

**HOW I DO IT**

# Providing cancer patients with COVID-19 free surgical pathway by two test 7 days apart preoperative protocol (TTS protocol)

Dillip K. Muduly MCh | Mahesh Sultania MCh | Mohammed Imaduddin MS  |  
Madhabananda Kar MS, PhD, FACS 

Department of Surgical Oncology, All India Institute of Medical Sciences, Bhubaneswar, Odisha, India

**Correspondence**

Madhabananda Kar, MS, PhD, FACS, Department of Surgical Oncology, All India Institute of Medical Sciences, Sijua, Patrapada, Bhubaneswar, Odisha 751019, India.  
Email: [surgonco@aiimbhubaneswar.edu.in](mailto:surgonco@aiimbhubaneswar.edu.in)

Due to COVID-19 pandemic, worldwide elective cancer surgeries were cancelled or delayed due to fear of increased morbidity, mortality, and also due to risk of infection to healthcare workers. Various hospitals and collaborative groups have worked on strategies to overcome the COVID-19 disease with screening methods, clinical history, self-isolation, imaging procedures, reverse transcription-polymerase chain reaction (RT-PCR) test, and delays in surgery.<sup>1,2</sup> We, at the Department of Surgical Oncology at All India Institute of Medical Sciences, Bhubaneswar (Odisha, India) continued elective cancer surgery throughout the pandemic, with a fixed protocol that has benefited the cancer patients. With this fixed protocol, not even a single patient had turned covid positive (in our department) in the postoperative period, when other departments of the hospital witnessed a number of patients positive for COVID-19. Despite the state of Odisha, witnessing a surge of COVID-19 cases in the month August and September, we never discontinued our surgical services (although, operations were reduced in number) at any phase of the pandemic.<sup>3</sup>

Our hospital caters to both COVID and non-COVID patients with separate designated area and operation theater for COVID patients. In the period between April 1 and November 15, 2020, 146 admissions were made and 95 elective cancer surgeries were performed. Early-stage patients, patients receiving neoadjuvant therapy and palliative surgery were prioritized.<sup>3</sup> In our department, all out-patients were screened with a set of questions about respiratory symptoms, travel history and exposure. Those planned for admission underwent two RT-PCR test for COVID-19, at 1 week apart, before surgery. One test was performed before admission (admitted only if negative), second test was done 72 hrs prior to surgery. The 7 days figure was decided based on 5.1 days of the median incubation period and to identify patients who were false negative on the first RT-PCR test before admission.<sup>4</sup> One fixed patient attendant was allowed to stay in the ward after

RT-PCR testing. Distancing was maintained by admitting only on two diagonally opposite beds in a room of six beds (keeping four beds empty). All patients, patient attendants and healthcare workers used mask all the time in the OPD and the ward. Except for N95 masks, no other personal protective equipment (PPE) was used by healthcare professionals in the ward or operation theater.

Demographic profile and patient characteristics are shown in Table 1. We planned 146 patients for admission in the above period. On the first RT-PCR (before admission), eight patients were found positive for COVID 19. Four patients tested positive (two patients tested positive for the second time) after the second RT-PCR (within 72 h of planned surgery date). Those who found positive, were discharged from our department and advised treatment as per institutional COVID protocol. Four patients (out of 10 COVID-positive patients) were admitted/re-admitted after testing negative. Forty-five patients were admitted for nonsurgical management. A total of 95 patients underwent surgery after two negative RT-PCR tests, one week apart. None of the patients who underwent surgery had any COVID-related symptoms or signs in the 30 days after surgery. Two patients had postoperative pneumonia, tested negative COVID-19 RT-PCR and both recovered with conservative management. Two patients had postoperative mortality, one due to massive pulmonary embolism (within 30 days) and other had myocardial infarction and sepsis (after 30 days) due to anastomotic leak (both tested COVID-19 negative all the time).

The above fixed departmental protocol had helped us in maintaining a COVID-19 free surgical pathway for our elective cancer surgical services, based on locally available resources. The fixed protocol was helpful in maintaining strict adherence and identify patients who could develop postoperative pulmonary complications, thus reducing the morbidity and mortality of cancer patients undergoing surgery during the pandemic. It holds utmost importance as we are nearing the second wave in Asian countries. With this

**TABLE 1** Demographic profile and patient characteristics

Mean Age (Range)	51.3 years (19 - 76)
Gender	M/F—42/62
Type of Cancer—(104 patients' admitted with surgical intent)	
Gastroesophageal Cancer	12
Hepatopancreatobiliary Cancer	9
Head and Neck Cancer	18
Breast Cancer	39
Colorectal Cancer	9
Gynecological Cancer	8
Bone and Soft Tissue Cancer	2
Thoracic Malignancies	1
Urological Malignancies	1
Miscellaneous	5
First (preadmission) COVID RT-PCR test positive	8
Second (presurgery) COVID RT-PCR test positive	4
Patient attendants positive	2
Mean preoperative stay	7.29 days
Postponement of surgery due to positive test or positive imaging findings	14 (2 patient's attendant positive)
Patients undergoing surgery	95
Major postoperative complications—Grade 3-4-5	17
Post op 30-day mortality	1 (non-COVID)
Postsurgery COVID testing	8
Postsurgery COVID positive	None
Postsurgery hospital stay	7.78 days (mean)
Departmental healthcare workers who tested COVID positive involved in direct care of the patients	1
Hospital healthcare workers who tested positive during the study period (working in COVID and non-COVID area)	656 staff

protocol we have been continuing our services and upheld the enthusiasm among healthcare workers at our department. We never used extra PPE, other than the N95 mask, which was helpful in mitigating the discomfort of PPE in prolonged cancer surgeries, as well as decreasing the cost in resource-constrained setup.

#### CONFLICT OF INTERESTS

The authors declare that there are no conflict of interests.

#### DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

#### ORCID

Mohammed Imaduddin  <https://orcid.org/0000-0001-8398-8840>

Madhabananda Kar  <https://orcid.org/0000-0002-3934-640X>

#### REFERENCES

- Glasbey JC, Bhangu A, Simoes JFF, et al. Elective cancer surgery in COVID-19-free surgical pathways during the SARS-CoV-2 pandemic: an international, multicenter, comparative cohort study. *J Clin Oncol*. 2021;37(1):66-78. <https://doi.org/10.1200/JCO.20.01933>
- Deo SVS, Kumar S, Kumar N, et al. Guiding principles for cancer surgery during the COVID-19 pandemic. *Indian J Surg Oncol*. 2020; 11(suppl 1):3-10. <https://doi.org/10.1007/s13193-020-01082-x>
- Sultania M, Muduly DK, Balasubramanian V, et al. Impact of the initial phase of COVID-19 pandemic on surgical oncology services at a tertiary care center in Eastern India. *J Surg Oncol*. 2020;122(5): 839-843. <https://doi.org/10.1002/jso.26140>
- Lauer SA, Grantz KH, Bi Q, et al. The incubation period of coronavirus disease 2019 (COVID-19) from publicly reported confirmed cases: estimation and application. *Ann Intern Med*. 2020;5172(9):577-582. <https://doi.org/10.7326/M20-0504>

**How to cite this article:** Muduly DK, Sultania M, Imaduddin M, Kar M. Providing cancer patients with COVID-19 free surgical pathway by two test 7 days apart preoperative protocol (TTS protocol). *J Surg Oncol*. 2021;123:1199-1200. <https://doi.org/10.1002/jso.26401>