

Cancer surgery during the Covid-19 pandemic: Experience from a single surgical unit of a cancer hospital in Nepal

Deep Lamichhane, MS; Suraj Suwal, MS; Resham Rana, MBBS, Rishikesh Narayan Shrestha, MS

Department of Surgical Oncology, Bhaktapur Cancer Hospital, Bhaktapur, Nepal

Corresponding Author

Deep Lamichhane, MS

Email: deeplamichhane@gmail.com

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ABSTRACT

Background

The Novel Coronavirus disease (COVID-19) rapidly evolved as a pandemic in late 2019 AD. Many hospitals had to reduce cancer diagnosis and treatment for various reasons such as, re-allocation of resources, work force for COVID-19 care and to reduce infection to health care workers. Our unit made a policy to continue cancer surgery. The aim of the present study is to report peri-operative variables, outcome and adaptation we made to continue the surgical services.

Materials and methods

All consecutive patients who underwent surgery in a single unit of a cancer hospital from March 2020 to February 2021 were included in the study. Data was extracted from the prospectively maintained database of our unit.

Results

One hundred and seventy-eight surgeries for cancer were performed over the study period. The median age of patients was 53.5 years (IQR: 43-65years), 22 patients were more than 70 years of age. Majority of patients were American Society of Anaesthesiologist (ASA) status I (69.66%). The most common pathology was gastrointestinal (43%) followed by breast cancer (29%). Except initial 12 patients, rest 166 patients underwent pre-operative screening with RT-PCR test for COVID-19.

None of the patients developed symptoms of COVID-19 in post-operative period. There were 30 Clavien-Dindo grade I/II, 1 grade IIIb and 2 grade V complications. There was no unusual post-operative course or delay in discharge due COVID-19 disease.

Conclusions

By following previously known standardised protocols and adapting the new ones for COVID-19, surgical services for cancer can be conducted safely during pandemic.

Keywords: **Cancer, Surgery, COVID-19**

Introduction

The Novel Coronavirus Disease (COVID-19) is a rapidly evolving disease and numbers continue to increase with devastating consequences. World Health Organisation (WHO) declared coronavirus disease as a pandemic on 11th march 2020. First

case of Covid-19 was detected in Kathmandu on 13 Jan 2020. In Nepal, nation-wide lockdown was imposed from 24th march 2020 to 21 July 2020 and was gradually lifted. Kathmandu valley was again put under lockdown from 29 April 2021 after second wave hit the valley.

Many countries and regions have reduced cancer diagnosis and surgery in order to reallocate resources to treating COVID-19 patients and to avoid risk of infection for patients and health care staffs¹. Delays in cancer care is a major concern as there is correlation between delay in surgery and reduced overall survival for solid cancers². The researchers concluded that a surgical delay of more than 40 days is associated with poor outcome in patients with colon cancer³. Another nationwide analysis concluded longer intervals between diagnosis and treatment are associated with poor prognosis among patients with cervical cancer⁴. Our unit made a policy of offering surgery for cancer with both curative and palliative intent and defer surgery for benign disease, which is being continued till date.

There is a large number of articles related to COVID-19 disease and surgery; however, most of them are guidelines, recommendations, opinions, reviews and recommendations. There is a little publication on experience of surgery for cancer during COVID-19 pandemic from this region. The aim of the present study is to report on the perioperative variables, outcome of patients operated during the first wave of pandemic and the adaptation we made to continue the surgical services.

Materials and methods

General methodology

A prospective database of patients who underwent surgery in a single unit of Bhaktapur Cancer Hospital from March 2020 to February 2021 was analysed.

Patient selection

All consecutive patients who underwent surgery were enrolled for the study. Asymptomatic patients were not tested preoperatively for COVID 19 unless there was history of contact or travel in the initial days of the pandemic. All patients entering into the operation room were tested for COVID-19 after 14 May 2020, as there was increasing concern for community spread and the facility for PCR testing also became easily available. The test was performed on nasopharyngeal and oropharyngeal swabs by real-time reverse transcriptase polymerase chain reaction (RT-PCR) method at different laboratory inside the valley. Our hospital does not have a

facility of RT-PCR. In majority of patients, PCR test was done within 3 to 4 days of proposed surgery, patients were admitted to the hospital only after negative results.

Irrespective of pre-operative testing, all patients were considered as COVID-19 positive and all staffs had to adhere to full precautions during care of patients in wards and operation theatre.

