

Available online at www.sciencerepository.org**Science Repository****Research Article****The COVID-19 Pandemic Impact on Cancer in Latin America****Cesar Restrepo****General Surgeon and Oncologist, Complejo Hospitalario Metropolitano, Panama City, Panama***ARTICLE INFO***Article history:*

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*Keywords:**Pandemic**COVID-19**cancer**Latin America***ABSTRACT**

COVID-19 pandemic has introduced a shift in accepted and routine handling of elective cases in hospital administration. This shift introduced a delay in the treatment of all non-COVID-19 cases, including cancer patients. Usually, non-complicated cases of cancer do not require immediate surgery, but procrastination is not an option. The pandemic is taking a longer time to be defeated as previously thought, and medical infrastructure is overwhelmed in many countries. Therefore, procrastination for non-COVID-19 cases became a reality. To this, we must add that there are specific cancer problems that require urgent resolution. The problem is having a heavy toll on almost all the involved continents. South and Central America are no exception. Unfortunately, South and Central America do not have all the resources available to the developed world, and this makes the issue of timely cancer surgery even more troublesome. A distressed hospital system needs a systematic approach to deliver cancer care in time. This paper has the intention to show how a Central American country such as Panama dealt and is dealing with cancer surgery in the middle of the severe limitations imposed by pandemics.

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Introduction

As we write, there are recent publications that convey, hopes for a vaccine and policies on how to return to the new normal in all aspects of life [1, 2]. Cancer treatments must be based on multidisciplinary planning, ideally with Tumor Boards committees. It is the intention of this manuscript to describe the manner of facing some types of cancers in the Latin American pandemic context, particularly the surgical approach. We all agree on the need to make treatment decisions in a “case by case and stratified way”.

Materials and Methods

We employed a stratification method with the objective of systemizing surgical priority in the middle of the coronavirus pandemic.

Terminology

Stratification: In relation to stratification, we will use a terminology we use in Panama.

CIDURG= (Urgent Cancer Surgery).

P = PRIORITY, 3-6 months. The priority, for the surgical treatment of cancer patients, in multimodal and neoadjuvant therapy, and therefore, we will break down both the type of cancer and the role of surgery.

NOUR = not urgent. Due to the multiple factors during the pandemic, we will proceed "on a scheduled basis" to perform the surgery within 6-12 months. It is very important to emphasize that a greater use of the Tumor Boards Committees should be made. The tumor board discussion allows the best “case by case” decisions.

Breast Cancer

Only Lung cancer kills more women than breast cancer. The chance that a woman will die from breast cancer is about 1 in 38 about 2.6% [3]. Stratification of Patients with Breast Cancer during COVID-19. CIDURG. Urgent Breast Cancer Surgery. Priority of Breast Cancer Surgery, the schedule may go from days to a maximum of 3-6 months. NOUR = not urgent. It can be deferred for up to 6-12 months. Priority. Starting with an incipient disease, and carcinoma *in situ*. Specifically. Defer surgery. (for at least 3 months in cases of high-grade atypia, prophylactic / risk-reducing surgery, reconstruction, and benign breast

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disease.); Ductal carcinoma *in situ* Postpone for 3 to 6 months.). Delay post-chemotherapy surgery for as long as possible (1 to 2 months) in those patients for whom adjuvant systemic therapy is unclear / not indicated. CIDURG: if the patient does not need to undergo chemotherapy, the tumor is small and the information obtained by surgery will facilitate further decisions. Patients with a good post-neoadjuvant response, patients with progressive disease in systemic therapy, angiosarcoma, and “malignant phyllodes” tumors (Table 1).

Table 1: Acceptable delay standards for Breast Cancer Surgery.

Breast cancer type	Acceptable delay
Ductal carcinoma <i>in situ</i>	3 to 6 months
Tumor of less than 1 cm N:0; M:0	>1months
Tumor of more than 1 cm N:0; M:0	1-2 months
Tumors with good post-neoadjuvant chemotherapy results	3-6mo.
Tumors with no response to neoadjuvant chemotherapy	1-2
Patients in systemic therapy with progressive disease	3 to 6 mo.
Patients with angiosarcoma or phyllodes tumors	<1mo.
Patients with inflammatory breast cancer	6-12mo.
Tumors of any size with N>0	1-2mo

Colorectal Cancer

Colon and Rectal Cancer. At the global level. The most common causes of cancer deaths are Lung (1.76 million), Colorectal (862,000), Gastric (783 000 deaths [4]. CIDURG (E = Emergency, immediate. U = Urgency, hours). P = PRIORITY days, or maximum of 3-6 months. NOUR = not urgent. 6-12 months or more. Not urgent. It means that these patients would not be harmed, taking into account the need to administer the resources and decrease the possibility of complications associated with diagnostic procedures: (including perforations, bleeding, infections). Defer surgery for all polyps cancers, or another way, early-stage disease. CIDURG: Operate if obstructed (Colostomy only, if rectal), perforated, or with active bleeding, depending on acute transfusion-associated with tumor bleeding. Patients whose colon cancer "has not metastasized." Consider all neoadjuvant therapy options, including the use of total neoadjuvant therapy for rectal cancer, and consider neoadjuvant chemotherapy for locally advanced and metastatic colon cancer. In rectal cancer, in cases that may benefit from neoadjuvant radiation T2N0, consider a short cycle regimen (5x 5 Gy) (versus standard long cycle chemotherapy). Priority- Delaying surgery in patients undergoing locally advanced neoadjuvant therapy for rectal cancer; 3 to 6 months. TNT 5X5 plus chemotherapy (Table 2).

