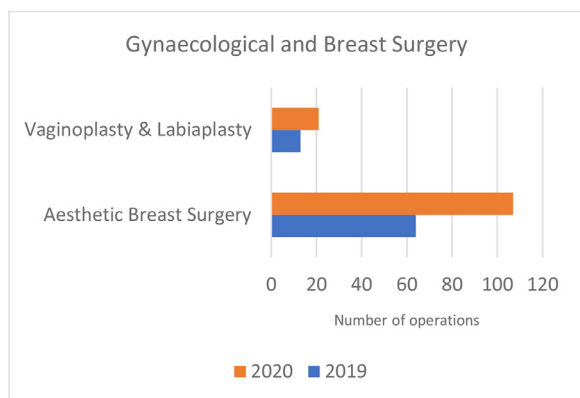


Figure 4 Number of surgical procedures undertaken under GA, sedation or LA in the June to August period in 2020 compared with the same period in 2019.

concurrent with the expansion of the Clinic’s services and service providers. This starkly contrasts procedures involving GA, which dropped 29% in June 2020 compared with the 2019 data. Despite this, it should be worth noting that the Clinic saw a 73% rise in GA procedures overall in the mid-June to end August of time frame, compared with the same period in 2019. With government attitudes towards COVID-19 relaxing markedly during August, the total procedures in August 2020 compared with 2019 saw a 60.8%, primarily boosted by the increase of GA procedures.

Table 3 Number of aesthetic operations during the June to August period in 2020 compared to the same period in 2019.

Aesthetic Procedure	Jun-Aug period		Change
	2019	2020	
Facial Surgery	74	133	80%
Breast Surgery	64	107	67%
Gynaecological Surgery	13	21	62%
Abdominoplasty	10	11	10%
Liposuction	23	30	30%
Dermatological	185	239	29%
Other	138	69	-50%
Total	507	610	20%

**Figure 5** Facial operations 3 months to August in 2019 and 2020.**Figure 6** Gynaecological and breast operations 3 months to August in 2019 and 2020.

Comparison between types of procedures between June and August 2019-2020

From June to August 2020, the Clinic saw an increase by 20% in the total number of procedures compared with the same period last year (Table 3). A significant increase of 80% was seen in facial surgery, specifically with a tenfold increase in otoplasty, 188% rise in fat transfer, 78% in rhinoplasty and 43% in facelift (Figure 5). Demand for breast and cosmetic gynaecological surgery increased by 67% and 62%, respectively (Figure 6). Abdominal contouring surgery witnessed a

modest increase of 24% with a 30% rise in liposuction and 10% in abdominoplasty. A more diligent method of the categorisation of procedures, put forward in 2020, resulted in the 50% decrease in the “Other” category as procedures were categorised in a more concise manner.

Comparison between virtual and in-person consultations

On 23 March 2020, the UK government announced nationwide lockdown measures in England. Stricter restrictions were imposed in April whilst, in late May, plans to gradually lift certain measures were published. At the height of the COVID-19 pandemic, between April and May, the Clinic performed 561 appointments, with 54.5% of them being virtual (Table 3). This percentage was higher with strictly surgical appointments (64.8%, n=1240) compared to its non-surgical counterpart (52.1%, n=3260), although the sample size of non-surgical appointments was more than 4 times greater.

Whilst previous studies demonstrated that the quality of doctor-patient communication did not differ significantly between VCons and face-to-face consultations [10], from June to July 2020 in-person appointments overtook VCons with around 14% of surgical and 17% of non-surgical patients assessed remotely (Figure 7). As lockdown measures continued to loosen, VCon figures dropped to an average of 10% in August 2020 (8.4% for surgical and 12.4% for non-surgical appointments).

It is worth noting that surgical appointments dropped by 76.3% in April from March, compared with 39.3% drop in non-surgical appointments, as lockdown was announced (Table 3).

Cancellation records

The Clinic recorded a total of 72 cancellations of consultations between the June and August 2020 period, of which only two were cancelled due to a positive COVID-19 test result (Figure 8). The months of June and July recorded no positive COVID-19 swab tests. Late cancellations attributed to a variety of reasons including, but not limited to, patients cancelling late and a rescheduling/postponement of a procedure for non-coronavirus-related reasons. No surgical procedure lists were cancelled due to COVID-19 swab results during this period.