All patients were asked for symptoms of COVID-19 in a routine follow up in outpatients' clinic, until they were referred to medical or radiation oncology department for adjuvant, which usually range from 3 to 4 weeks in our hospital.

The demographic, peri-operative and post-operative recovery data were obtained from a prospective database. Continuous variables are described as median unless otherwise stated.

Results

During the study period, 178 surgeries were performed of which 174 cases were elective whereas 4 were emergency surgeries with gastrointestinal pathology. The median age of patients was 53.5 years (IQR: 43-65 years) and 22 patients were more than 70 years whereas 156 patients were less than 70 years. There were 118 female and 64 male patients. Majority of patients were American Society of Anaesthesiologist (ASA) status I: 124 followed by ASA II: 47, ASA III: 5 and ASA IV: 2.

Gastrointestinal cancer surgery constitutes 43% (n=77) followed by breast cancer surgery 29% (n=53), others 17% (n=31) and urology 9% (n=17). The types of surgeries performed are shown in table 1.

None of the patients undergoing surgery had clinical suspicion for COVID-19, initial 12 patients underwent surgery without RT-PCR and rest 166 patients had RT-PCR done before surgery. None of the patients developed symptoms related to COVID-19; hence, none underwent testing in post-operative period.

There were 30 Clavien-Dindo grade I/II, 1 grade IIIb and 2 grade V complications. There was no unusual post-operative course related to COVID-19 disease.

Table 1: Name and number of surgical procedures.

1	Breast Oncology	53
	Breast Conservation Surgery with Axillary dissection	17
	Modified Radical Mastectomy (MRM)	30
	Simple Mastectomy	1
	MRM with LD Flap	1
	Laparoscopic bilateral salphingo-oophorectomy	2
	Wide local excision (WLE) for breast lump	2
2	Gastrointestinal-hepatopancreaticobiliary surgery	77
	Ivor Lewis esophagectomy	1
	Radical gastrectomy subtotal/total	11
	D2 gastrectomy with right hemicolectomy	1
	Gastrojejunostomy	5
	Radical Cholecystectomy	2
	Pancreaticoduodenectomy	3
	Biliary and enteric bypass	1
	Colectomy right and left	11
	Low anterior resection with loop ileostomy	7
	Abdominal perineal excision (APE)	9
	APE with inguinal lymph node dissection	2
	Stoma reversal	6
	Laparoscopic diversion stoma	8
	Others	10
3	Urology	17
	Adrenalectomy	1
	Radical nephrectomy & para-aortic lymph node dissection	1
	Total penectomy	1
	Transurethral resection of bladder tumour	9
	Radical cystectomy with ileal conduit	1
	Bilateral ureteric implantation	1
	Bilateral orchidectomy	3

4	Others	31
	Primary cytoreductive surgery	2
	Radical Oophorectomy	1
	Inguinal & pelvic lymph node dissection	3
	Inguinal lymph node dissection	12
	Axillary dissection (for fore-arm sarcoma)	1
	WLE and rotation flap for scalp lesion	2
	Feeding tube (gastrostomy and jejunostomy)	7
	WLE for sarcoma	3
Total number of cancer surgery		(n=178)

Discussion

Bhaktapur Cancer Hospital is the only government owned cancer hospital in Kathmandu valley. Although there was overall de-escalation in the number of patient visiting hospital, our decision to continue the cancer surgery was based on few factors; first our hospital was spared from admitting covid positive patients; second, the cancer progression and mortality will far exceed the mortality due to infection with COVID-19; third, other general hospitals and medical colleges in and outside valley were converted to Covid hospitals so we were getting a greater number of patients who required surgery with curative intent; fourth, there was no clue to the end of pandemic; fifth, many pre-booked patients for surgery were from outside Kathmandu.

Any admitted patients who tested positive for COVID-19 was transferred to other hospital with COVID treatment facility. At the timing of writing this article, second wave has hit the valley and lockdown was imposed again on 29 April 2021. Our hospital has to open a designated ward for covid patients during second wave as the referral hospital were no longer able to receive new patients. Operation for benign disease were suspended until the date of writing this article excluding few patients who have insurance in our hospital.

A study from The Netherlands reported that diagnosis of cancer has dramatically decreased during the pandemic, indicating that patients cannot reach the hospitals and will be diagnosed at later stages⁵. Another cost-effectiveness analysis from UK reported that as a result of the

pandemic, there might be a major disruption in the management of cancer and a delay of 3-6 months in the surgical management of all stages of cancer might cause 4755/10760 attributable deaths with loss of 92214/208275 lives per year⁶. A study by CovidSurg Collaborative estimated that 2324069 cancer surgery would be postponed globally⁷. This shows postponement of cancer surgery will have negative impact on survival of patients as well as have adverse impact on economics. All these studies support our policy of not deferring surgery for cancer.

