



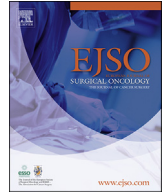
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## Correspondence

# Managing cancer during COVID pandemic – Experience of a tertiary cancer care center



## A B S T R A C T

**Keywords:**

COVID pandemic  
Institutional protocol  
Hand washing  
Social distancing  
Masking  
Cancer

**Objective:** The COVID-19 pandemic has forced healthcare providers worldwide to bring in changes in the way cancer patients are cared for. Many cancer departments globally have brought in changes to their daily practice. This article is about our experience of evolving “COVID 19 PROTOCOL” devised in our department and taking a shape to suit a health care system with limited budget.

**Materials and methods:** All the patient census & details of department of surgical oncology, Royapettah cancer hospital, from month of March 2020 to July 2020, who were subjected to COVID protocol were compared to patient census of similar duration in immediate past five months of October 2019 to February 2020. The data from out-patient department, ward in-patient census and healthcare personnel data was analyzed.

**Results:** There was a drop to 63.5% in OP census and 61.6% in IP census. There was a drop to 64.5% in number of major cases operated during initial phases of COVID pandemic. Health care workers were also infected with the COVID but cross infectivity can be checked if proper steps to adhere to an institutional protocol based on general measures of cleanliness are taken.

**Conclusion:** Adherence to an institutional protocol based on compliance to general measures of masking, hand washing and social distancing plays a major role in minimizing disease spread. The Royapettah COVID protocol, though in process of evolution, can be recommended for any health care center with limited resources.

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## Introduction

Novel corona virus is a new pathogen for human race, with a challenge to our immune system against naïve antigen. Cancer patients are not an exception but, the ground reality is that these patients have been facing a dual challenge. These patients who are on a treatment plan of either surgery, chemotherapy, radiation therapy or a combination of them, are facing a problem of delay and change in plan. Theoretically, they are much more vulnerable to contracting the infection too.

The COVID-19 pandemic has forced healthcare providers worldwide to bring in changes in the way cancer patients are cared for. The cancer departments worldwide have recognized cancer patients as high-risk cases due to their immunocompromised state. Many cancer departments globally recognizing this risk have brought in changes to their daily practice to keep the patients and the healthcare workers safe. We have brought in certain changes and in line with other centers worldwide. The guidelines published by centers in the developed countries are not always applicable to developing nations given the limited resources. This article is about our experience adhering to an evolving “COVID 19 PROTOCOL” (Appendix A) devised in our department and taking a shape to suit a health care system with limited budget. We believe

our article highlights the changes that can be made in a limited resource setting to deliver the care needed by the cancer patients while maintaining the safety of the patients and the care givers.

## Materials and methods

Government Royapettah cancer hospital is a dedicated center for cancer treatment and research, functioning in Chennai, Tamil Nadu. All the patient census & details of department of surgical oncology, from month of March 2020 to July 2020 (five months), who were subjected to COVID 19 protocol (Appendix A) were compared to patient census of similar duration in immediate past five months of October 2019 to February 2020. The data from out-patient department, ward in-patient census was analyzed. Similarly, the health data of the healthcare workers before and after introduction of the protocol was compared. The healthcare personnel in the department include four faculty doctors, twelve postgraduate doctors, eighteen supporting staff (including ward and operation theatre) making a total of 34. The salient features of the institutional Royapettah COVID protocol include the following:

### Outpatient services

Two separate teams of doctors were created in OP. One team was donned in PPE kits to examine the cases. The other team was not in direct contact with patients and were helpful in recording case details and planning investigations. They were maintained in separate rooms in OP. Other general guidelines of social distancing, sanitizing, personal protection and verbal/video reinforcing of safety measures were strictly adhered to. Any patients with suspicious symptoms were immediately referred to nearest COVID Centre for appropriate management.

### Inpatient services

The patients were admitted in pre-evaluation ward. The initial one week of admission was used for preoperative evaluation and preparation. All admitted patients were planned for CT scan of chest on the day of admission, to rule out any suspicious asymptomatic pulmonary infection. Those with no evidence of any pulmonary signs in scan were shifted to pre-evaluation ward for seven days of observation, followed by formal COVID RTPCR test before posting to operation theatre for surgery. On the other hand, those with suspicious scan findings were subjected to pulmonology opinion and formal COVID RTPCR testing if necessary. Only one attender was allowed for each patient, and the same has to stay with the patient during the complete stay and should not leave the premises of the hospital until discharge of the patient. Other general guidelines of social distancing between beds, personal protection and verbal/video reinforcing of the safety measures were followed.

