

Role of Pan Tilt Camera in Telementoring During COVID-19 Crisis

Neljo Thomas¹, Ravi Kumar Chittoria², Saurabh Gupta³, Chirra Likhitha Reddy⁴, Padmalakshmi Bharathi Mohan⁵, Shijina K⁶, Imran Pathan⁷

Abstract

The aim is to study the role of Pan Tilt (PT) Camera in Telementoring during COVID-19 Crisis. At the time of pandemic when safe distancing practices and staying at home are being practiced globally, it becomes imperative that social distancing is maintained even during clinical practice and doctor-doctor interactions in hospitals. A practical method of this practice would be to take the telemedicine practices. This study was conducted during the month of March-April 2020 during the time of COVID-19 pandemic.

Keywords: Pan Tilt Camera; COVID-19, Tele-mentoring.

Introduction

In December 2019 World Health Organization declared COVID-19 (Corona Virus Disease-2019) as a global pandemic. WHO has advised social distancing to decrease the spread of disease from health care workers to patients, between health care workers, between patients, from patient to his/her attendant, from attendant to another attendant. Telemedicine plays an important role in healthcare worker-healthcare worker interaction, thus preventing the spread of disease. Telementoring is a sub-group of telemedicine and has evolved over the past few years. The technology holds promise in bridging distance and enables remote areas to be mentored in operative advances. It has a special bearing in country like India where health system is short staffed and there is lack of quality care in remote areas. In this article we describe our experience regarding use of PT Camera in Telementoring during COVID-19 Crisis.

Author's Affiliation: ^{1,3-7}Senior Resident, ²Professor, Department of Plastic Surgery, Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Pondicherry 605006, India.

Corresponding Author: Ravi Kumar Chittoria, Professor, Department of Plastic Surgery, Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Pondicherry 605006, India.

E-mail: drchittoria@yahoo.com

Materials and method

This study was done in the department of Plastic Surgery at a tertiary care center after obtaining the departmental ethical committee approval. The study took place during the COVID-19 pandemic. Informed consent was taken from the participants, including the healthcare workers and patients. The set-up was made in the department of plastic surgery using smartphone, desktop, laptop using internet connectivity (Fig. 1). The procedures were done by the junior surgeon in the procedure room (Fig. 2). The same is being captured live by the Pt camera (Fig. 3) and is shown live to the senior doctor who advise the junior doctor about the surgery and also allows for keeping social



Fig. 1: Pan Tilt Camera



Fig. 2: Procedure being done by Junior Doctor



Fig. 3: Surgery being Captured live by the PT Camera

distance during the COVID-19 epidemic (Fig. 4). Feedback Proforma (Table 1) was taken from the Junior Doctors, Consultants and Patients involved in the study.

Discussion

Surgical telementoring is a concept in telemedicine where an expert physician guides another at a different location. It is a vastly under-utilized technique and could be a new way to impart and improve surgical education. Telementoring has proved successful in developing surgeons' surgical skills when experienced mentors are not nearby and to avoid transportation-related delays of



Fig. 4: Surgery being Monitored by the Consultant

medical equipment and personnel.^{1,2} WHO defines telemedicine as "The delivery of healthcare services, where distance is a critical factor, by all health care professionals using information and communication technologies for the exchange of valid information for diagnosis, treatment and prevention of disease and injuries, research and evaluation, and for the continuing education of health care providers, all in the interests of advancing the health of individuals and their communities".³ Telemedicine is the death of distance. Telemedicine gains even more importance during a global pandemic like COVID-19. Practicing social distancing is useful prevention strategy and telementoring helps junior doctors and senior doctors to maintain the social distance in the mentoring.

Table 1: Feedback Proforma

Question	Patient	Junior Doctor	Consultant
1. Were you satisfied with the audio quality of the telementoring?			
2. Do you find it useful in practicing social distancing at the time of COVID-19 Pandemic?			
3.a) did the telementoring session cause any discomfort to you? (To be answered by patient). 3.b) where you satisfied with the telementoring done in view of the advises given, the cases seen, procedures performen?(To be answered by the doctor)			
4. Would you recommend it to be used by other patients/healthcare institutes?			
5. Were you satisfied with the video quality of telementoring?			
6. Do you find this initiative cost-effective and reducing unnecessary hospital expenses?			

A novel corona virus (COVID-19, Corona Virus Disease-2019) which emerged in Wuhan in China in late December is spreading fast around the world. Human coronaviruses (HCoVs) represent an important group of coronaviruses (CoVs) associated with respiratory diseases of varying magnitude, including common cold, pneumonia and bronchiolitis.^{4,5} As of March 12, 2020, corona virus disease 2019 (COVID-19) has been confirmed in 125048 people worldwide, carrying a mortality of approximately 3.7%, compared with a mortality rate of less than 1% from influenza.⁶ The best way to slow down transmission is by maintaining social distancing. The COVID-19 virus spreads primarily through droplets of saliva or discharge from the nose when an infected person coughs or sneezes. WHO has proposed social distancing, washing hands with soap and water and using alcohol-based hand rub. Maintaining at least 1 metre distance between oneself and anyone who is coughing or sneezing, avoiding touching eyes, nose and mouth, practicing respiratory hygiene and seeking medical care early in case of fever, cough, difficulty in breathing are the measures advised by WHO.

The telementoring was done using PT camera model CS-CV246-A-1C2WFR with PT angle of Pan: 340 degree and Tilt of 120 degree. The camera was able to record HD and Ultra HD videos with a maximum resolution of 1920×1080. The cost of the camera is about 13000 INR. PT Cameras are commonly used in applications such as surveillance,

video conferencing, live production, lecture capture and distance learning. Telementoring allows for guidance in the face of unexpected intra-operative findings and can be used in emergencies. Asynchronous (store-and-forward) relay can be used for trainee education and can help shorten the learning curve for complex procedures and hence cutting down overall healthcare costs. Few issues specific to the concept involve the need for secure transmission of the feed. The relays suffer from technical problems like latency in transmission, and a minimum bandwidth must be maintained. Ethical and legal considerations must also be looked into, and issues regarding the medical liability should be addressed before hand to clarify the responsibility of every member of the set-up (the patient, the mentor and the treating clinician).

Conclusion Tele mentoring allowed for mentoring in a successful way and allowed to maintain the social distance during the time of COVID-2019 crisis. However, this is a limited study and needs large population based studies to come into practice.

Declarations

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