South East Asia Journal of Medical Sciences
Volume 4, Issue 4; 2020.
DOI: 10.5281/zenodo.4584520

COVID-19 pandemic and changes in the plastic surgery activity in a tertiary care centre in pondicherry

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The COVID-19 pandemic has changed the way plastic surgeons treat their patients. Lockdown was introduced and all elective surgeries were cancelled and only emergency procedures were done during the time of corona pandemic. Patients were followed up through telemedicine consultations using various mobile devices and web-based tools. Teaching programmes were also channelled through web-based tools in the form of webinars. Various measures were taken to uphold the norms of social distancing. Here we describe our experience regarding the way our department functioned at the time of corona pandemic.

KEYWORDS: *COVID-19, Plastic Surgery*

INTRODUCTION

The first case of COVID-19 pandemic in India was reported on January 30, 2020, originating from China. As of May 19, 2020, India, has the fourth-largest number of confirmed cases in Asia currently.[1] On March 2020, India observed a 14-hour voluntary public curfew at the instance of the prime minister Narendra Modi. Further on March 24, the Prime minister ordered a nationwide lockdown for 21 days, which was further extended and is currently in the 4th stage of lockdown. Social distancing norms were initiated, and personal protective measures such as mask and frequent hand washing, and hygiene measures were practiced. With the rising number of positive and suspected patients, various hospitals have been designated as COVID treatment centers. The field of healthcare in the time of corona has evolved and is rapidly adapting itself to the day to day newer challenges owing to the spread of the disease. Here we share our experience regarding the impact of COVID-19 in plastic surgery activities.

MATERIALS AND M ETHODS

This study was conducted in the department of Plastic surgery in a tertiary care centre in India during the period of March-May 2020 during the time of corona pandemic. Due to the nationwide lockdown, all elective and non-urgent surgeries were cancelled. Outpatient consultations were cancelled. Only emergency surgeries, including extremity trauma, vascular trauma, maxillofacial trauma, and acute burn surgeries, were performed in our department. Tele-consultation facilities were started in a phased manner to facilitate follow up of operated and previously treated patients through telemedicine follow up clinic and through teleconsultation portal.

The patients were screened through questionnaires and clinical examination in the triage section of emergency medicine services for COVID-19. High-risk individuals from hot spots and containment areas were tested for coronavirus before undergoing the procedure. Examination of the patients in the emergency room was done after following all the necessary precautions. Suspected patients with symptoms were tested and operated in specific COVID-19 operating theatre with full personal protective equipment and after following all universal precautions.

Wearing of the mask, preferably N-95 mask was made compulsory for all healthcare workers, patients, and their bystanders. Only one attendant was allowed with one patient in the inpatient department. Practices of hand hygiene were followed. To adhere to the norms, social distancing, proper spacing of beds were made in the inpatient department. Only necessary staffs required at a point of time could be in the hospital. Initially, the concept of work from home was also implemented, thereby one group of workers were assigned paperwork and documentation for few days till the other group worked and were called back once the previous team goes for work from home. Later this practice was changed in view of increasing positive cases, and all healthcare workers were deployed in different areas, including COVID duty by rotation. Working with personal protective equipment then became the norm while taking COVID duties.

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TELEMEDICINE FOLLOW UP CLINIC: Follow up of old patients were done by telemedicine clinic in the department. The set-up was made in the department of plastic surgery using a smartphone, desk-top, laptop using internet connectivity. The patients were informed telephonically or through press media that they can be called, or they can telemedicine follow up clinic has assigned telemedicine number to each patient for identification. The doctor already has the patient data and record with him. Telephonically the patients were being called, or patients were calling on the number given to them, and telephonic doctor-patient interaction was started. (Figure 1.) Those patients who have internet facilities were allowed to share their records or photographs through email, WhatsApp or video conferencing using open web sources such as Skype or zoom etc. call the healthcare workers to discuss their health problems diagnosed or treated earlier by the doctors.

Figure 1. *Telemedicine Follow up Clinic*

TELECONSULTATION PORTAL: Teleconsultation portal was also initiated for telemedicine purposes, and patients were followed up, and new patients were registered through the hospital information system. The patients who had booked their appointment in the out-patient patient were contacted over telephone and their concerns were addressed and after clarify privacy issues and after obtaining proper consent, they were asked to send photos of their lesions, postoperative site etc for further advice and treatment and to gain more visual information of the clinical condition, that needed to be evaluated. The patients chose the web-based tool, email, or messaging apps (e.g. WhatsApp, Telegram, Messenger); they were more familiar with. Based on the image, further decisions were taken. Videoconferencing facilities are also available. (Figure 2.)

