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SURGICAL CANCER CARE IN THE COVID-19 ERA: FRONT LINE VIEWS FROM NEPAL

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INTRODUCTION

The emergence and rapid spread of the novel coronavirus (SARS-CoV-2) also known as COVID-19 has taken the entire world by storm since December 2019. COVID-19 disease had its origin in Wuhan, China, and has evolved into a global pandemic[1].[1] The coronavirus outbreak is impacting several aspects of the management of patients with cancer. Protection of patients with cancer and health caregivers remains a high priority. A recent study has shown that cancer patients have a higher risk of manifestations of COVID-19 disease with higher mortality when compared with individuals without cancer.[2] An impact on the overall mortality of patients with cancer may result from acute COVID-19 infection as well as from effects related to the breakdown of healthcare and the economic crisis. The operational overload of health systems in the affected countries makes the situation even more worrisome especially in areas of scarce resources. We are sharing our experience, as frontline surgeons in the COVID-19 pandemic, in the surgical care of cancer patients.

Current scenario of COVID-19 in Nepal

The first case in Nepal was confirmed on 23 January 2020. As of 31st August 2021, a total of 7, 63, 026 COVID-19 cases were confirmed in the country through polymerase chain reaction (RTPCR) with 10,746 (1.5%) total mortality with 93.9%of recovery rate.[3,4] All seven provinces and 77 districts have reported one or more cases since the beginning of the COVID-19 epidemic in Nepal. Nepal has entered the "storm" phase of the COVID-19 pandemic. To control this outbreak, Nepal also followed the lockdown starting from 24th March 2020 when there were only two confirmed positive patients.[5] This lockdown phase continued for approximately 2.5 months. However, now cases are increasing rapidly. Hospital services are affected by the initial closure of OPD and routine operation theater. Our institute is a tertiary health care center with a patient load of around 1000/day. With the launching of a vaccine against COVID-19 in December 2020, the incidence and severity of COVID-19 have been decreasing and are under the control.

Nepal also launched its vaccination campaign on January 27, 2021.

Institutional experience

During the pandemic time till the end of June 2021 starting from 1st April, over 15 months' duration, 4690 patients were admitted to the Surgery ward which constituted about 10.53% of total admission in BPKIHS including both positive and negative COVID-19 patients. During this phase, 4153 patients including major and minor surgeries with both benign (emergency and semi-emergency) and malignant disease were operated on.

A total of 300 patients with malignancy underwent surgery out of which 266 patients underwent elective surgery and 34 patients underwent emergency surgeries. (Table 1)

We also operated on many COVID-19 positive patients with the majority of patients having uneventful recovery. There was mortality in one patient of subtotal gastrectomy for carcinoma stomach who had nosocomial COVID-19 infection in the postoperative period and developed severe COVID-19 associated pneumonia.

DISCUSSION

Cases of covid-19 are increasing on daily basis at an exponential rate and have now entered the "storm" stage. As different aspects of the country have been hit by the pandemic, the medical field is not an exception to this which forced many surgeons to cancel or postpone the case. Keeping in mind the safety of the health personnel and patients we can give the best possible care to the cancer patients without violating the oncological principles. Patients who undergo elective surgeries that develop severe infection by COVID-19 in the postoperative period may have more surgical complications and it also remains true in our institute.[6,7,8] We continued the surgical care of patients with malignant disease in this COVID-19 pandemic. The

most common elective procedure performed was Modified Radical mastectomy followed by colorectal and hepatobiliary surgeries. Despite the ongoing dilemma for malignant patients, the surgical service was ongoing by taking into consideration of COVID-19 pandemic, its appropriate measures, and protocols to minimize health care transmission and ensure patient safety. The outcome of cancerous patients was also satisfactory.

The hospital preparedness has to be robust as when chaos comes, a large number of patients will need a hospital and intensive care at the same time, with a risk of resource depletion. One must prepare for the crisis, as the "wave" of infected patients is faster than the institutions' organizational capacity and three main hospital resources are scarce, in addition to personal protective equipment:

a. Low availability of intensive care unit (ICU) beds for surgery. There is a tendency to prioritize patients with expected shorter hospitalization and ICU stay times.
b. Low availability of operating rooms, which can be used as intensive care beds.
c. Deficiency in the number of anesthesiologists, since they can be designated as intensivists.