### Steps in operation theatre

The number of healthcare personals were restricted to a minimum adequate – a surgeon, assistant, a scrub nurse, anesthetist and theatre assistant. The intubation and extubation procedures were done by anesthetist donned in PPE. Universal guidelines of self-protection were adhered to. The proper usage of suction apparatus was done both during laparoscopic and open procedures to ensure minimum aerosolization.

### Healthcare team wellbeing

All of the were ensured adequate supply of PPE kits and N95 masks. Daily enquiry into any suspicious symptoms was ensured for a timely and appropriate intervention.

### Education and awareness

A separate audio/video demonstration program is played in outpatient department and wards, regarding proper handwashing technique, social distancing to educate the patients and their attenders to ensure protection from infection and cross-infection.

Any patient during admission or healthcare personnel on duty, who has detected positive for COVID infection was interviewed using a standard questionnaire ([Appendix B](#)) to identify the sequence of events and potential exposures. Later they were referred to the nearest COVID Centre.

## Results

The data reveals that a total of 4096 patients turned up to OP in the last five months of pre-COVID period and 2602 patients came in the past five months of COVID period ([Fig. 1](#)). This suggests that there was almost drop to 63.5% in the OP census. Similarly, a total

of 749 patients were admitted in the last five months of pre-COVID period and 462 patients were admitted in the past five months of COVID period ([Fig. 2](#)). This suggests that there was drop to 61.6% in IP admissions. The total number of male and female patients also decreased proportionally, but the number of children who presented with ailments were almost the same (11 patients in pre-COVID period and 12 patients in COVID period).

A total of 234 major & 1738 minor cases were operated in last five months of pre-COVID period ([Fig. 3](#)). A total of 151 major & 964 minor cases were operated in past five months of COVID period ([Fig. 4](#)). This suggests that there was a drop to 64.5% in major & 55.4% in minor cases operated in COVID period. The distribution of males and females almost remained unchanged. Out of the 151 cases operated during the past five months of pandemic, the most common region operated remained head and neck ([Fig. 5](#)) followed by Gynaec, Breast, GIT, STS and others. Upon comparing the number of cases region wise, it was found that there was a proportional decrease in the numbers.

Out of the 462 patients admitted in the five-month period of COVID pandemic, six patients were detected to be RTPCR test positive. Out of those six, 5 were asymptomatic and were diagnosed during the pre-evaluation phase after seven days of observation. One patient was diagnosed in post-operative day 7 after a major head & neck surgery as the patient was having symptoms of COVID infection.

Out of all the doctors, two postgraduate doctors were diagnosed COVID positive. Out of the diagnosed doctors, one was symptomatic and the other doctor was asymptomatic at the time of diagnosis and treated at home. Three of the supporting staff (two nurses and one stretcher bearer) were diagnosed COVID positive, out of whom, both the nurses were asymptomatic while the stretcher bearer was symptomatic. This sums up that five (14.7%) of health-care personnel were diagnosed COVID positive. The department also has sixteen ground level workers (sweepers), out of whom, seven (43.7%) were diagnosed COVID positive ([Fig. 6](#)).

## Discussion

The COVID-19 pandemic has affected healthcare systems worldwide, and institutions have introduced multilevel multifaceted measures to reduce exposures and limit the mortality from the pandemic. All health care workers are also facing a dual challenge of caring for themselves and the patients at the same time and weighing the circumstances in a very delicate balance. Surgical oncologists have also seen a dramatic decrease in operative case numbers. Other services that have a higher proportion of emergent and urgent cases, such as acute care surgery and orthopedic surgery have also faced a similar situation. The economic impact of this decline will have short and long-term consequences for any surgical practice.

An updated “COVID19 guidelines” was published by Indian association of Surgical Oncology (IASO) [1] on march 25, 2020, highlighting the role of surgical oncologist and the measures to be taken while performing outpatient and inpatient evaluation and treatment of cancer patients. Salient features included prioritizing surgeries with high chance of cure and avoiding those with doubtful benefit and poor prognostic diseases. The guidelines suggested to treat all patients considering as potentially COVID infected and should be managed adhering to universal precautions. Royapettah COVID protocol identifies all cancer patients to be quasi emergency and thus treatment should be tailored to the need of the patient with simultaneous consideration of the risk benefit ratio. The IASO guidelines enumerate separate set of measures for different organs or regions while choosing the treatment plan. Our protocol also lays importance on choosing appropriate patients for intended