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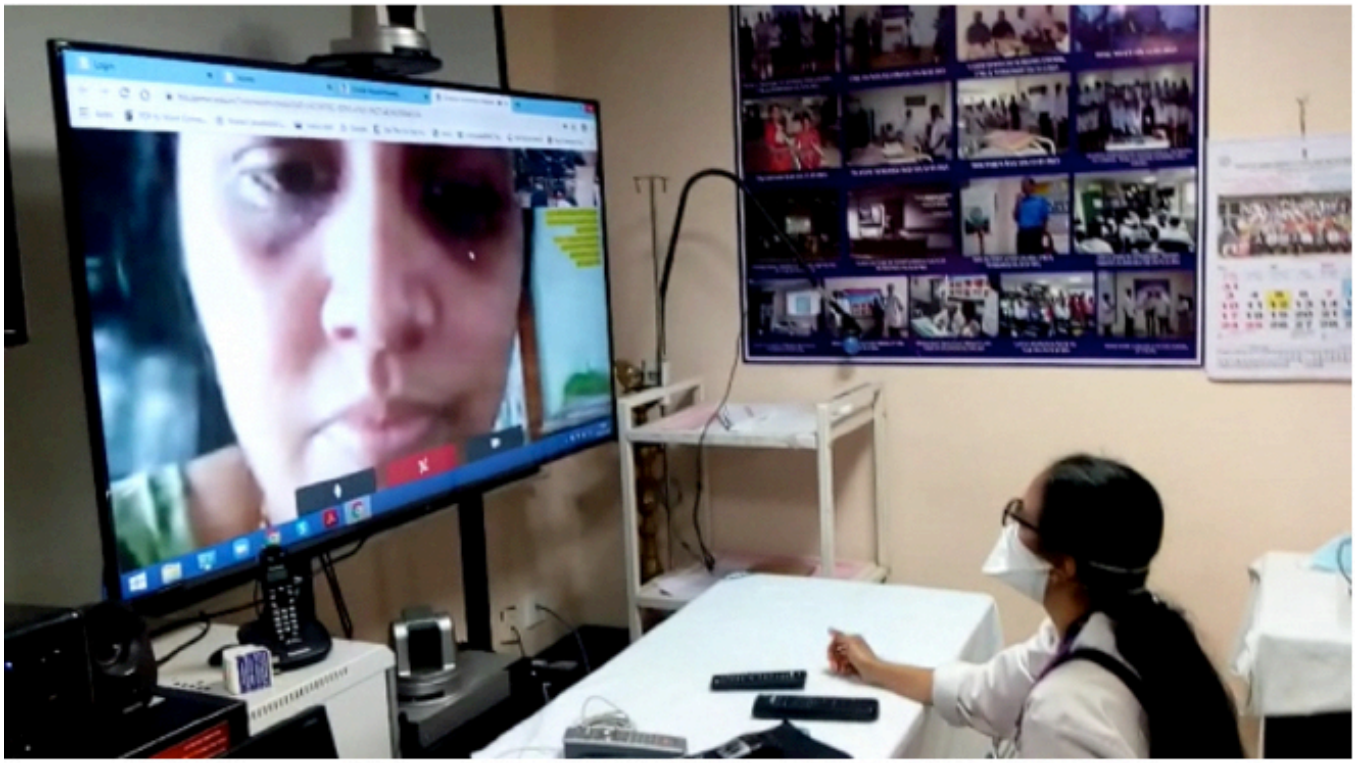

Figure 2. *Tele-consultation Portal through Hospital Information System*

COVID CONSENT: Special COVID-19 consent was devised by the department in addition to the usual consent taken during surgery during the time of Corona pandemic. (Figure 3.)

Consent for Covid-19

Consent for surgery during COVID 19 Pandemic..... I have understood about the spread and seriousness of the disease COVID 19 caused by a virus called Corona virus across the world. All elective surgeries are cancelled and patients with minor health problems are asked not to visit hospital....Only unavoidable surgeries are performed and unavoidable emergency medical illnesses are attended...In this unusual circumstance, I have been explained that I/ my .....needs urgent surgery which can't be postponed in view of life threatening consequences. So, I agree to undergo surgery/ my .....to undergo surgery. I have been explained that I/my .....may acquire COVID infection from those being treated in this hospital/ those visiting Hospital /Hospital staff. I have been explained about the precautions being followed by Hospital....In spite of these precautions, there is possibility of me / patient getting infected. I assure the hospital management that I will not hold the responsibility upon the hospital and hospital staff if I /patient acquire the infection.

