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Surgical Emergencies in times of Pandemic. Hospital de Clínicas. FCM-UNA

Urgencias Quirúrgicas en tiempos de Pandemia. Hospital de Clínicas. FCM-UNA

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ABSTRACT

Introduction: The SARS-CoV-2 pandemic was a challenge for health authorities, both for health care systems, hospitals and health professionals.**Objective:** To describe emergency surgery in the SARS-CoV-2 pandemic. **Material and methods:** Retrospective, descriptive, observational study of patients with surgical pathologies in the Emergency Department from August to November 2020.

Results: In 385 patients, with an average age of 50 years, the most frequent reason for consultation was pain in the epigastrium (21.3%), followed by yellowing of the skin and mucous membranes (18.7%) and rectal bleeding (16.8%). The evolution time averages 3 days.

A total of 151 (39%) surgical interventions were performed, of which the most frequent were cholecystectomy (46.3%) and appendectomy (18.5%), 11 percutaneous treatments (2.8%) and 24 (6.2%) endoscopic treatments; 199 (51.7%) patients were treated conservatively. Among the post-surgical complications, surgical site infection was most frequently found in 38.4% and intra-abdominal collection in 37%. Of all patients received and admitted to the service, 32 (8.31%) were COVID-19 positive and during their hospital stay, 4 (12.5%) presented complications that included postoperative hemorrhage in two patients, mesenteric ischemia on one occasion and septic shock at pulmonary baseline. We had 1.2% of deaths.**Conclusions:** The average age of the patients was 50 years. The most frequent reason for consultation was epigastrium pain.Cholecystectomy was the most common surgery and the most common complication was surgical site infection.1.2% deaths were recorded.

Key words: Pandemic. Surgical Emergencies. SARS-CoV-2.

RESUMEN

Introducción: La pandemia por SARS–CoV-2, constituyó un reto para las autoridades sanitarias, tanto para los sistemas de atención médica, hospitales y profesionales de la salud.**Objetivo:** Describir los cuadros quirúrgicos de urgencias, en la pandemia SARS-CoV-2. **Material y método:** Estudio retrospectivo, descriptivo, observacional de pacientes portadores de patologías quirúrgicas del servicio de Emergencias en los meses de agosto a noviembre 2020.**Resultados:** n 385 pacientes, con edad promedio de 50 años, el motivo de consulta más frecuente fue el dolor en epigastrio (21,3%), seguido de coloración amarillenta de piel y mucosas (18,7%) y rectorragia (16,8%). El tiempo de evolución en promedio de 3 días.Se realizaron 151 (39%) intervenciones quirúrgicas, de las cuales la más frecuentes fueron la colecistectomía (46,3%) y la apendicectomía (18,5%), 11 tratamientos percutáneos (2,8%) y 24 (6,2%) tratamientos endoscópicos; 199 (51,7%) pacientes se trataron de manera conservadora. Entre las complicaciones post quirúrgicas se constató con mayor frecuencia infección del sitio quirúrgico en un 38,4% y la colección intraabdominal 37%. De todos los pacientes recibidos e internados en el servicio 32 (8,31%) resultaron ser COVID-19 positivo y durante su estancia hospitalaria, presentaron complicaciones 4 (12,5%) que incluyeron hemorragia postquirúrgica en dos pacientes, isquemia mesentérica en una oportunidad y shock séptico a punto de partida pulmonar. Tuvimos 1,3% de óbitos.**Conclusiones:** La edad promedio de los pacientes fue de 50 años. El motivo de consulta más frecuente fue el dolor epigástrico.La colecistectomía fue la cirugía más frecuente y la complicación más común fue la infección del sitio quirúrgico. Se registraron 1,2% de óbitos.

Palabras claves: Pandemia. Urgencias Quirúrgicas. SARS–CoV-2.

INTRODUCTION

On December 31st 2019, in Wuhan (China), the SARS-CoV-2 (COVID-19) coronavirus outbreak was first notified, the OMS declares a Public Health emergency, of global scale, hence countries across the world suffered losses and economic, social, and educative level catastrophes took place. [1]

On March 10th 2020, the Ministry of Public Health and Social Wellbeing, reveals the first SARS-CoV-2 or Sars – COVID19 case in Paraguay, declaring a nation-wide quarantine, which involved social isolation, closure of schools and universities, interpersonal interaction centers of any type, at a Healthcare level, treatment of patients with prior diseases, major cases or emergencies were prioritized, and a team-based work system was organized to decrease personnel exposure and danger of mass contagion.[2,3]

The SARS-CoV-2 pandemic has produced and generated radical changes in humanity's performance habits, evident in the healthcare sector, an impact in surgical activity, along with a decrease in healthcare personnel, as well as surgical patients themselves, due to contagion risk, has caused a lesser number of performed surgeries, less hospital recurrence. [4]

All resources are focused on the handling and treatment of patients carrying SARS-CoV-2, meanwhile, regarding surgical assistance, those suffering from chronic pathologies are left relegated. Elective surgeries are left postponed, limiting only to urgent surgeries and oncologic patients. [4]

The objective of the present work was to describe surgical

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urgences, performed treatment and patients evolution in pandemic times.

