

## Research Article

# Impact of COVID-19 on Elective Surgery: HMIMV Rabat Experience between 15/03 and 15/06 (2018-2019-2020)

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## Abstract

In Morocco, the Ministry of Health announces the registration of the first confirmed case of the new Coronavirus, by the Institut Pasteur in Morocco, during the evening of Monday March 02, 2020, at a Moroccan national residing in Italy, Morocco has declared a state of health emergency and confinement as of Friday March 20 at 6 p.m., in order to contain the spread of Covid-19.

**Aims:** The study aimed to study the impact of COVID-19 on general surgical practice during three months compared to previous years and the future implications of the pandemic.

**Methods:** Observational descriptive study being carried out in the central operating room of the military hospital in Rabat, evaluating the impact of Covid-19 on the planned surgery by thus comparing the activity of the unit during the three months of confinement March April May between 2018, 2019 and 2020.

**Results:** The total number of surgeries has decreased to 497 in 12 weeks compared to 2073 at 2018 and 1900 at 2019.

Cancer surgery has seen a decrease of 40% compared to the previous years, this reduction mainly concerns neurosurgery; ENT, and stomatology as for other specialties the number was almost the same.

Benign surgery has seen a decrease of 70% compared to the previous years; all surgery combined has seen a reduction in the number of patients; this reduction is mainly due to the socio-demographic factor, the difficulty of traveling due to confinement.

**Keywords:** Elective surgery; Oncological surgery; Covid-19

## Introduction

The pandemic of COVID-19 caused by the coronavirus SARS-CoV-2 is disrupting global health, social welfare and the economy in a proportion unparalleled in modern history. In addition to the effects of the disease itself on public health, a collateral effect from near-universal disruption and cancellation of surgical services has emerged [1].

The COVID-19 pandemic has disturbed a major part of hospital services routine. During the pandemic hospitals have reduced elective surgery in the interests of patient safety [2-4]. In fact, reducing elective activities protects patients from nosocomial viral transmission and associated postoperative pulmonary complications. This preserves personal protective equipment (PPE) supplies to be prioritised for the care of COVID-19 patients, and releases ward and critical care beds for surges in COVID-19 patients.

Cancelling elective surgery at this scale will have substantial impact on patients and cumulative, potentially devastating consequences for health systems worldwide [5]. Delaying time-sensitive elective operations, such as cancer or transplant surgery, may lead to deteriorating health, worsening quality of life, and unnecessary deaths [6,7]. This will lead to deterioration in population health, productivity, and a substantial societal cost.

Guidance is urgently needed on how to deliver surgical services safely and effectively in the face of pressures placed by the COVID-19 pandemic [1-3]. Surgical services need to balance supporting the whole hospital response and minimizing the risk of nosocomial spread of COVID-19 against continuing care for acute surgical conditions and managing urgent elective surgery.

In Morocco, the Ministry of Health announces the registration of the first confirmed case of the new Coronavirus, by the Institut Pasteur in Morocco, during the evening of Monday March 02, 2020, at a Moroccan national residing in Italy, Morocco has declared a state of health emergency and confinement as of Friday March 20 at 6pm, in order to contain the spread of Covid-19.

## Aims

The study aimed to study the impact of COVID-19 on general surgical practice during three months compared to previous years and the future implications of the pandemic. Experience of mohamed V military hospital in Rabat.

## Methods

Observational descriptive study being carried out in the central operating room of the military hospital in rabat, evaluating the impact of Covid-19 on the planned surgery by thus comparing the activity of the unit during the three months of confinement March April May

between 2018, 2019 and 2020 this also made it possible to assess the impact of Covid on cancer surgery and the solutions to be proposed so as not to delay this type of surgery, the study covers all surgical specialties, were included all scheduled surgeries and endoscopic surgery and excluded emergency surgeries.

**Organization of surgical activity**

During the Covid-19 pandemic, all scheduled surgical activities were postponed. Only surgical emergencies and semi-urgent surgeries (oncological, septic) were maintained at the level of the central block.

The emergency room was made available to intensive care and emergency services as a buffer zone. It was set up to receive patients suspected of Covid-19 while awaiting the results of the PCR. If the test was positive, patients were transferred to the Covid intensive care unit. If the test was negative, the patients were transferred to the non-covid intensive care unit.

Urgent surgical activities were transferred to another ward (septic block).

The two intensive care units (medical and surgical intensive care) were dedicated to the hospitalization of Covid patients. An intensive care unit in the burns department was set up to receive non-Covid patients requiring a stay in intensive care.

For paramedical staff, it was divided into equal teams to provide on-call duty in the three intensive care units. These teams were reinforced by other nurse anesthetists and polyvalent nurses from other departments.

For the medical staff, a reinforcement of the medical teams ensuring daily work and on-call activities has been done. As a result, the majority of residents were assigned to the two intensive care units.