Figure 3. *COVID CONSENT*

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TELEMEDICINE KIOSK: A special Telemedicine kiosk was made without any cost using the material available in the ward. The Kiosk was made using award medicine trolley in the ward which was fitted with an unused IV stand and a flexible endoscope light source cable (used to mount a Web camera). The trolley was equipped with an infra-red digital thermometer, digital BP apparatus, digital stethoscope, digital glucometer, digital weighing machine, a digital pulse oximeter. A laptop and Wi-Fi available in the department were used. It was done using a free version of video calling software ZOOM. (Figure 4.)

Figure 4. *Telemedicine KIOSK*

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The Kiosk was taken down to the patient side, emergency or ICU by the duty resident and the real-time footage was transmitted to the senior resident or faculty. The status of the patients, images, bedside findings demonstrations were carried outlive. This helped in telemonitoring of patients and tele-interactions between healthcare workers and between patient and health care workers.

PAN-TILT CAMERA: Another appliance used by our department was the Pan-Tilt camera for telemonitoring and tele-interaction. Pan-Tilt camera was installed in intensive care units, and smartphone devices were configured, and an application was downloaded. Once the device is set and camera installed, the treating doctor interacted with the patient and the ICU nurse regarding the patient problems and management, from a distance thus maintaining social distancing norms and unnecessary exposure to coronavirus. The consultant interacted with patient and ICU nurse in real-time and monitored the patient's vital parameters and condition at that point of time through telemedicine. (Figure 5). PT camera was also used during interaction during surgery. The consultant interacted with the operating surgeon in real-time and monitored the surgery and provided useful inputs at that point of time through telemedicine.

Figure 5. *Teleinteraction using PT Camera*

TELE-EDUCATION: During the pandemic period, medical education was imparted through tele-interaction and web tools including WhatsApp, Zoom and google meet etc. The trainee residents attended webinars and interacted with faculty and experts in the field and enhanced their knowledge through newer learning portals with the aid of internet services. About 60 webinars and online interactive sessions were attended by the students. Those students who were unable to travel and could not be physically present were also able to attend online classes. (Figure 6.)

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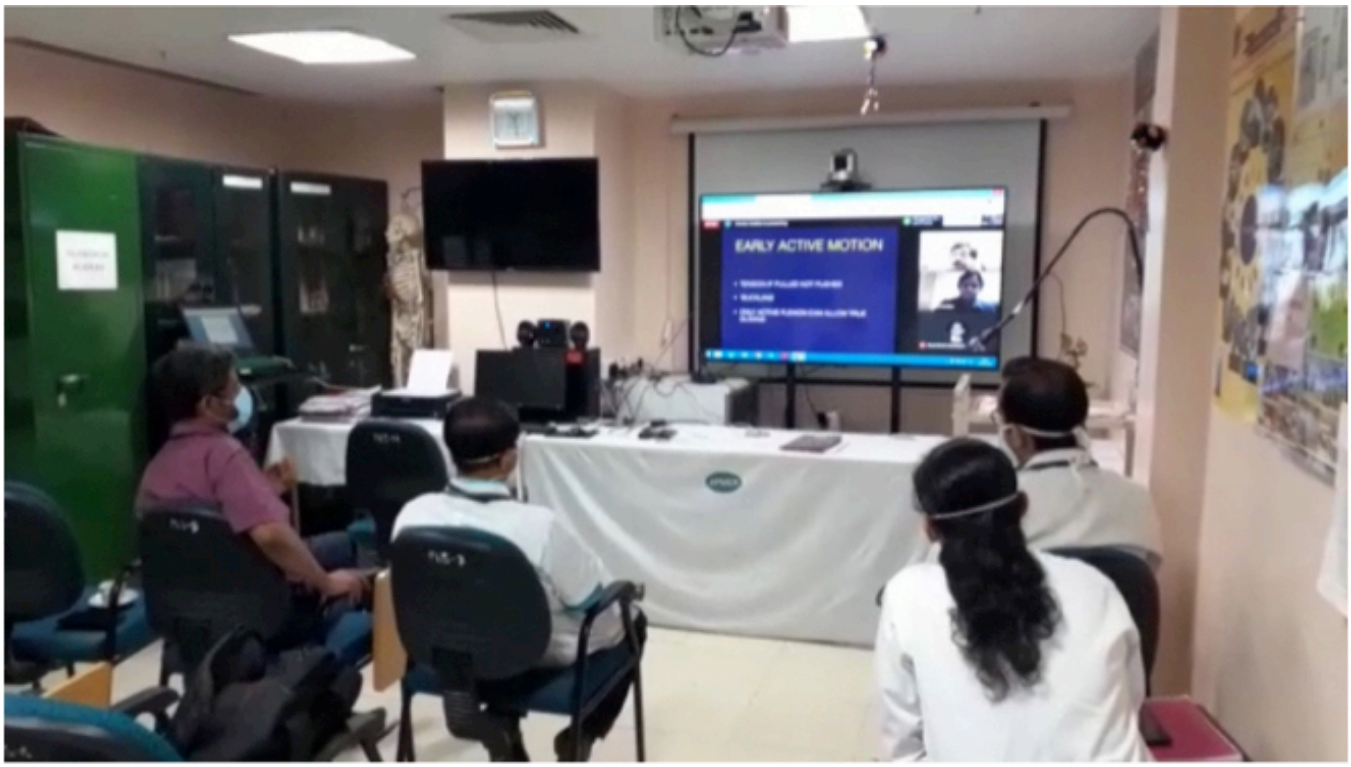