DISCUSSION

Analysis of volume and types of surgeries during the June-August period in 2019 and 2020

Whilst a bottleneck effect due to lockdown in June can account for an increase in July and August, even after the more strict rejection of patients against suitability criteria post-lockdown, neither the backlog of previously scheduled procedures nor the steadily expanding patient base at the Clinic can be attributed to such an overall rise. Nationwide, surgical and clinical units have been restricted with limited availability not only of COVID-cold spaces but of surgeons

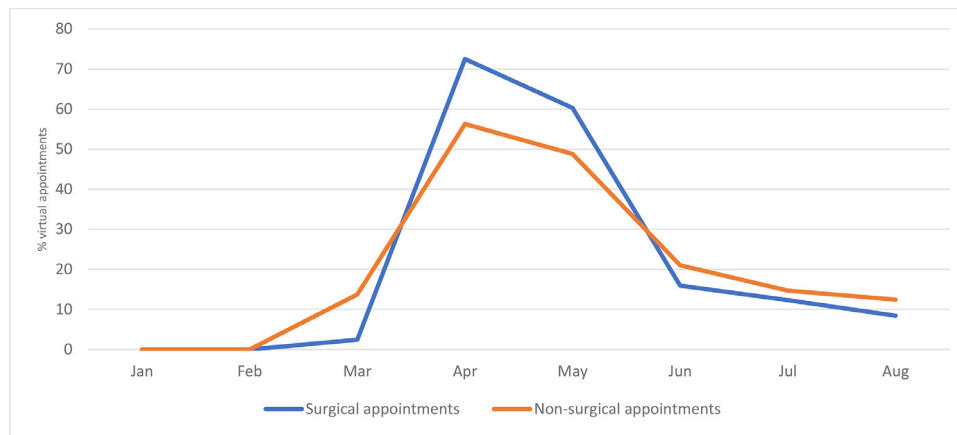


Figure 7 Comparison between surgical and non-surgical VCons in 2020.

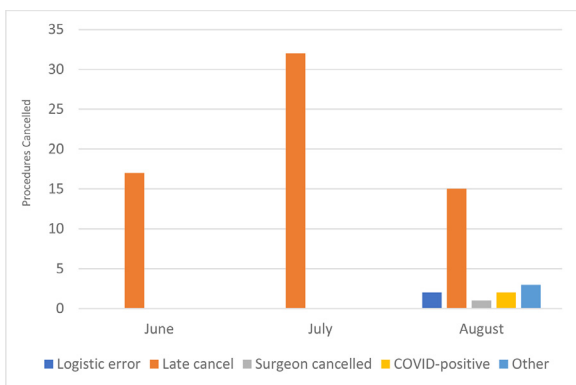


Figure 8 Cancellations between June and August 2020

themselves, many of whom were either halted in operative practice or engaged in COVID-19-related circumstances. The apprehension of patients at the Clinic returning to normalcy seems negligible by July 2020 [11], with procedures rising steeply compared with the year before. This sentiment of resuming at a similar pre-lockdown rate is echoed in other literature concerning cosmetic procedures during the pandemic [12]. Another reason as to why there was a marked increase in procedures at the Clinic could be due to the fact that other hospitals were only taking on elective cosmetic procedures on weekends. With this in mind, and staff and patients adhering strictly to government guidelines regarding infection prevention, the Clinic was able to resume procedures promptly. The drop-in procedures involving GA in June 2020 highlights the Clinic's initially stringent patient selection criteria, whereby only the lowest risk patients were selected for GA. As the government began to ease COVID-19 measures, the hospital was able to widen the scope of its patient criteria accordingly.

An explanation for the surge of facial surgery might be that patients were commonly working remotely and, therefore, had time to recover in the privacy of their own homes with no necessity to take leave from the office. The widespread use of face coverings can also have complemented a private period of recovery thus disguising surgical or non-surgical scars and bruises [13]. The work-from-home environment allowed for an ideal time for discreet recovery,

as is commonly desired with cosmetic procedures. With regards to the increase in breast augmentation surgeries during this period, it can be argued that the inability to travel abroad during the pandemic gave room for procedures with longer recovery periods to be seen to completion.