Table 2: Acceptable delay standards for Colorectal Cancer Surgery.

Bleeding of perforation.	Resection or colostomy
Obstruction	If Rectal, Colostomy only.
Primary without metastasis.	CIDURG.
Consider neo adjuvant, even Total Q-R for Rectal Cancer	
For metastasis disease.	

Gastric Cancer

Gastric Cancer. Third cause of death due to cancer, in the world, just after Lung and Colorectal cancer; it has a high incidence in several Latin American countries, in Panama (in the provinces of Chiriquí, Veraguas). CIDURG (E = Emergency, immediate. U = Urgency, hours). Early lesions without the metastatic disease, in bleeding and obstruction. P = Priority, days, or a maximum of 3-6 months. May involved chemotherapy or combine chemo- radiation therapies. NOUR = not urgent. 6-12 months or more. Evolving *in situ*, with atypia. Patients who complete neoadjuvant chemotherapy may continue chemotherapy, if they have responded, and are tolerating it (Table 3).

Table 3: Acceptable delay standards for Gastric Cancer Surgery.

Early lesions without metastatic disease.	< 1mo.
Obstruction, Bleeding	Urgent.
Evolving <i>In situ</i> , with atypia	6-12 mo.
Post completion neo Adjuvant. May continue if (+) response.	3-6 mo.

Melanoma

Skin melanoma is increasing its incidence in all countries. However, in some countries there is insufficient registration. Panama has the particularity of being a mixture of races. This multiracial population is constituted by the first inhabitants, European groups, during the discovery of the new land, by the Spanish, then groups of West Indians; to build a road between the Atlantic and Pacific oceans and a railroad; during the “California gold rush” The construction of the Panama Canal, started by the French and then by the US contributed to the populations build up. In Panama we have some of the highest incidence of albinism in the world, in the original indigenous people. They live mainly in the Caribbean in the northeast, on the islands, near the Colombian border with Panama [5]. They develop cutaneous melanomas of the amelanotic variety. Current recommendations to reduce the incidence of any type of cancer include prevention. In these remote islands, the population is not in the best conditions to follow the recommendations.

Regarding the approach, we follow the wide local excision options "WLE", based on thickness (Charles Balch. MD), the concepts of the Sentinel Lymph Node "SLN" (Donald Morton, Charles Balch, Jeffrey Greenwald, kelly McMaster; and Stanley Leon) and the American Society for Clinical Oncology Consensus (ASCO) [6-13]. To facilitate our communication, the term "TROPICALIZATION" was developed, with that, we include local and regional consideration for our countries, and especially for our primary inhabitants. The terminology regarding stratification and urgency is the same. CIDURG (situations of E = Emergency, immediate. U = Urgency, hours). P = Priority, days, or a maximum of 3-6 months. NOUR = not urgent. 6-12 months or more. Patients who complete Priority. Delay wide local excision of the disease *in situ* for 3 months and, as resources become scarce, all lesions with negative margins on the initial biopsy.

Efforts should be made to perform procedures in an outpatient setting to limit the use of the operating room (OR) resources. If a significant delay in definitive excision is anticipated, the precise location of the biopsy site should be carefully documented (vg, photograph, site marking by the

patient or caregiver) to facilitate identification at a later time. Neoadjuvant chemotherapy may continue chemotherapy, if they have responded, and are tolerating it. CIDURG: Surgical treatment of T3 / T4 melanomas (>2.0-4.0 mm thick) should take precedence over T1 / T2 melanomas (< 2 mm thick). "Any melanoma" that undergoes partial or incomplete biopsy leaving a large residual clinical lesion. Complete resection is recommended in this case. Priority. Manage stage III disease with neoadjuvant systemic therapy. If resources allow and the patient is not suitable for systemic therapy, consider resection of the clinical disease in an outpatient setting. Priority. Sentinel lymph node biopsy (SLN), is reserved for patients with lesions > 1 mm and, as resources become scarce, it would be expected up to 3 months (Table 4).

Table 4: Acceptable delay standards in Melanoma Surgery.

Skin melanoma <i>In Situ</i> .	Complete WLE 3 mo.
Gross residual R2. Invasive	Complete WLE 1-3 mo.
SLN	< 3 mo. Reserve for patients with lesions > 1mm.
When delaying WLE, mark the scar, document with photos for later identification.	
T3-T4, Take precedence over T1-T2 thickness lesions.	
Stage III starts with neoadjuvant systemic therapy.	