Emergency anesthesiologist activities were carried out by a team of three anesthetists who at the same time provided on-call duty in the non-covid intensive care unit.

**Results**

The total number of surgeries has decreased to 497 in 12 weeks compared to 2073 at 2018 and 1900 at 2019.

Our results were divided into two categories, oncologic surgery and benign surgery illustrated in Table 1 and Figure 1.

**Cancer surgery**

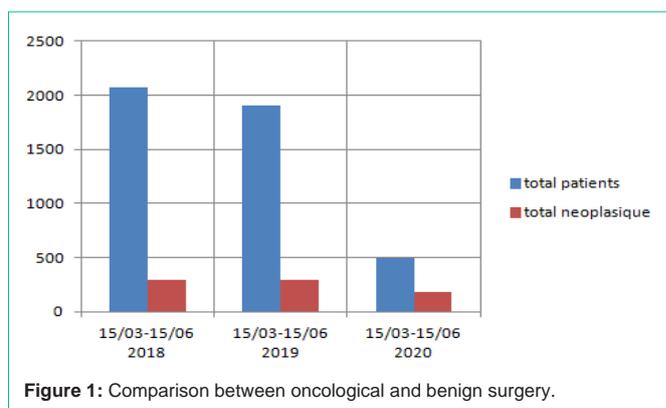
Cancer surgery has seen a decrease of 40% compared to the previous years, this reduction mainly concerns neurosurgery; ENT, and stomatology as for other specialties the number was almost the same namely gynecology, general surgery and urology, a total of 176 surgeries compared to 300 in 2019 and 291 in 2018; the Figure 1 illustrates the impact of Covid-19 on the oncological surgery (Figure 2).

**Benign surgery**

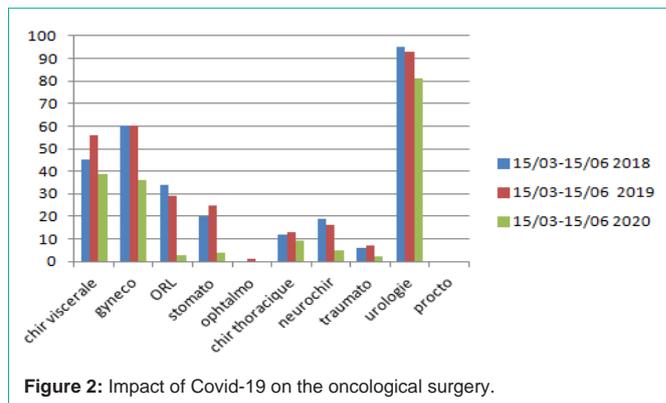
Benign surgery has seen a decrease of 70% compared to the previous years; all surgery combined has seen a reduction in the number of patients, this reduction is mainly due to the socio-demographic factor the difficulty of traveling due to patients to confinement, the possibility of postponing surgery and telemedicine thus allowing a postponement of appointments; a total of 269

**Table 1:** Impact of Covid-19 on elective surgery.

15/03 Jusqu'à 15/06	2018	2019	2020	moy 2018-2019	% de Reduction
Chirurgie Viscerale	355	342	148	348.5	57.54
Gynecologie	161	125	71	143	50.35
ORL	160	120	3	140	97.85
Ophtalmologie	315	350	22	331.5	93.36
Stomatologie	155	133	9	144	93.75
Chirurgie Thoracique	150	123	41	136.5	69.96
Traumatologie	275	252	29	263.5	88.99
Neurochirurgie	128	90	23	109	78.89
Urologie	272	252	134	262	48.85
Procto	102	113	17	107.5	84.18
Total	2073	1900	497	1986.5	74.98



**Figure 1:** Comparison between oncological and benign surgery.



**Figure 2:** Impact of Covid-19 on the oncological surgery.

compared to 1600 in 2019 and 1782 in 2018 the Figure 3 illustrates the impact of Covid-19 on the benign surgery.

The following table illustrates the total number of surgeries performed per year, all specialties combined, as well as the portion of oncological and benign surgery (Table 2).

**Discussion**

This study demonstrates the major burden of cancelled elective surgery due to the COVID-19 pandemic. Cancer surgery will be prioritised in most settings, with most cancellations relating to surgery for benign conditions, most frequently orthopaedics, ENT and stomatology.

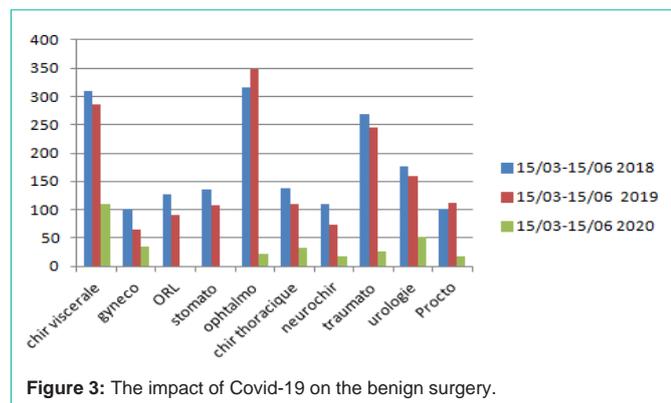


Figure 3: The impact of Covid-19 on the benign surgery.