Figure 6. *Tele-education*

RESULTS

A total of 70 minor trauma procedures and 40 major procedures including regional flaps and vascular anastomosis, acute burns tangential excision and grafting and emergency debridements were done during this period in emergency minor and major operating theatres A total of 260 patients were attended to, through telemedicine follow up clinic and teleconsultation portal. Tele-education during the pandemic helped in the training of medical students and resident doctors. (Table 1.)

At the end of the study, we found that the number of procedures done during the time of pandemic were lesser than the usual number of procedures done in the department before the pandemic outbreak. Also, the patients attended through telemedicine portal were lesser than through usual outpatient department owing to the lockdown and travel restraints.

Activity	Number
Minor Procedures (Nail bed repair, local flaps, soft tissue injury)	70
Major Procedures (Vascular Trauma, Malignancy, Regional flaps, Tendon repair and neurovascular repair, Burns tangential excision grafting, Fasciotomy and amputation)	40
Teleconsultations attended	260
Webinars/Interactive sessions	60

Table 1.

DISCUSSION

Significant reduction was found in the total number of surgical procedures done during COVID-19 pandemic, compared to the usual activity. The indications for surgery also changed significantly as the reorganisation of the hospital activity was done and only patients with life-threatening and limb-threatening conditions and malignancies were operated on during the COVID-19 period.

Emergency room was also filled with fewer non-COVID-19 cases as there was limitation in the movement of population due to imposition of lockdown and also because of the fear among the general public of getting the infection inside the hospital premises. Thus fewer accident and crime cases were coming to the emergency room.

The consequences of cancelling elective surgery are difficult to foresee. A time will come when we will probably face a consistent back-log of procedures as non-urgent cases will become urgent at some point of time.[2,3]

The hospital organization has changed with COVID pandemic. As many opinion-makers say, this epidemic will force all of us to reconsider, and possibly change, many aspects of our lifestyle. This is true also for the health care system. There is consistent reduction in the number of patients to outpatient department and reorganisation of work is required. The follow up visits after minor procedures can be reduced by performing surgeries under local anesthesia and using absorbable subcutaneous, subcuticular sutures and training the healthcare workers at primary care level for simple dressings and suture removal.

In this first pandemic of the social-media age, plastic surgeons are trying to manage patients remotely, in real-time, by using online services. With the evolution of modern technology and internet web applications, the interest in telemedicine has expanded to Plastic surgery [4]. Due to the “visual nature” of their field, plastic surgeons have pioneered the professional use of social networks.[5,6] Often, the commercial nature of cosmetic surgery has played a role in the use of the internet. Sharing of images and videos helps the plastic surgery in making a decision whether to call up the patient for visit to the hospital for further evaluation, thus helping in filtering cases that can be managed otherwise without direct visit.

To avoid legal action pertaining to malpractice, it is mandatory for plastic surgeons to establish appropriate boundaries during teleconsultation with the patient, upholding the standards in the physician-patient relationship.[7,8]

These web-based tools help in better doctor-patient relationship as it not only allows patients to communicate with their treating surgeon but also helps in sharing their psychological issues owing to the illness itself and delay in treatment or follow up during the pandemic; however it is universally known that no technology can replace direct human relationship and touch.

These web based communication may not be ideal for critically ill patients. Telemedicine and the Web tools during the COVID-19 emergency have allowed a reduction in hospital access for the patients and have promoted a stricter interactive communication between hospital surgeons, general practitioners and peripheral healthcare workers, thus hopefully creating the basis for an interesting new working way for the post-COVID 19 eras that may include a regular, dedicated telemedicine/telehealth working shift for a plastic surgeon to deal remotely with non-urgent conditions.[9]

CONCLUSION

The COVID-19 pandemic has changed healthcare practices worldwide. In this study, we found that corona pandemic has caused a decrease in the number of surgical procedures done. Also, there was a decrease in the number of patients attended to on OPD basis, and more patients were attended through teleconsultation portals. We also used the internet facilities and web tools for imparting medical education. The limitations of the study include that it is a single centre study with no

statistical analysis. Further analysis is required to substantiate the results.

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