



EMERGENCY SURGERY DURING COVID 19 AT K.A.P.V GOVERNMENT MEDICAL COLLEGE AND MGMGH , TRICHY

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ABSTRACT COVID 19 pandemic was declared by WHO as public health emergency on January 30,2020. Health system was reorganised with the aim to cope with the new disease and maintain essential health service. Many patients suffered from ARDS which lead to the modification of clinical and surgical activity. Current impact of COVID 19 outbreak on emergency surgical practice is still not developed. Varied presentation, diagnostic uncertainty, lack of guidelines present challenges to surgeons.

AIM: The aim of our study was to evaluate the impact of the COVID-19 pandemic on emergency general surgery admissions and operations in our institution

METHODS: We conducted a retrospective study in K.A.P.V.G.M.C. and M.G.M.G.H., Trichy from march 2020 to December 2020. All general surgical emergency admissions to KAPVGM and MGMGH, district general hospital were included from march to December 2020. The details of diagnosis and subsequent management were retrieved from records.

CONCLUSION: It was observed that clinical decisions were made based on urgency of each case while simultaneously evaluating their COVID 19 status. The number of surgical cases during COVID 19 period were significantly reduced. Recognising asymptomatic carriers and need of emergency surgical intervention were the challenges faced by the surgeons. Effective communication between microbiologist, radiologist, anaesthetist and surgeon was necessary to attain a favourable outcome. In spite of challenges faced 80% had postoperative uneventful period other than prolonged duration of stay and were discharged and followed up. Covid 19 pneumonia and ARDS attributed to majority of death among the 20 % of deceased, other than septicemia

KEYWORDS : COVID 19, surgical emergencies, outcomes

INTRODUCTION

At the end of 20th century, several mysterious pneumonia cases of suspected viral origin in Wuhan, China. Detailed virological and genomic analyses of patient's nasopharyngeal swab samples subsequently traced these cases to a novel type of corona virus termed SARS-CoV-2, which is responsible for the clinical condition and now global pandemic referred to as "COVID-19"(1).

Coronavirus is a single-stranded RNA virus classified into 4 types. SARS-CoV-2, attach to host cells through their spike proteins (SARS-2-S) binding to angiotensin-converting enzyme 2 (ACE2) as a receptor. Viral fusion with the host cell and then infection follows as a result of cellular cysteine and serine protease-mediated cleavage of SARS-2-S and SARS.

ACE2 found in lungs, heart, endothelium, kidney, epithelial cell of GIT. Therefore they present with cardiopulmonary and gastrointestinal symptoms.(2)

COVID 19 virus being present in peritoneal fluid and blood and feces of infected patients poses a great challenge in surgical field. Smoke from cautery causes aerosolization of COVID 19 virus thereby increasing risk of transmission.

Surgeons during COVID period face the following challenges in day to day clinical practice:

- Prioritizing surgical interventions
- Differentiating COVID positive and negative patients.
- Starting COVID intensive and non intensive care ward
- Starting surgical operating area for COVID positive cases, suspect cases and non covid cases.
- Adequate protection and precaution during surgery(2)

During this pandemic, elective surgeries have been postponed in our institution, thereby reducing healthcare resource utilisation for non-emergency activities and all elective procedures and surgeries were postponed, so that health care facility, workers and resources can be allocated for the care of COVID-19 patients.(3)

MATERIALS AND METHODS

A retrospective study was conducted in K.A.P.V.G.M.C. and M.G.M.G.H., Trichy from march 2020 to December 2020. All general surgical emergency admissions to KAPVGM and MGMGH, district general hospital were included from 23/03/20 to 31/12/20. The hospital provides all general surgical specialties. After registering with the hospital governance department, details on patient admission, demographics and Covid-19 status were captured using a data collection form. Patients were labelled negative if they were admitted to the general surgical ward, unconfirmed if they went to a designated Covid-19 assessment unit but then had a negative test and positive if they had undergone positive testing. The diagnosis and subsequent management were obtained from the patients record. Of those who underwent surgery, operation notes and histopathology, if applicable, were analysed (4).

Prior to the onset of COVID-19 all patients attending our hospital would be assessed by medical staff within the emergency department and those thought to have emergency surgical pathology were referred to us for further evaluation and management.