MATERIALS AND METHODS

Retrospective, descriptive, observational study of patients suffering surgical affections at the adult emergency service during the months of August to November 2020, with non-probabilistic sampling of cases. Elderly patients, with urgent surgical pathologies, and with complete clinical files were included. Studied variables were age, sex, consultation motive and frequent symptoms, evolution time, surgical pathology, treatment and evolution.

Data was recollected from clinical files, and then recorder into Microsoft Office Excel® 2010 spread sheets and epidemiologically analyzed through Windows's SPSS 15.0 digital program, always respecting ethical and confidential principles of the study's subjects.

RESULTS

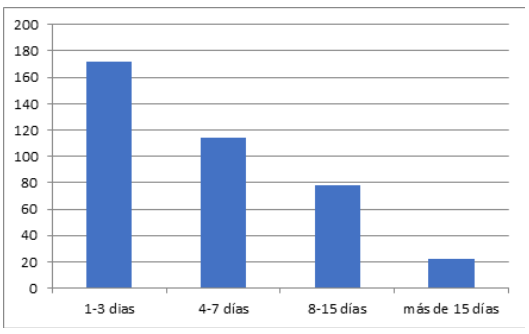
385 consultations were recorded in the four months, with an average of 96.25 patients per month: 68% were women and 32% were men. The average age was 50 years old, ranging from 18 to 97 years old.

The most frequent consultation reasons were epigastric pain (21.3%) and jaundice (18.7%). Other consultation reasons are cited in ***Table 1.***

Table 1. Emergency service's frequence of consultation motives. n=385

Consultation motive	n	%
Epigastric pain	82	21.3%
Jaundice	72	18.7%
Rectal bleeding	65	16.8%
Right iliac fossa pain	54	14%
Diffuse abdominal pain	45	11.6%
Stool and gas detention	23	6%
Slashing wounds	19	5%
Melena	15	3.9%
Perianal pain	10	2.6%
Total	**385**	**100%**

Generally, the symptoms were of sudden presentation: 44.6% of one to three days of evolution, 29.5% of 4 to 7 days, 20.2% of 8 to 15 days and 5.7% of more than 15 days. ***(see Graph 1)***



Graph 1. Surgical symptoms' evolutive time n= 385

151 (39%) major surgical interventions, 11 percutaneous treatments (2.8%) and 24 (6.2%) endoscopic treatments were performed; whilst 199 (51.7%) patients were treated conservatively.

The more prevalent surgical pathologies were acute calculous cholecystitis and acute biliary pancreatitis (32 cases each), followed by acute appendicitis. ***(see Table 2)***. In every acute calculous cholecystitis and acute pancreatitis case (87.5%) a conventional cholecystectomy (open) was performed. In acute appendicitis an appendicectomy was performed.

Table 2. Characteristics of patients who received surgical treatment (major surgery)

Diagnostic	Frequence	SurgicaL treatment	ICU admission	Re-entry	Death
Acute appendicitis	28	28 (100%)	0 (0%)	0 (0%)	0 (0%)
Acute calculous cholecystitis	32	32 (100%)	1 (3.1%)	0 (0%)	0 (0%)
Complicated diverticulitis	18	18 (100%)	4 (22.2%)	2 (11.1%)	1 (5%)
Fournier's gangrene	8	8 (100%)	3 (37.5%)	0 (0%)	1 (12.5%)
Complicated hernia	9	9 (100%)	0 (0%)	1 (11.1%)	1 (11.1%)
Acute biliary pancreatitis	32	28 (87.5%)	3 (9.3%)	0 (0%)	1 (3.1%)
Intestinal occlusion	3	2 (67%)	1 (33.3%)	0 (0%)	1 (33.3%)
Neoplastic obstructive jaundice	18	1 (5.55%)	0 (0%)	0 (0%)	0 (0%)
Intestinal drilling	15	15 (100%)	3 (20%)	1 (6.6%)	0 (0%)
Obstructive lithiasic jaundice	14	10 (71%)	0 (0%)	0 (0%)	0 (0%)
Total	**177**	**155**	**15**	**4**	**5**

*ICU: intensive care unit

Generally, surgical site's infection (58 cases) and intraabdominal collection (56 cases) were the most frequent complications. Other complications were: evisceration, hemorrhage, postoperative peritonitis, postoperative ileus, anastomosis leakage, among others. ***(see Table 3)***.

