

Review Article

Plastic surgery in India in the era of COVID-19 outbreak

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Received: 27 June 2020

Revised: 06 August 2020

Accepted: 11 August 2020

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ABSTRACT

With rise in the number of cases of patients infected with the coronavirus and easing in the lockdown, there is a need to modify the practice of the plastic surgery in India that can ensure an effective patient care, minimum transmission of disease, better management of available resources and protection of health care personnel. A search was made on google search, pubmed search and cochrane library for the recommendations in the published literature using terms: plastic surgery, COVID-19, recommendations, guidelines, India. Guidelines were also searched and considered, provided by various Indian government agencies and international health organizations. There is a need to follow the set proposed guidelines and the recommendations in order to modify the clinical practice in the outpatient and preoperative settings along with the priority to be given to the emergent or traumatic conditions and reconstructive procedures in some malignant conditions. Otherwise it is judicious to postpone or delay the elective and the aesthetic procedure. With this article we can conclude that by modifying the current practices in plastic surgery and evidence based prioritization of cases we can ensure a balance between effective delivery of healthcare services and prevention of the exposure of healthcare personnel.

Keywords: COVID-19, Plastic surgery, Healthcare, Pandemic, Recommendations

INTRODUCTION

During this write up, India has already surpassed the Spain's coronavirus tally as the world's fifth biggest outbreak. With the total number of cases rising to more than 500,000 in the month of June. This novel human coronavirus which was first reported in Wuhan, China in the month of December 2019, with first case in India reported in the month of January 2020 and has been declared as pandemic by world health organization on 11 March, 2020.¹

Healthcare workers are at the frontline of the outbreak. So are plastic surgeons. In addition to the concerns related to their personal safety, the chances of making their family members and other staff working with them infected what makes them more anxious, as majority of COVID-19 cases are asymptomatic. Although various

guidelines have been laid down by various Government agencies in providing the overall healthcare services in general, no publication has stated yet the guidelines and the recommendations in regard of practice of plastic surgery in a densely populated country as India. With the lockdown easing out, one can surely expect an upsurge in the total numbers of positive cases. With this article our objective is to provide a summary of recommendations and guidelines for the practice in plastic surgery in India.

METHODS

A search was made on google search, pubmed search and cochrane library for the recommendations in the published literature using terms: plastic surgery, COVID-19, recommendations, guidelines, India. Guidelines were also searched and considered, provided by Indian Government agencies (ministry of health and family

welfare (MOHFW), centre for disease control (CDC), Indian council of medical research (ICMR), Government of India (GOI) and international health organizations like world health organization (WHO), centres for medicare and medicaid services, New York's division of military and naval affairs.

RESULTS

Outpatient and preoperative recommendations at the OPD setup

General precautions and considerations are; to see patients by appointment only, with telephonic screening of patients when patients call for an appointment. To consider teleconsultation/video consultation appointments. All patients who are suspected of COVID-19 should be notified immediately. Assess and restock all the essential items on daily basis. Prepare a checklist of all the essential items. Train staff in a proper way to appropriately don and doff protective equipment and prepare proper roster of duties in shifts for the staff. Ask staff to remain at home if they fall sick. Use of posters or templates at entrances and in waiting areas to alert patients to use a mask and about general preventive steps involving hand hygiene, sanitization and social distancing. Continuously update yourself and staff on COVID-19 local status and relevant COVID-19 prevention, treatment and protection. Aarogya setu app must be installed in the smart phones to ensure the above measures. Ensure adequate sunlight and ventilation within the clinic and disinfection and decontamination of all surfaces and equipment using soap & water and recommended EPA (environmental protection agency) cleaners for the recommended contact times. Make digital payments as far as possible. Registration of the patients; patients should be encouraged to use the online registration facility of the institute where patients can upload the needed information and can registered themselves.²⁻¹⁰

Recommendations for the Personnel management

Training of doctors, nurses and all hospital staff for adapting to current protocols have only limited required number of staff in all areas, in reserve 30% staff must be there. Minimum movement should be in operating room or dressing room. Not to mix up staff between designated fever clinic and normal out patient. Chemoprophylaxis with HCQ for designated fever clinic staff.

Recommendations at the washing areas

Frequent use of water/soap/preferably elbow tap for hand wash. All the patients who are coming to the clinic should wash their hand and feet with soap and water. 70% alcohol based hand rub or sanitizer should be present. 3 ply mask to be provided before patient enters the triage area.

Recommendations at the triage area

No attendees are to be allowed if the patient is in stable condition. Details of the patient to be collected and noted. Physical distancing should be maintained 6 feet from patient to patient and patient to staff preferably a barricade to be used. Sanitize the hands of each patient with alcohol based sanitizer. Vitals; temperature to be checked by thermo scanner, pulse rate, SPO₂, respiratory rate by pulse oxymeter, immediately after cleaning the hand with hand sanitizer. If COVID-19 infection is suspected refer the patient to designated fever clinic/ notify to authorities.