Thyroid Surgery for Cancer and Non-Malignant Conditions

Thyroid Surgery in times of COVID will refer to situations of CIDURG (E = Emergency, immediate. U = Urgency, hours.). P = PRIORITY a maximum of 3-6 months. NOUR = not urgent. 6-12 months or more. CIDURG: Thyroid cancer that is a current or imminent threat to life, those that threaten morbidity with local invasion (for example, trachea, recurrent laryngeal nerve), aggressive biology (rapidly growing tumor or recurrence, rapidly progressive local-regional disease, including lymph nodes). Adding severely symptomatic Graves' Disease that has not responded to medical therapy and highly symptomatic Goiter or at risk of impending airway obstruction. NOUR: Biopsy, for diagnosis of lymphoma or other not specify Cancer (Anaplastic) (Table 5).

Table 5: Acceptable delay in Thyroid Surgery.

Obstruction or bleeding.	CIDURG
Symptomatic goiter	CIDURG
Operable well differentiate	Delay 3-6 mo.
If nodes	CIDURG.
Anaplastic	CIDURG.

Soft Tissue Sarcoma

Soft Tissue Sarcoma (STS). Surgery under COVID will refer to CIDURG (E = Emergency situations, immediately. U = Urgency, hours.). P = PRIORITY days, or a maximum of 3-6 months. NOUR = not urgent. 6-12 months or more. CIDURG: A primary soft tissue sarcoma without metastatic disease in staging requiring surgery will take precedence in the operating room. PRIORITY: Resection of newly diagnosed atypical lipomatous trunk/limb tumors (ALT), classic

dermatofibrosarcoma protuberans without fibrosarcoma degeneration, and desmoid tumors can be deferred for 3 months or more. Resection of other low-grade sarcomas with known indolent behaviour (vg., well differentiated retroperitoneal Liposarcoma and low metastatic risk (vg, myxoid Liposarcoma, low- grade (Fibromyxoid) tumor) may differ by short intervals depending on available resources and absence of symptoms Consider deferral of new excision for R1 margins in limbs/trunk lesions if operating room (OR) resources are limited and there is no evidence of residual disease in the evaluation of unplanned excision.

If there is an indication for radiation therapy, plan to do it before the operation. This can be administered in a low-risk outpatient setting and will delay the time of surgery by approximately 3 to 4 months. Also, consider using preoperative radiation therapy as a bridge therapy to postpone surgery when appropriate, even if treatment is not standard but there is evidence that it will not harm (i.e., preoperative radiation therapy in retroperitoneal Liposarcoma). The use of neoadjuvant chemotherapy for high-grade sarcomas at any site or for recurrent disease may be considered if it can be safely administered in an outpatient setting as a means of delaying surgical intervention. The use of neoadjuvant imatinib in localized Gastrointestinal Stromal Tumors (GIST), can be considered as bridge therapy even if there is no formal indication for neoadjuvant therapy, provided the mutation is sensitive. Active observation protocols or low toxicity systemic options may be considered for patients with recurrent disease. Surgery for recurrent disease can be offered to patients who are likely to have a relatively high chance of achieving long-term disease control in the context of complete gross resection (vg, prolonged disease-free interval, solitary site of recurrence). P. has no indolent histologies (vg, well differentiated Liposarcoma in the retroperitoneum or classic solitary fibrous tumor) that can be managed with active observation.

CIDURG: Defer surgery for less biologically aggressive cancers, such as gastrointestinal stromal tumors (GIST), unless they are symptomatic or bleeding. There are two realities: the increasing incidence, as well as the formation of complex decisions for cancer patients and the COVID-19 pandemic progression curve. Local adaptations must be made (Table 6).

Table 6: Acceptable delay in Soft Tissue Sarcoma Surgery.

Delay R1 resection if OR limitation.	
Retroperitoneal- consider neoadjuvant therapy. Or ----	<1mo.

Extremities- consider neoadjuvant therapy. Or -----	1-2mo.

Symptomatic.	<1mo.
Gist with Obstruction.	CIDURG.
Gist with bleeding.	CIDURG.

Results

This project depends on multiple factors, including local and international policies; will have good or better results if all the factors required are considered and reviewed by the team of experts, the patient and relatives, the hospital administrators for supplies and regulations. Also, it is very important to maintain a good record of the patients and

treatments. Most of us, are overwhelmed by the current situation. We either never experienced anything like this before, or we did not learn enough from previous similar situations. Anyway, we have to overcome our own condition in order to help others.

Conclusion

A systematic approach to the delay-pathology timetable under a stressed hospital environment may help decision making without increasing risk for patients, or at least minimizing the risk. This type of approach also requires a clear explanation to patients in order to avoid the psychological burden of delayed surgery. We would have to recruit a significant or representative amount of cases from different countries.

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