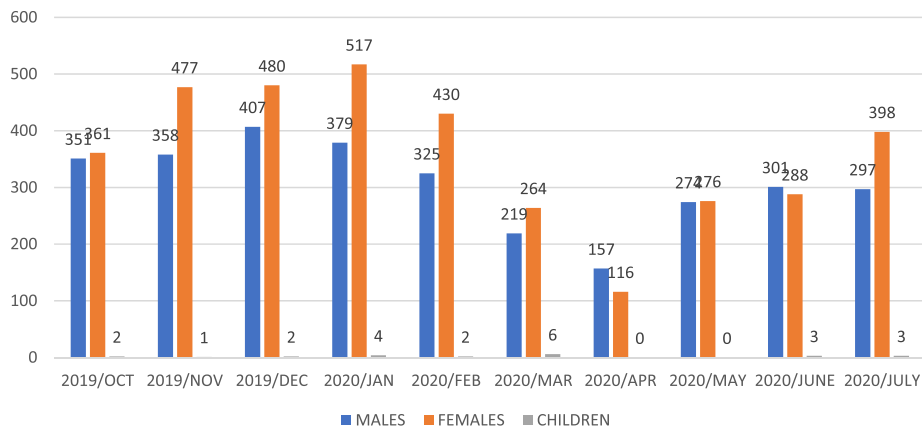


Fig. 1. Op census

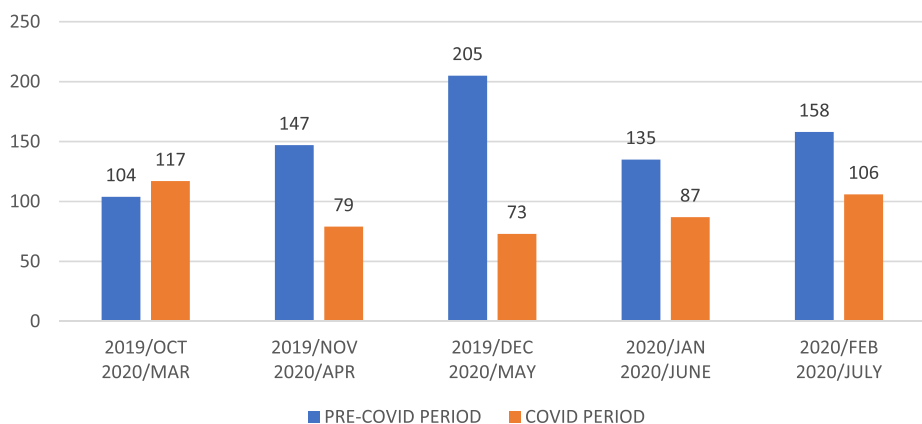


Fig. 2. Ip-census

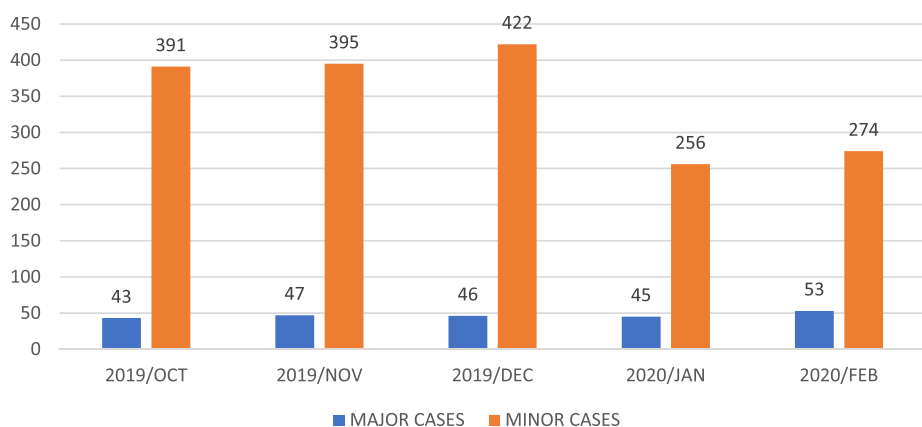


Fig. 3. Operated cases/pre covid

treatment. Drop in number was also contributed by lockdown measures and lack of public transport. This was the probable reason behind the drop of the in-patient admission census to 61.6%. All the patients who hailed from local areas were assessed for surgery on OP basis and then only admitted for the intended procedure.