Surgery, radiotherapy, or medical oncology therapy for COVID-19-infected patients with cancer should be postponed until the complete disappearance of clinical, radiological signs, and negative results of COVID-19 PCR. We adopted a similar policy in one of our patients planned for pancreaticoduodenectomy. After recovery from COVID-19, his surgery and recovery were uneventful without evidence of tumor progression. Following recovery from COVID-19 infection, therapeutic management of cancer should resume as soon as possible to limit the risk of cancer-related death. Most COVID-19 infections seem to be controlled within 2 weeks, although some patients may remain PCR positive for 4 weeks, suggesting that postponing anticancer therapy for at least 2–4 weeks may be required.

Table 1

Specialty	Surgery	Elective	Emergency
Gastrointestinal and hepatobiliary surgeries	Hemicolectomy	15	6
	Abdominoperineal resection for lower third rectal carcinoma	15	1
	Low anterior resection for upper and mid rectal carcinoma	4	
	Pancreaticoduodenectomy	14	1
	Subtotal gastrectomy for carcinoma stomach	10	5
	Total gastrectomy for carcinoma stomach	1	
	Explorative laparotomy with gastrojejunostomy with feeding jejunostomy for gastric outlet obstruction secondary to carcinoma stomach with metastasis	2	1
	Staging laparotomy with retrograde cholecystectomy with transgastric feeding jejunostomy for pyloric tumor		1
	Explorative laparotomy with gastrojejunostomy with choledochojejunostomy for gastric outlet obstruction secondary to carcinoma duodenum		1
	Truncal vagotomy with gastrojejunostomy for gastric outlet obstruction secondary to septic stricture	1	
	Cholecystectomy with excision with hepaticojejunostomy for choledochal cyst	5	
	Cystogastrostomy with cholecystectomy for pancreatic pseudocyst	3	
	Radical sigmoidectomy	3	2
	Extended left hemicolectomy	2	2
	Extended right hemicolectomy	2	2
	Radical jejunal resection for jejunal carcinoma	1	
	Extended cholecystectomy for carcinoma gallbladder	13	
	Total proctocolectomy with ileoanal pouch anastomosis with ileostomy for colorectal carcinoma	1	1
	Total proctocolectomy with ileoanal pouch anastomosis with ileostomy for ulcerative colitis	1	
	Abdominoperineal resection with total proctocolectomy for colorectal carcinoma	1	
	Palliative hepaticojejunostomy	1	
	Caecostomy for caecal perforation due to colonic		1

	obstruction in locally advanced carcinoma gall bladder		
	Diversion sigmoid colostomy (locally advanced carcinoma rectum with intestinal obstruction)		3
	Diagnostic laparoscopic and radical excision for post-cholecystectomy port site metastasis	1	
	En-block excision with left hemicolectomy with Hartman's procedure for left colonic gastrointestinal stromal tumor with multiple retroperitoneal lymph nodes	1	
	Extrahepatic bile duct excision for cystic duct carcinoma	1	
	Ileocecal resection with ileo-ascending colon anastomosis for mucinous cystadenoma of appendix	1	
	Exploratory laparotomy with decompression with biopsy for post-Whipple for chronic pancreatitis with metastatic abdominal compartment with gross ascites	1	
	Roux-en-Y lateral side to side choledochojejunostomy for incidental carcinoma gallbladder with external biliary fistula	1	
	Open cholecystectomy with retro pancreatic lymph node biopsy for metastasis gallbladder cancer	1	
	En-block excision with portal vein resection and anastomosis for pancreatic body and tail mass (solid pseudopapillary epithelial neoplasm)	1	
	Exploratory laparotomy with retrograde cholecystectomy and biopsy for metastatic hilar cholangiocarcinoma	1	
	Extended right hepatectomy and liver packing for right liver tumor bleed		1
	Exploratory laparotomy with hepatoduodenal and liver metastasis biopsy for neuroendocrine tumor of pancreas with liver metastasis	1	
	Cholecystectomy with left hepatectomy for gallbladder carcinoma with liver metastasis	1	
	Heller's myotomy with Dor fundoplication for Achalasia cardia	2	
	Wedge resection of gastric gastrointestinal stromal tumor	1	
	Wedge resection of duodenal gastrointestinal stromal tumor	1	
	Liver metastasis biopsy and closure for pancreatic body and tail tumor with liver metastasis	1	
	Open cholecystectomy with cyst excision for biliary cystadenoma	1	
	Feeding jejunostomy for carcinoma esophagus		3
	Feeding jejunostomy for carcinoma larynx with absolute dysphagia	1	
Urology	Transurethral resection of urinary bladder tumor	36	
	Radical nephrectomy	7	
	Percutaneous nephrostomy placement for cancer cases	3	
	Orchidectomy for testicular mass	3	1
	Prostatic biopsy	2	
	Partial penectomy for carcinoma tip of penis	4	
	Total penectomy for carcinoma penis	1	
	Radical Nephroureterectomy for upper urethral carcinoma	2	
	DJ stenting for left sided colon carcinoma with urethral involvement	1	