Recommendations at the waiting areas

Prefer not to make the patient wait. Mark the areas with proper distancing of 6 feet. Not more than 10 patients in a well ventilated 400 sq. ft. room at a time.

In registration area prefer appointment system with teleconsultation and just one patient at a time. No attendees are to be allowed if the patient is in stable condition. Patient enters the registration room with mask. Physical distancing should be maintained 6 feet from patient to patient and patient to staff preferably a barricade. The staff manning this area can use a three layer mask/face shield, gloves. Sanitize the hand of every patient. Details of the patient to be collected.

Recommendations at the doctor's chamber

Avoid AC room. If used, set the temperature between 25 to 30 degree and humidity at about 40-70%. No touch technique should be followed. Doctor and just one staff with N95 mask/face shield/gloves and cloth full gown if felt needed with plastic apron. 6 feet distance from patient to doctor. No attendees are to be allowed if the patient is in stable condition. Prefer not to touch the patient. Avoid other system examination. Prefer to check the patients old/other records without touching from distance. All suspected COVID-19 patients (fever/ILI/SARI/contact history) to be immediately isolated in a separate area/room, and notified. Stools should be cleaned with 1% sodium hypochlorite or lysol as soon as patient gets up.

Guidelines for examination in consultation room

Place examination table as far away from the main table and keep patient chair as far away from the physician desk as possible. Place sanitizer in the room at an accessible location.

Telemedicine consideration

According to the WHO, telemedicine is defined as the delivery of health-care services, where distance is a critical factor, by all health-care professionals using information and communications technologies for the

exchange of valid information for diagnosis, treatment and prevention of disease and injuries, research and evaluation, and the continuing education of health-care workers, with the aim of advancing the health of individuals and communities.¹¹

Medical council of India has recently approved the guidelines for the practice of Telemedicine. It enables the patient consultation via video/audio/text, thereby addressing a challenge of providing an effective healthcare service while maintaining a safe distance between patients and the plastic surgeons. During patient visit, place staff at the clinic entrance to ask patients about their symptoms. Provide symptomatic patients with facemasks if they do not have one. Segregation of patients with respiratory symptoms and identification of a containment area in the facility for any such person(s) upon entering. Create separate space in the waiting areas for symptomatic patients. Patients with suspected SARS-CoV-2 infection should be referred to COVID-19 designated hospitals as per latest guidelines (MOHFW/ICMR). Strictly regulate traffic between waiting area and consultation room. Usage of personal protective equipment (PPE) is needed. Patients with suspected SARS-CoV-2 infection need to wear a facemask, healthcare professionals need to observe standard and transmission based precautions when caring for suspected patients. Hand hygiene to be maintained and digital payment to be encouraged.

Recommendations post patient assessment

After patients leave, clean frequently touched surfaces using EPA registered disinfectants, regular cleaning of instruments after periodic use (stethoscope, tuning forks, hammers, etc.) as per the outlined disinfection guidelines. Consider teleconsultation/video consultation options for

follow up patients. Inform local/state health department of patients with symptoms suggestive of COVID-19.

Recommendations for various surgical procedures

After reviewing guidelines provided in various previous published literature, current study propose the following recommendations for various plastic surgery procedures; patients undergoing a surgical procedure should be admitted and should undergo reverse transcriptase polymerase chain reaction (RT-PCR) test for the confirmation of COVID-19.^{12,13} Positive patients should be operated in the separate designated operation theatre with designated staff preferably situated at the corner of the hospital.¹⁴ OT with negative pressure capabilities is recommended, to decrease the contamination of the neighbouring OT. A high frequency of air changes (25 per hour) rapidly reduces the viral load in the OT. OT should have its own ventilation system with an integrated high-efficiency particulate air filter (HEPA).¹⁵ Use of appropriate personal protective equipment (PPE) while doing the procedure with proper guidelines for donning and doffing is to be followed. All aesthetic procedures being elective one are to be postponed or delayed.

Recommendations regarding specific medical conditions requiring reconstruction

Priority has to be given to the urgent or emergency conditions (Table 1) and the malignant conditions.¹⁶⁻¹⁹ For emergency/traumatic conditions like injuries endangering the limbs, an open fracture with associated vascular injury needing debridement, vascular repair and wound coverage, compartment syndrome or developing necrotizing fasciitis require an emergent surgical intervention.²⁰

Table 1: Recommended TIER based management in practice of plastic surgery.¹⁶⁻¹⁹

TIERS	Definition	Examples	Action
TIER 1	Low acuity surgery/procedure.	Carpal tunnel release, fat grafting, revisional reconstructive breast surgery, cosmetic procedures.	Postpone surgery/procedure.
TIER 2	Intermediate acuity surgery/procedure; not performing surgical treatment has the potential for increasing morbidity or mortality.	Post mastectomy breast reconstruction, treatment of non-melanoma skin cancer, open reduction internal fixation of maxillo-facial fractures.	Consider postponing surgery/procedure.
TIER 3	High acuity surgery/procedure; lack of treatment could result in patient harm.	Thumb replantation, debridement of necrotising fasciitis, reconstruction of defects involving skull base, third degree burns, high risk SCC in transplant patients, fasciotomy for compartment syndrome.	Do not postpone.