This system changed in mid-March 2020, following the introduction of separate "COVID-19" and "non-COVID-19" emergency departments, whereupon those patients with potential COVID-19 symptoms were referred to a newly constructed department for assessment by emergency medicine physicians, and those shown to be negative for COVID-19 and with emergency surgical issues would be referred to our service.

Inclusion Criteria

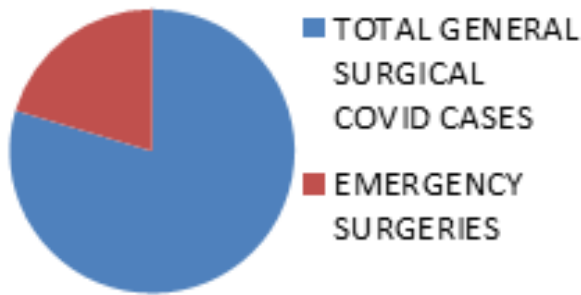
- Patients who presented to emergency surgical department with
- CT CHEST proven COVID
- NASOPHARYNGEAL SWAB positive COVID - RTPCR or TrueNat
- Covid symptoms

RESULTS

A total of 64 surgical emergency cases have been found to be covid positive

Table 1. General Surgical Cases With COVID And Emergency Surgeries Done

TOTAL GENERAL SURGICAL COVID CASES	250
EMERGENCY SURGERIES	64



During this COVID 19 Pandemic, in our hospital 64 cases presented as surgical emergencies out of 250 covid positive cases admitted under general surgery.

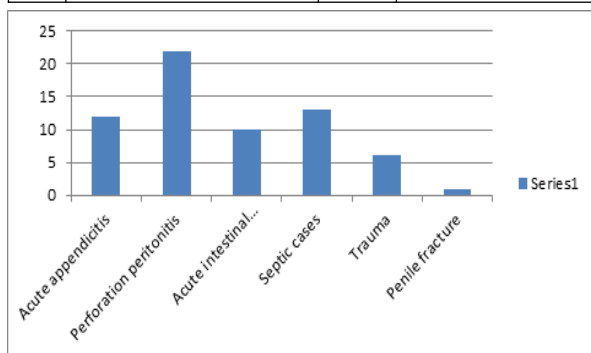
Table 2. Age / Sex Distribution

AGE	MALE	FEMALE
12-19	1	1
20-29	7	1
30-39	6	3
40-49	16	3
50-59	8	6
60-69	7	1
70-79	4	-
TOTAL	49	15

Out of 64 surgical emergencies 15 were female and 49 were males and most commonly involving middle age group 40-60years.

Table 3. Diagnosis At Presentation To Emergency Department

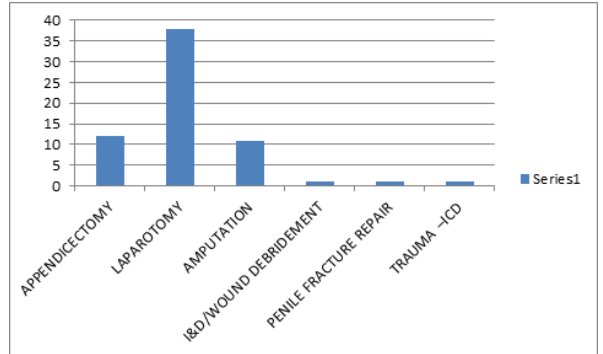
S.NO	EMERGENCY	NO.	PERCENTAGE
1	Acute appendicitis	12	19%
2	Perforation peritonitis	22	35%
3	Acute intestinal obstruction	10	16%
4	Septic cases	13	20%
5	Trauma	6	9%
6	Penile fracture	1	1%
	Total	64	100%



Out of 64 emergency cases, majority(70%) were abdominal emergencies, 20% were septic cases, 9% were trauma and 1% penile fracture.