Table 3. Most frequent postsurgical complications. n=155

Complication type	n	%
Surgical site's infection	58	37.4%
Intraabdominal collection	56	36.1%
Evisceration	38	24.5%
Postsurgical hemorrhage	27	17.4%
Postsurgical peritonitis	17	11.0%
Postoperative ileus	12	7.7%
Anastomosis leakage	9	5.8%
Other complications	9	5.8%

Out of all reported and admitted patients during service, 32 (8.31%) were COVID-19 positive and during their in-patient stay, 4 of them presented complications (12.5%) which included postsurgical hemorrhage in two patients, mesenteric ischemia in one

occasion and septic shock from pulmonary start.
Out of the 385 patients, 5 passed away (1.3%).

DISCUSSION

The SARS-CoV-2 pandemic has proven the necessity of a worldwide hospital center reorganization. Paraguay, has had to take drastic measures when the first infection case was detected in the country, declaring quarantine and reorganizing the healthcare system. However, and since the start of the pandemic, all surgical emergencies' services' coverage has been necessarily maintained, although it has been equally inevitable to introduce special adjusting guidelines for the new scenario which allow maintaining excellence in assistance's quality. Measures were directed to contemplate a rigorous control of patients' and professionals' exposure, considering the pandemic's implications regarding different pre, intra and post operative scenarios related to urgency and an adjusted adaptation to the center's situation in relation to infected patients' care.

In this study, it was observed that the average age was 50 years old, being the same for Pérez and cols'[4] work, in which they report an average age of 58 years old. The evolution time was of 3 days, similar to other authors who report 48 to 72 hs. Although the average time since the start of the symptoms was of three days, until consultation, it doesn't result excessively long, as long as it doesn't exceed the advisable time to start the treatment of intraabdominal infections.[5,6]

It's worth pointing out that several surgical scientific societies performed a series of management guides and protocols to follow, for treatment during the pandemic, with the consequent conservative attitude upon certain pathologies. [7,8,9]

During our service 151 surgical interventions were performed, all out in the open, taking into account the danger of contagion through the environment's aerosolization, only in neoplastic obstructive jaundice patients a medical treatment was decided upon. Pérez and cols, report that in five acute cholecystitis in which the patients were surgically urgent candidates, due to experts' recommendations, intravenous antibiotic therapy was opted for. [4,10]

During surgery services at the Clinical Hospital all elective surgeries were suspended, except those for oncologic patients. In this sense, Ley and cols.[11] published a retrospective study in which they described the results of 34 asymptomatic patients submitted to scheduled surgical intervention, during the time of epidemic and that in the long term developed the SARS-CoV-2 disease, suggesting that surgery can accelerate and exacerbate said disease's progression, reaching a mortality rate of 20.5%.

In a Spaniard study, 3 patients were submitted to urgent surgical intervention due to SARS-CoV-2 infection at the moment of surgery or developed during postoperative, all 3 of them passing away by respiratory insufficiency. In our study, one of the patients submitted to surgical intervention with preoperatory diagnosis of SARS-CoV-2 infection, passed away, while in the remaining infected, during in-patient stay, we had 4 complications which included postsurgical hemorrhage in two patients, mesenteric ischemia in one patient and septic shock from pulmonary start.[12]

The statistical department reports that in 2019, during the months in which this study was performed in the following year, the number of performed surgeries was 188, which implies a decrease during the pandemic, of 25%, the phenomenon's cause can be presumed to be due to self-medication, or delay in consultation due to fear of contagion.

This study has some limitations, the sample size is small and has been performed in a short period of time, only 4 months during pandemic phases. The influence of treatment initiation delay due to intrahospital diagnostic has also not been analyzed because of assistance overload and to discard COVID-19.

CONCLUSION

For 4 months 385 patients reported to emergency surgery, two thirds were women, and the average age was 50 years old.

The most frequent consultation motive was epigastric pain (21.3%). Out of 151 performed surgeries, conventional cholecystectomy was the most frequent, and the most prevalent complication was surgical site's infection. 8.31% of the 385 patients tested positive to the COVID test.

5 patients passed away, which corresponds to 1.3% of the total (3.2% of the major surgery patients).

Conflict of interest
Authors deny any type of conflict of interest.

Ethical considerations
As cited in methodology, ethical and confidential principles of the study's subjects were respected.

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Author's contribution
All authors participated equally in the processes of data recollection, writing and correction of the manuscript.

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