



## EFFECT OF COVID LOCKDOWN ON SURGICAL EMERGENCIES

## Surgery

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## ABSTRACT

**Background:** In early 2020, the WHO declared the outbreak of the disease COVID-19, caused by a new variant of coronavirus 2019-nCoV(SARSCoV-2) as a global pandemic, which is highly expressed in the nasopharynx and lungs. The government of India ordered a nationwide lockdown for 21 days, which extended for about 3 months, limiting movement of people as a preventive measure. This article provides a comprehensive overview of covid-19 lockdown impact on surgical emergencies.

**Materials & Method:** We conducted a survey in our hospital, SMIMER Hospital, Surat to know the effect of lockdown on Surgical Emergencies. Comparison were made in the two groups, control group(23rd Jan -23rd March, a period preceding Lockdown ) and lockdown group(24th March-23rd May, period of lockdown). Data were collected of the total emergency surgeries conducted before and during lockdown for similar period i.e 2 months.

**Result:** Number of admission in control group were 606 compared to lockdown phase which had 433 admissions, which showed decline of 28.5%[FIG-1]. Whereas, number of surgical emergencies were more in lockdown group(175) compared to control group (135) which showed an increase of 22.8%.

**Conclusion:** There is a huge impact of covid 19 lockdown on surgical emergencies due to hold on the elective surgeries. There is rise in the surgical emergencies which could have been prevented by doing elective surgeries. On the basis of the survey conducted in our hospital, SMIMER hospital, SURAT we conclude that covid 19 lockdown has caused decline in incidence of certain emergencies like RTA, RENAL CALCULI, MESENTERIC LYMPHADENITIS, GALL STONES, GASTROENTERITIS in lockdown period in comparison to similar period before lockdown while at the same time it has caused surge in incidences of certain other emergencies LIKE OBSTRUCTED INGUINAL HERNIA, RUPTURED APPENDICITIS, RUPTURED LIVER ABSCESS, PERFORATED GALL BLADDER in comparison to similar period before lockdown .so lesson can be learned from this study and hospital can have different strategy to allow selectively elective operation of cases showing significant surge in incidence during lockdown.

## KEYWORDS

Control group-23rd January to 23rd March(pre lockdown ), lockdown phase- 24th march to 23rd May.

## INTRODUCTION

In early 2020, the World Health Organization declared the outbreak of the disease COVID-19, caused by a new variant of coronavirus 2019-nCoV as a global pandemic.[1]One of the characteristics of COVID-19 is that it is highly contagious; Although protective measures have been implemented in China (e.g. isolation from confirmed and suspected cases) to reduce spread of the virus, the need for effective treatment is imperative to stop the outbreak and reduce the morbidity and mortality of COVID-19 [2].The government of India ordered a nationwide lockdown for 21 days, which extended for about 2 months, limiting movement of people as a preventive measure. In many countries, the pandemic has changed demand for medical services.[3] While fears of exposure to covid 19 are causing fewer people to seek hospital help, lockdowns and social distancing measures have led to some procedures being cancelled, and the increased use of telemedicine to treat patients remotely.[4] This survey was designed and conducted during the lockdown period to access the effect on surgical emergencies taking similar period pre lockdown as control.

## MATERIALS AND METHODS:

We conducted a survey in our hospital, SMIMER Hospital, Surat to know the effect of lockdown on surgical emergencies. Comparison were made in the two groups, control group(23<sup>rd</sup> Jan -23<sup>rd</sup> March, pre lockdown) and lockdown group(24<sup>th</sup> March-23<sup>rd</sup> May), Data were collected of the total emergency surgeries conducted before and during lockdown. All surgical emergencies were analysed for possible diagnosis & aetiologies like Visceral perforation, acute appendicitis, intestinal obstruction, Obstructed inguinal hernia, abscess, etc.

## Inclusion Criteria

- All patients admitted under surgery department in emergency from 23<sup>rd</sup> January to 23<sup>rd</sup> May.
- All patients above 18 years of age.