Table 2: The total number of surgeries performed per year, all specialties combined, as well as the portion of oncological and benign surgery.

Speciality	2018	2019	2020	Moy 2018/2019	% Reduction
<b>Cancer Surgery</b>					
Chir visc	45	56	39	50.5	22.77
Gyneco	60	60	36	60	40
ORL	34	29	3	31.5	90.47
Stomato	20	25	4	22.5	82.22
Ophtalmo	0	1	0	0.5	100
Chir Thoracique	12	13	9	12.5	28
Neurochir	19	16	5	17.5	71.42
Traumato	6	7	2	6.5	69.23
Urologie	95	93	81	94	13.82
Procto	0	0	0	0	0
TOTAL	291	300	179	295.5	39.42
<b>Benign Surgery</b>					
Chir viscérale	310	286	109	298	63.42
Gyneco	101	65	35	83	57.83
ORL	126	91	0	108.5	100
Stomato	135	108	5	121.5	100
Ophtalmo	315	349	22	332	93.37
Chir Thoracique	138	110	32	124	74.19
Neurochir	109	74	18	91.5	80.32
Traumato	269	245	27	257	89.49
urologie	177	159	53	168	68,45
Procto	102	113	17	107,5	84,18
Total	1782	1600	318	1691	81,19

The risks of exposing patients to perioperative SARS-CoV-2 infection by performing surgery during outbreaks are high, but must be weighed against the risks of protracted treatment delays. Given that many health systems already lack sufficient capacity to meet the need for surgery [8],

There is a risk that delayed treatment of benign conditions as a result of pandemic-related cancellations will lead to deterioration in individual patients' conditions, increasing disability and reducing their ability to work. This will lead to substantial societal costs,

particularly in LMICs where catastrophic expenditure relating to surgical disease can lead to impoverishment [9,10].

compared to a study carried out by BJS comparing the impact of Covid on worldwide planned surgery, our studies did not present any modification concerning the results, namely a significant postponement rate for benign surgery such as orthopedics ENT stomatology and plastic surgery; as for oncological surgery, it nevertheless experienced a more or less significant decrease compared to benign surgery, especially general surgery; our results can join that of the study already carried out in this example a significant report rate reaching up to 70% for benign surgery and 40% for cancer surgery.

Post-pandemic surgical recovery planning should anticipate the possibility of repeat waves of SARS-CoV-2 infection [11], leading to additional periods of cancellation of elective surgery. Therefore, strategies to safely maintain surgical volume during and immediately following SARS-CoV-2 outbreaks should be explored. For example, time-sensitive surgery, such as cancer resection, can be performed in designated non-COVID-19 units which do not treat COVID-19 patients. Although the optimal organization of such surgical units is unknown, it is likely that they should carefully select low-risk patients who are unlikely to require intensive care and can be safely operated in satellite units. Both patients and staff will require rigorous screening to reduce the risks of cross-infection. Surgical recovery plans should also consider that an immediate return to high volume surgery may not be possible. For example, adaptations to operating theatres, such as installation of negative pressure flow systems, may need to be expedited in order to reduce the delay to resumption of normal activity [12].

Future research should be prioritised to identify strategies to mitigate the risk of operating in COVID-19 environments, so that cancellations are minimized. For example, whilst ongoing trials testing treatments for COVID-19 [13,14], large randomized trials are also needed to test therapies to prevent postoperative COVID-19 pulmonary complications.

The Covid-19 pandemic had an impact not only on the surgical postpone but also on the organization of the operating room and the patient circuit thus ensuring the safety of the nursing staff, surgeons and the patient himself; the SMMU in collaboration with the SMAR have carried out a program thus making it possible to ensure the security against the propagation of the virus especially for the anesthesia which solicits the airways.

Summery; the resumption of activity in the operating room showed us the impact of the postponement on patients, the loaded programs as well as the complications due to the delay in patients coming from distant geographic areas; this impacted the program and the quality of care given the delay in treatment especially in tumor surgery modifying the staging and the therapeutic protocol.

### Conclusion

The SARS-CoV-2 coronavirus pandemic has been a great challenge in medicine contemporary, no health system considered a problem of such magnitude and, therefore, he was not prepared; however, it was essential to make decisions and implement actions in response to the needs resulting from this health crisis, in the same

sense, the professionals of health has been so affected in the field personal, professional and family [15,16]. The present study shows a picture in practice of the general surgeon in Military hospital in Rabat Morocco, which forces more than ever radical changes with the need to redefine roles, adapt programs, specify and design strategies with the necessary adaptation and resilience, without forgetting to prioritize safety for the patient and for healthcare professionals.

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