Table 4. Percentage Of Surgical Procedure Underwent

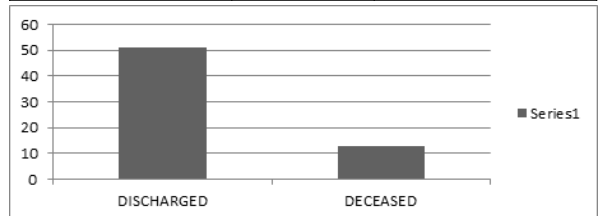
S.NO	PROCEDURE	NO.	PERCENTAGE
1	APPENDICECTOMY	12	19
2	LAPAROTOMY	38	60
3	AMPUTATION	11	18
4	I&D/WOUND DEBRIDEMENT	1	1
5	PENILE FRACTURE REPAIR	1	1
6	TRAUMA –ICD	1	1
	TOTAL	64	100



Out of 64 emergencies done, 19% cases underwent appendicectomy, 60% underwent laparotomy, 18% underwent amputations, 1% underwent I & D and wound debridement, 1% underwent penile fracture repair and 1% ICD insertion done.

Table 5. Fatality Rate

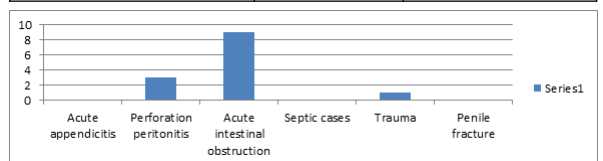
OUTCOME	NO.	PERCENTAGE
DISCHARGED	51	80
DECEASED	13	20
TOTAL	64	100



Out of 64 cases, 80% Cases Were Discharged 20% Cases Deceased

Table 6. Outcomes Based On Diagnosis

DIAGNOSIS	DECEASED	DISCHARGED
Acute appendicitis	0	12
Perforation peritonitis	9	13
Acute intestinal obstruction	3	7
Septic cases	0	13
Trauma	1	5
Penile fracture	0	1
Total	13	51



During COVID pandemic, maximum deaths have occurred inpatients perforation peritonitis.

Table 7. Outcomes Based On Age

AGE	DECEASED	DISCHARGED
13-19	0	2
20-29	0	8
30-39	0	9
40-49	3	16
50-59	4	10
60-69	4	4
70-79	2	2
TOTAL	13	51

Maximum deaths have occurred among the age groups 60-69 and 70-79. 50% of them have been deceased

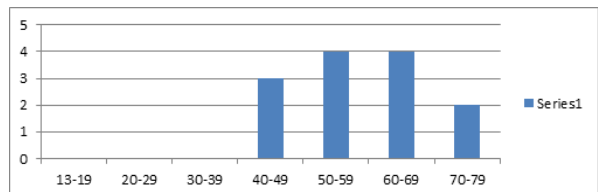
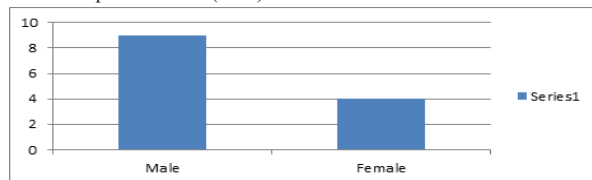


Table 8. Outcomes Based On Sex

SEX	DECEASED	DISCHARGED
Male	9	40
Female	4	11
Total	13	51

Increased mortality was observed among female population (36%) when compared to male (22%)

**Table 9. Proportion Of Different Diagnosis Employed**

S.NO	METHODS	NO	%
1	ONLY NASOPHARYNGEAL SWAB	6	9
2	ONLY CT CHEST	20	31
3	CT CHEST + NASOPHARYNGEAL SWAB	38	60
4	Total	64	100



9% of cases were diagnosed by NASOPHARYNGEAL SWAB test. 31% of cases were diagnosed based on CT CHEST findings. 60% of cases were diagnosed by both NASOPHARYNGEAL SWAB and CT chest findings.

DISCUSSION

COVID-19 pandemic made several challenges in dealing with surgical emergencies. Several guidelines were published to address this situation. However regional variations existed from hospital to hospital. For delivering safe and effective health care there is a need for the health care professionals to adapt and improvise for which several efforts were made in our hospital. We made RTPCR testing twice a day whose results were made available after 8 hrs approximately. All positive cases were isolated in COVID POSITIVE WARDS for further care which has central entry and exit. All suspicious patients were carefully isolated to avoid potential transmission. If the test turns positive patient moved to covid positive ward conversely if the test is negative patient shifted to NON COVID wards. COVID SUSPECTS for whom results are delayed are considered COVID POSITIVES and without any further delay patients undergone necessary procedures.