The increased idle time during lockdown may also have contributed to the rising interest in cosmetic procedures. As household expenditure of holidays and outings during lockdown decreased, this extra disposable income and an increased exposure to social media may have also played a part in the rise in cosmetic procedures compared with 2019. During lockdown, video-calling applications, such as Zoom, saw skyrocketing numbers of daily users on the platform [14]; previous studies have indicated at the correlation between the effect of social media and cosmetic procedures [15]. In an age of filters and digital alterations, this constant exposure to one's own appearance may have piqued the general public's interest regarding cosmetic procedures [16].

Analysis of virtual and in-person appointments of surgeries in June to August 2020

Whilst most people are more familiar, and therefore more preferential, towards an in-person appointment, VCon and telemedicine satisfaction is becoming increasingly more accepted and reputable [17].

Table 4

Reasons regarding why VCons during August dropped substantially may include the nature of preliminary consultations for surgery and the novelty of virtual consultations within a procedure as permanent as surgery. There is a limit to how much a surgeon can accurately identify the patient's need without being physically in person, for example, to determine the size of breast implants during a breast augmentation consultation. It is also important to practise accurate record-keeping in order to manage expectations pre-operatively; a good surgeon would be expected to take uniform "before and after" pictures for their patients. In practice, VCons may prove to be highly useful post-operatively, specifically regarding follow-up appointments with no complications or adverse wound-healing.

Table 4 Virtual versus in-person consultations.

	Surgical Consultations				Non-surgical Consultations			
	Virtual	Virtual (%)	In-person	Total	Virtual	Virtual (%)	In-person	Total
March	4	2%	165	169	45	14%	283	328
April	29	73%	11	40	112	56%	87	199
May	41	60%	27	68	124	49%	130	254
Jun	32	16%	169	201	106	21%	399	505
July	28	12%	200	228	88	15%	512	600
August	14	8%	153	167	57	12%	404	461
Total	148	17%	725	873	532	23%	1815	2347

The less invasive non-surgical appointments maintained an average of 24% appointments as virtual which could indicate that there is some scope for preliminary VCons becoming a more feasible option for clinical appointments. The dilemma regarding VCons in the non-surgical sphere is that usually consultations and procedures take place hand-in-hand. Therefore, the inclusion of VCons results in an additional step in the process of receiving treatment.

Analysis of cancellation records

The low percentage of cancelled consultations due to a positive COVID-19 swab test could be due to the detailed guidelines and various precautions that the Clinic implemented to its patients regarding self-isolation and social distancing, the individual diligence of patients or a low COVID-19 case count in the local area itself [18]. The accuracy of a nasopharyngeal swab test administered by the patient at home comes with a risk of user error. With multiple reports of false negative naso- and oropharyngeal swab tests, patients at the Clinic were temperature-monitored and instructed to adhere to government guidelines regardless of a negative swab result [19,20]. The likelihood of false negative results is greatly reduced in the re-testing of a patient which would, in turn, minimise the user error [21].

During June and July, the highest that the 7-day average case incidence of COVID-19 reached was 1.6 cases per day in the area; with that being said, by the end of August, the 7-day average had hit 6.7 cases a day [22]. It remains to be seen whether this could act as a predictor for an increasing number of cancellations due to COVID-19 in the weeks ahead.

CONCLUSION

This is the first study to prove that resuming aesthetic plastic surgery and non-surgical cosmetic procedures are possible and, indeed, safe during the pandemic and highlighting the precautions needed. The Clinic achieved this with the implementation of its 'Zero Transmission Protocol' which meant that the hospital did not interact with any COVID-19-positive patients or traced contacts. The Protocol included a stringent patient criteria and selection process, mandatory swab testing pre-operatively and temperature screening perioperatively, the utilisation of video consultations and additional theatre air changes. The findings presented in this

study account for 3 months of surgical activity immediately after the lifting of lockdown restrictions and highlight the significantly increased demand in aesthetic surgery during the lockdown. Possible explanations for the surge in facial surgery have been outlined in this paper and we propose that future research should be undertaken to verify our assumptions. Although around 17% of consultations between March and April 2020 took place virtually, our data suggests that as lockdown measures were eased, face-to-face consultations became more preferable.

We believe that our approach could be used as the basis of safely recommencing aesthetic plastic surgery, especially in the event of a second wave.

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