In addition severe degree of burns requiring some urgent intervention needs to be given priority. In rest of the cases a plastic surgeon can judiciously opt for the other

options which include simple dressing or negative pressure wound therapy before a definitive care. Facial fractures; emergent interventions may be warranted for

panfacial fractures, injuries threatening the airway and vision, orbital floor fracture with signs of entrapment of extraocular muscles or orbital apex syndromes.²¹ Rest of the conditions can be managed with conservative approach after careful examination. Hand trauma; acute fractures of hand and wrist with lacerations of tendons, nerves or major vessels are indicated for the immediate surgical intervention in order to achieve a good functional output. Similarly in case of amputations of multiple finger, thumb, pediatric amputation, proximal amputation of hand, an urgent intervention may be warranted.²²⁻²⁴ Malignancies involving the head and neck region which requires urgent reconstruction are the buccal mucosa cancers, advance oral cavity and oropharyngeal cancers, laryngeal cancers which are considered to be an aggressive malignancies.²⁵ Free flap procedures options should be avoided and local or the regional options are to be considered. Other treatment modalities like radiotherapy and chemotherapy can also be considered.²⁰ For cutaneous malignancies which are usually considered to be a slow growing malignancy, surgical intervention can be delayed. Indication for the urgent intervention includes high risk SCC (>4 cm, deep invasion, perineural invasion, or poor differentiation), malignancies affecting the regions like skull base, lips and eyes, Merkel cell carcinoma, lastly the rapidly progressive malignancy in immune-compromised patients. Therapeutic lymph node dissections can be postponed. Non surgical options like neoadjuvant chemotherapy, cryotherapy, and radiotherapy can be considered for the advanced BCC and SCC.²⁶⁻³¹

Table 2: Aerosol generating procedures for plastic surgeons.³³⁻³⁵

Procedure
Intubation/extubation, bag-valve ventilation.
Cardiopulmonary resuscitation.
Tracheostomy.
Bone sawing procedures, amputations.
Electrocautery of blood and any body fluids.
Suctioning of blood, and any body fluids.
Head and neck cancer surgery; cancers involving oral and nasal mucosa, including larynx ear surgery, including mastoidectomy.
Maxillo-facial trauma; laceration repair involving mucosa, open reduction internal fixation via intra-oral/nasal approach, closed reduction of nasal fractures, drainage of nasal septal hematoma, arch bar application.

Reconstruction in breast cancer; delayed breast reconstruction should be considered and patient can be counselled for a breast conservative surgery if allowed.^{20,32} Burn surgery and post burn reconstructive procedure; in acute cases of severe third degree burns, immediate intervention may be warranted if required. Reconstructive procedures for post burn sequelae should be delayed and should be managed conservatively in

between. Due consideration has to be given to the high risk Aerosol generating procedures for the plastic surgeons so that firm precautions can be taken during the interventions (Table 2).³³⁻³⁵

DISCUSSION

The COVID-19 pandemic in India is part of the worldwide pandemic of coronavirus disease 2019 that has occurred due to infection caused by severe respiratory syndrome coronavirus 2 (SARS-COV-2). The extent of spread of the disease in India can be derived from the fact that India is now holding the first position in Asia in terms of the total number of confirmed cases. The mortality rate from the disease is also increasing with each passing day. As per the observation of various epidemiologists the peak of the disease spread is still in waiting in the month of June and July. One can expect a large population getting infected with this contagious disease with easing in the lockdown. Although several countries including India are being involved in developing the vaccines against it, the preventing measures are appear to be the only remedy against this pandemic that includes social distancing, hand hygiene, effective lockdown and proper sanitization. Plastic surgeons like other health care personnel are working at the frontlines and are at high risk of contracting the disease. Providing the effective health care service while maintaining a safe physical distancing has always been a challenge. Surgeons across the world are avoiding the non essential procedures removing the burden from the health care system imposed by the pandemic. Similarly the plastic surgeons in different parts of the globe have stopped elective procedures in accordance to the guidelines of their respective associations of plastic surgeons.¹⁶⁻¹⁹ After reviewing such recommendations published in various recently published literatures, we have suggested relevant recommendations and precautions in the practice of plastic surgery that ensures the effective patient care, minimum transmission of disease, better management of available resources and last but not the least the protection of care provider.

Various guidelines which have been laid down by different National and International agencies are also being taken into the consideration.²⁻¹⁰

CONCLUSION

With this article we can conclude that by modifying the current practices in plastic surgery and evidence based prioritization of cases we can ensure an effective delivery of healthcare services while reducing the exposure of healthcare personnel and making the best use of available resources in this unprecedented pandemic outbreak.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: Not required

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Cite this article as: Kumar N. Plastic surgery in India in the era of COVID-19 outbreak. *Int J Sci Rep* 2020;6(12):543-8.