Out of six patients diagnosed to have COVID infection, 5 were diagnosed in pre-evaluation period where as one was diagnosed in post-operative period. The interview and questionnaire revealed that the attenders left the premises of the hospital for fetching food

in all the cases. In few cases, the attenders have changed in turns for personal and work-related reasons. According to Maltezou et al. [2], infected healthcare personnel are important source of exposure for patients. But, our interview and questionnaire revealed that the patients who turned positive for infection, contacted the disease at dates not coinciding with the dates of disease positivity of the Doctors. So, this decreases the chances of the healthcare personnel as the primary source of infection for the patients. The patients were arranged in wards with a minimum distance of 1 m between

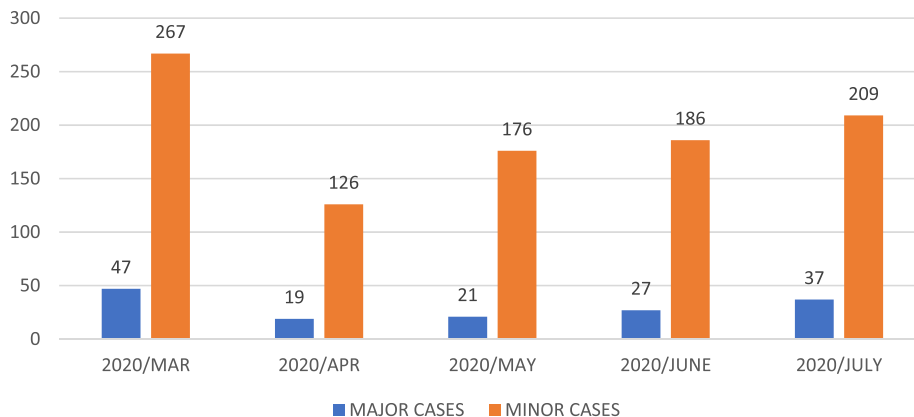


Fig. 4. Operated cases/covid period

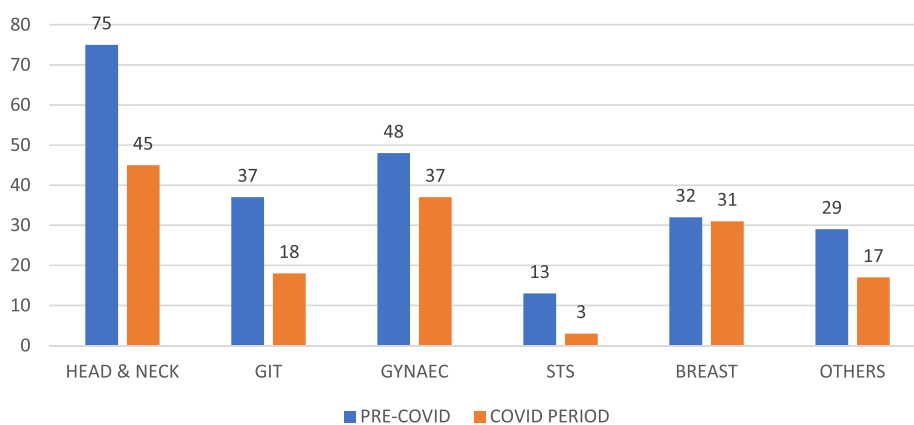


Fig. 5. Organ based census

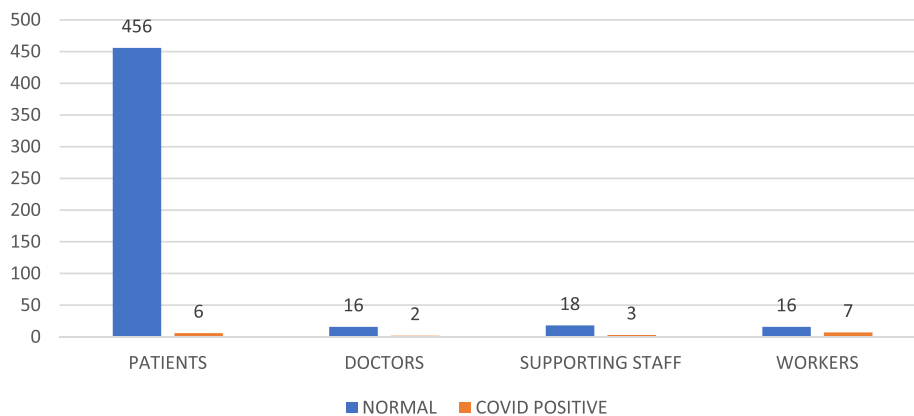


Fig. 6. Proportion of covid positivity

beds. Thus, the timing of patients turning positive for the COVID infection was not simultaneous, rather, all of them were detected positive at different dates with a minimum of a fortnight. According to Trina F et al. [3], the exposures were mainly due to noncompliance with masking, social distancing less than 6 feet during the course of admission.