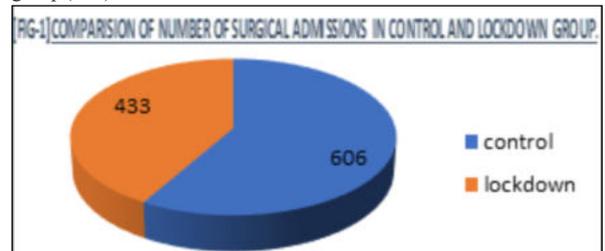
## Exclusion Criteria

- All patients admitted under other departments then surgery

## RESULTS

The number of admissions were compared between two groups(Control and lockdown). Control period was taken from the 23<sup>rd</sup>

January to 23<sup>rd</sup> march. Lockdown period was taken from 24<sup>th</sup> march to 24<sup>th</sup> May. Number of admissions in control group were 606 compared to lockdown phase which had 433 admissions, which showed decline of 28.5%[FIG-1]. Whereas, number of surgical emergencies were more in lockdown group(175) compared to control group (135) which showed increase of 22.8%.



[Table-1] Types Of Cases Admitted In Surgery In Control And Lockdown Group.

CASES	CONTROL	LOCKDOWN	INCREASE %	DECREASE %
ACUTE APPENDICITIS	43	49	13.9%	
RUPTURED APPENDICITIS	6	11	83.3%	
VISCERAL PERFORATION	17	35	105.8%	
INTESTINAL OBSTRUCTION	4	12	200%	
OBSTRUCTED INGUINAL/INCISIONAL HERNIA	3	8	166.67 %	
RUPTURED LIVER ABSCESS	3	6	100%	
PERFORATED GALL BLADDER	3	8	166.67 %	
TESTICULAR TORSION	2	4	100%	

BREAST ABSCESS	23	14		39.13%
PERIANAL/GLUTEAL/THIGH ABSCESS	7	13	85.71%	
CELLULITIS	28	18		35.71%
DEBRIDEMENT/FASCIOTOMY	24	15		37.5%
MESENTERICLYMPHADENITIS	72	32		55.56%
RENAL CALCULI	54	12		77.78%
GALL STONES	68	12		82.35%
ACUTE CHOLECYSTITIS	12	18	50%	
ACID INGESTION	11	22	100%	
STAB WOUND	32	72	125%	
RTA	66	24		63.64%
OTHER MLC/ASSAULT	30	12		60%
GASTROENTERITIS	36	12		66.67%
OTHERS	12	6		50%

**Cases Having Significant Increase In Lockdown Period**

- Perforated appendicitis( 83.3% increase )
- Visceral perforation( 105.8% increase )
- Obstructed inguinal hernia( 166.69% increase )
- Intestinal obstruction(200% increase )

**Cases Having Significant Decrease In Lockdown Period**

- Mesenteric lymphadenitis(55.56%decrease )
- Renal calculi( 77.8% decrease )
- RTA( 63.64% decrease )

**Changes In The Admission Of Usual Emergencies**

There has been change in the trend of usual admission in surgery department in the lockdown phase.

Road traffic accident with head injury used to held a major number of admission in surgical emergency. A sudden decrease of 63.64% in the admission of road traffic accident has been seen due to reduces mobility of the public and complete lockdown.

The current COVID-19 pandemic is causing widespread concern, depression and anxiety among the people all over the world. The mental problems caused by COVID-19 lockdown impacted the psychological wellbeing of individuals from the entire community including students, casual labours, healthcare professionals and the general population. The pandemic resulted in income loss due to job loss or reduced income due to COVIC-19 lockdown gave birth to domestic problems. This might have impacted on the rise in cases of acid ingestion AND stab wound m.

Sudden dip in the number of cholelithiasis cases as elective laparoscopic cholecystectomy has been hold in the lockdown phase. Decrease of 82.35% has been noted. As the gallbladder stone cases have been kept conservative, many such cases have led to complications such as gangrenous cholecystitis, acute calculous cholecystitis, perforated gall bladder eventually converting to surgical emergency.

CASES	INCREASE	DECREASE
Gall bladder stone		82.35%
RTA		63.64%
ACID POISONING	50%	
RENAL CALCULI		77.78%
STAB WOUND	125%	

**Surgical Elective Case Converted To Emergency Condition During Lockdown**

Many surgical elective case have been converted to emergency cases. Some of the examples are ruptured appendicitis, obstructed inguinal hernia, ruptured liver abscess, perforated gallbladder.