The initial response to the pandemic across the globe was to delay almost all surgeries. Some cancers, like breast carcinoma were given neoadjuvant treatment in the form of chemotherapy and hormonal therapy. However, as time passed, those patients started to come back to surgeon after completion of neoadjuvant treatment that raised a question how long can we post-pond the inevitable need of surgery. Later in the course of pandemic, we realised that delivering of chemotherapy also needs frequent hospital visits and occasionally requires admission for management of complications, which also increases the risk of getting infection. Being a cancer centre, our decision to follow cancer treatment protocol as far as possible and continued offering surgery from the beginning of pandemic and lockdown seems reasonable and justifiable. The initial fear of unknowns at the beginning of pandemic is slowly decreasing and caregivers are learning to live with a new normal.

There were two Clavien-Dindo (CD) grade V complications, first was a 9-year-old boy having bowel obstruction with retroperitoneal mass and second was a 42 years woman with perforated gastric carcinoma. Both patients were in septic shock at the time of diagnosis and underwent emergency surgery, died of multiorgan failure. There was one CD grade IIIb complication, colostomy refashioning was done for stoma end necrosis. Thirty patients had CD grade I & II complications. There were no complications related to COVID-19 disease. A woman discharged on 12th post-operative day developed symptoms of COVID-19 after 3 weeks of total gastrectomy and recovered on home isolation uneventfully. Our low rates of complications also confirms that there were no deviations from earlier benchmarks established by the various surgical specialities in the pre-COVID-19 era. There was no delay in

discharge due to COVID-19 disease and patients were referred timely for adjuvant as in pre-COVID period.

Our hospital does not have a laminar flow operating room; air is handled by split air conditioning unit. None of the hospital staff received prophylactic medications for COVID-19. First dose of vaccine (Covishield, Oxford-AstraZeneca) was given to staffs on 28 Jan 2021 and second dose on 21 April 2021. There are four members in a unit, two consultants, one registrar and one medical officer. One consultant and medical officer developed symptoms and tested positive at different occasions during the first wave, there were no adverse events in both of them. Nursing staffs and an anaesthetist also tested positive around the same time.

Only four patients tested positive in pre-operative test during the first wave and all were asymptomatic. Asymptomatic COVID 19 patients were re-tested after 14th day and taken for surgery on next available slot. In contrast to first wave, the positivity rate on pre-operative RT-PCR was high during second wave and eighteen patients tested positive in first two months of second wave. We have included only RT-PCR testing as a screening test for COVID-19 till date and have not included computed tomography scan (CT). A study conducted on the role of CT chest as a screening for COVID-19 in asymptomatic patients concluded that addition of CT in addition to RT-PCR is unhelpful and can produce false positives, introducing unnecessary delay in surgery⁸ we evaluated the utility of CT of the chest in the exclusion of asymptomatic COVID-19 infection prior to elective cancer surgery on self-isolating patients during the pandemic. Methods: All surgical referrals without symptoms of COVID-19 infection in April and May 2020 were included. Patient records were retrospectively reviewed. Screening included CT chest for major thoracic and abdominal surgery. CTs were reported according to British Society of Thoracic Imaging guidelines and correlated with reverse transcriptase polymerase chain reaction (RT-PCR).

The route of surgery is another concern during the COVID-19 pandemic, mainly dissemination of virus during minimally invasive procedures as a result of aerosolization and presence of virus in blood and body fluids⁹. There was no major issue for us in terms of laparoscopic surgery as we have stopped

doing advanced laparoscopy before pandemic due to machine dysfunction. Majority of surgeries were done by open method in our series except procedures like staging, diagnostic laparoscopy, diversion stoma and few others.

Our results possibly represent the only series of cancer surgery in Nepal, during the pandemic. Our results help to resolve the confusion of continuing cancer surgeries during pandemic with a profile similar to that of Nepal. The message that regardless of COVID-19, cancer centres and specialists are available to care for their patients, should be clearly conveyed as we move ahead with the pandemic and not sure when it ends¹⁰.

Conclusions

Surgical services for cancer can be continued with obeying all previous surgical protocols and adaptation of new preventive guidelines to tackle COVID-19 disease, thereby preventing disease progression, treatment delays and minimising psychosocial distress, cumulating into optimal outcome.

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