For all these structural requirements along with interdisciplinary medical staffs and nurses was put together which added to physical and psychological stress for the employees. So personnel were selected based on technical expertise, medical experience, work ethics, team work and adaptability for exclusive care of covid patients. Each personnel were individually enquired about the willingness and responsibility to take up the task as a result of which a highly motivated team was set up right from the start.

Also with this study it was observed a reluctance of seriously ill patients to seek medical assistance, with a worsening of the postoperative outcome.

We have noted a later and slower clinical recovery in patients treated during the COVID-19 period.

We performed significantly less emergency surgical intervention in March and April 2020 than in previous years. International data on emergency surgical volumes during the COVID-19 pandemic are limited, but similar dramatic declines in the number of patients

requiring emergency operations have been seen in Italy and the United States. The reasons for the decline in patients presenting with non-COVID illnesses to our institution and internationally are unclear, and likely multifactorial.

Alterations in the public behaviour in response to the COVID-19 outbreak and the resulting public health restrictions may also have influenced the reductions in the numbers of admissions. Fall from height of less than two metres and road traffic accident are the two biggest sources of major trauma seen.

Our unit saw a significant decline in the number of patients requiring admission with head injury during the initial phase of the COVID-19 pandemic, and a non-significant decline in other trauma. This may be reflective of reduced volume of RTA, reduced construction activity, and reduced injuries related to socialising in bars and night clubs, and similar declines in trauma presentations. The incidence of surgical emergency is found to be more in males when compared to females. Adult male (age 40-49 years) accounting for 16% of the surgical emergency cases.

For the diagnosis of covid cases, 3 modalities have been used. TRUNAAT test results obtained within 4 hours. Out of the 64 emergency covid cases, 46% is detected by TRUNAAT. Ct chest detected 80% of surgical emergencies which is highly reliable and easier. RT PCR was also done but the results were obtained only after 2 days.

The surgical outcome during covid is 20% case fatality rate with increased duration of stay in 50% due to associated pneumonia and respiratory distress.

Most common age group affected 40-49 years.

Most common sex involved is male gender which accounted for 32%.

Table 10 Comparison Of Age Distribution

S.NO	NAME OF STUDY	MEAN AGE IN YEARS
1	O.Alimoglu et al(5)	47
2	Roberto et al (6)	62
3	Present study	45

Table 11 Comparison Of Gender Distribution

S.NO	NAME OF THE STUDY	PREDOMINENT GENDER
1	Joseph Alderman(7)	Male
2	O.Alimoglu et al(5)	Male
2	Present study	Male

Most common diagnosis at presentation was perforation peritonitis which accounted for 35%.

Most common procedure done was laparotomy which contributed for 60% cases.

Most common diagnostic modality used was both ct chest and NASOPHARYNGEAL SWAB test which 60% cases underwent.

Table 12 Comparison Of Diagnostic Modality Of Various Studies

SNO	NAME OF THE STUDY	MODALITY
1	Belinda de simone et al (8)	Swab + CT chest
2	Jose manuel et al(9)	Swab + CTchest
3	Present study	Swab + CTchest

80% cases were discharged and 20% cases deceased.

Table 13 Comparison Of Outcomes Of Various Studies

S.NO	NAME OF THE STUDY	DISCHARGED (%)	DECEASED (%)
1	O.Alimoglu(5)	91.8	8.2
2	HarshaShanthanna et al(7)	76.2	23.8
3	Present study	80	20

CONCLUSION

The number of surgical cases during COVID 19 period has significantly reduced. In spite of challenges faced 80% had postoperative uneventful period other than prolonged duration of stay and were discharged and followed up. Covid 19 pneumonia and ARDS attributed to majority of death among the 20 % of deceased other than

septicemia. Clinical decisions were made based on urgency of each case while simultaneously evaluating their COVID 19 status. Recognising asymptomatic carriers and need of emergency surgical intervention were the challenges faced by the surgeons. Effective communication between microbiologist, radiologist, anaesthetist and surgeon is necessary to attain a favourable outcome.

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