All the patients were referred to nearest COVID center for appropriate management. One patient was later operated after successful COVID management. One patient tested COVID positive again after COVID treatment and was hence resent for appropriate

management again. Hirotaka et al. revealed that there is higher rate of intubation in COVID positive cancer patients aged between 66 and 80, but contrarily the mortality rate was lower in COVID positive cancer patients with age less than 50 years [4]. In our experience, we did not have any mortality in our COVID positive cancer patients yet. Zhang et al. reported a retrospective case study of 28 COVID-19-infected cancer patients with an astonishingly high mortality rate 28.6% [5]. The recovery rate in India is about 58% and mortality rate is about 3%.

Two of our postgraduate doctors, two nurses and one stretcher

bearer who tested positive for COVID infection were also treated appropriately at the nearest COVID center and rejoined their duties after recovery. The questionnaire (appendix B) of all the affected healthcare personnel were thoroughly evaluated to understand and trace the source. It suggested that none of them probably became disease positive due to attending the patient during surgery. One of the doctors contacted the disease from his COVID positive wife who in turn contacted the disease during COVID duties elsewhere. The source for the other doctor was not traceable due to simultaneous multiple and unrelated events. Both the nurses also contacted the disease during COVID duties elsewhere, but not in this department. The stretcher bearer also contacted the disease near his home. Though, cross transmission among health care workers and to patients is most common mode of acquiring infection [6], the doctors in our institute did not acquire the infection within the premises, neither did they transmit to any of their colleagues. The patients might have acquired from their asymptomatic attenders.

The other ground level workers like sweepers who tested positive for COVID (7 out of sixteen) were hired on contract basis by an NGO. All of them were paid by the NGO and thus on formal interview or questionnaire was filled as all of them were shifted for treatment instantaneously by the NGO. One among the 16 was symptomatic which led to testing of all the 16 workers and ultimately seven turned out to be COVID positive. It's interesting to note that they acquired the disease very early during the pandemic and probably during early days of the protocol. So, it seemed very unlikely that they could have been the source of infection to rest of the patients and other healthcare workers here, however, the possibility of them, being a potential source cannot be ruled out. Since, it was very early during the pandemic, cross-infection among themselves would have been resulted due to poor adherence to general measures of masking, hand washing and social distancing.

The data regarding the recovery rate and mortality rate in COVID infected doctors in India and worldwide is still to be assessed. Houlihan et al. suggested that whole genome sequencing (WGS) generated in a timely manner, and as long as sufficient reference sequences are available to allow a high resolution of the findings, the sequence analysis can provide essential information and inform subsequent infection control measures [7], but this is costly and not available at many centers of India. Therefore, we also could not use such sophisticated methods to trace the contacts for either the patients or healthcare personnel.

Our study has some limitations. Only one facility was included in a setting with adequate supplies of PPE and access to diagnostic testing. Additional studies are needed in other settings. Our assessment of exposures and symptoms relied on interviews and simple clinical examination. It is possible that some of the information provided was inaccurate particularly if personnel did not acknowledge exposures or working while ill. We did not perform molecular typing to determine the relatedness of source and case COVID genetic material. Recent studies have demonstrated the value of sequencing analysis in determining the source of acquisition of COVID [8]. Finally, it is notable that healthcare personnel or patients who were COVID positive, did not have known higher or lower-risk exposures at work or higher-risk exposures in the community. Although a standardized interview was conducted, we cannot exclude the possibility that more intensive and/or anonymous interviews might identify additional exposures. We believe that our protocol helped us to cope up with situation and maintain safety among healthcare workers and patients.

## Conclusion

COVID pandemic has brought a major change in the daily

routine of a medical professional, outlook of situation of a cancer patient and subsequent decision making. Adherence to an institutional protocol that suits the available resources and population should bring good outcomes with respect to health and quality of life. Compliance to general measures of masking, hand washing and social distancing plays a major role in minimizing disease spread. In depth interview of those who contacted the disease and analysis of the events are key for improvising any protocol. The Royapettah COVID protocol, though in process of evolution, can be recommended for any health care center with limited resources.

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## Declaration of competing interest

“NONE DECLARED”.

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## Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.ejso.2020.09.027>.

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