	Cystoscopy, open nephroureterectomy, hysterectomy with bilateral salphingoophrectomy for left vesico-ureteric junction mass	1	
	Laparoscopic right adrenalectomy for right functional pheochromocytoma	1	
	Cystoscopy guided PUC injection for carcinoma prostate	1	
	Right partial nephrectomy for right renal mass	3	
	Right laparoscopic nephrectomy for right renal mass	1	
	Cystoscopy and biopsy for urethral mass	1	
	Right adrenalectomy for right adrenal mass	2	
	Left radical nephrectomy for left adrenal mass	2	
	Bilateral orchidectomy for metastatic carcinoma prostate	3	
General surgeries	Modified Radical Mastectomy for carcinoma breast	36	
	Simple mastectomy for phylloid tumor	5	
	Toilet mastectomy for metastatic carcinoma breast		1
	Wide local excision for peripheral nerve sheath tumor	5	
	Wide local excision for acral melanoma	3	
	Wide local excision for liposarcoma	4	
	Excisional biopsy of retroperitoneal tumor	2	
	Wide local excision for squamous cell carcinoma of right upper limb	1	
	Incision and drainage with biopsy of infected malignant mesenchymal tumor		1
	Wide local excision for Marjolin ulcer of left leg with split skin grafting	1	
	Wide local excision for basal carcinoma of face	1	
Neurosurgery	Craniotomy & excision of frontal lobe meningioma	4	
	Wide local excision of Squamous cell carcinoma of scalp	1	
	Craniotomy and excision of olfactory groove meningioma	1	
	Surgical repair of meningomyocele	1	
	Surgery for Arnold Chiari malformation type1 with syringomyelia	1	
	Spinal cord ependymoma excision	1	
	Craniotomy and excision of left temporo-parietal low grade oligodendroma	1	
	Craniotomy and excision of recurrent right parasagittal meningioma	1	
Cardiovascular surgery	Excision of mediastinal tumor	3	
	Right lobectomy for adenocarcinoma of right lung	1	
	Thymectomy for Myasthenia gravis	1	
	Thymectomy for anterior mediastinal mass (Thymoma)	1	
	Left thorectomy with lower lobectomy for left metastasis thorax with hepatocellular carcinoma	1	
	Left lobectomy for left upper lobe carcinoma lung	1	
	Right upper lobectomy for right upper lobe carcinoma lung	1	
Pediatric surgery	Rectal biopsy for Hirsprung disease	3	
	Intraperitoneal teratoma excision	1	

CONCLUSIONS

Patients with cancer are more susceptible to infection than individuals without cancer because of their systemic immunosuppressive state. The COVID-19 outbreak is yielding unprecedented consequences on cancer care that may have direct and remote consequences on patients and caregivers. Listing ongoing issues may allow the oncology community to identify solutions to minimize the impact of the pandemic on current and future management of patients with cancer. The battle is far

from over, and governments, societies, and healthcare providers have to work together to overcome the effects of this pandemic.

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