Asymptomatic cholelithiasis is a frequent condition which affects up to 10% of the adult population in wealthy nations. Acute cholecystitis develops in up to 2% of patients affected by asymptomatic cholelithiasis. Gallbladder perforation occurs in 2 to 11% of acute cholecystitis cases. Due to the high mortality that can be caused by a delay in the correct diagnosis and following adequate surgical treatment, gallbladder perforation represents a special diagnostic and

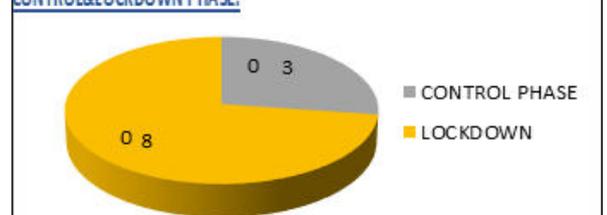
surgical challenge[5]. In lockdown a spike has been seen in the cases of perforated GB due to keeping gallstone cases conservative. An increase of 166.67% has been noted.

Inguinal hernia repair is one of the most common elective surgery conducted. Due to lockdown elective hernia repairs has been kept on hold. Many of such case present with Pain and irreducibility was the chief presenting followed by vomiting and abdominal distension suggestive of obstructive inguinal hernia. The complications were more commonly observed in the older male patients with coexisting medical illness and short duration of hernia.

Intestinal perforation, defined as a loss of continuity of the bowel wall, is a potentially devastating complication that may result from a variety of disease processes. Common causes of perforation include trauma, instrumentation, inflammation, infection, malignancy, ischemia, and obstruction. Early recognition and prompt treatment are critical to prevent the morbidity and potential mortality of peritonitis and its systemic sequel that result from the spillage of intestinal contents. A thorough history and physical exam, along with the aid of adjunctive studies, can help establish the diagnosis promptly and better direct therapy. Major spike in the cases of the visceral perforation might be due to delayed reaching of the people to health care facilities, and delayed treatment for the same.

CASES	INCREASE	DECREASE
OBSTRUCTED INGUINAL HERNIA	166.67%	
RUPTURED APPENDICITIS	83.33%	
PERFORATED GB	166.67%	
RUPTURED LIVER ABSCESS	100%	
VISCERAL PERFORATION	105.6%	

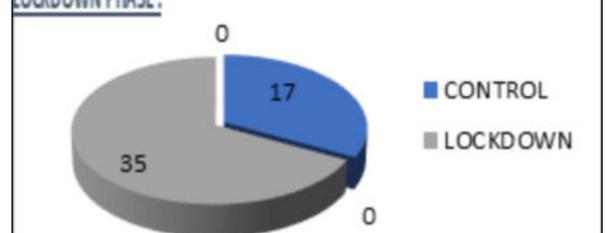
**FIG-2]NUMBER OF CASES OF OBSTRUCTED INGUINAL HERNIA IN CONTROL&LOCKDOWN PHASE.**

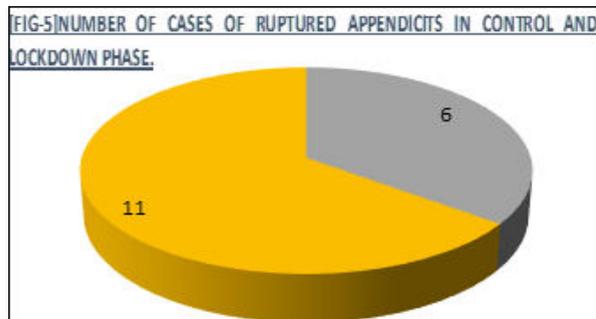
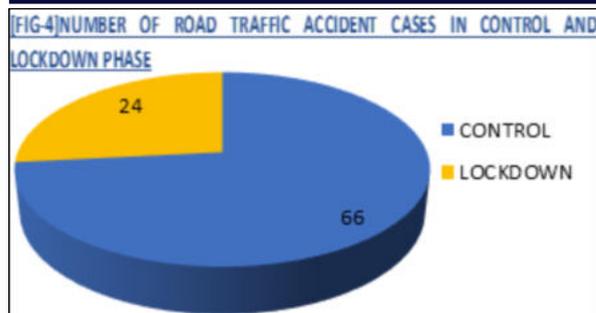


Inguinal hernias form the commonest subgroup of various hernias; such common condition causes the problem of various complications. A minority of patients with a groin hernia present as an emergency, with a painful and irreducible mass or with intestinal obstruction and delay in presentation is known to result in high morbidity and mortality. The duration of hernia frequency before acute episode was more in first year. The right sided hernia was most complicated than left. The common site of constriction was deep inguinal ring than the superficial inguinal ring and femoral ring. Lockdown phase has seen a peak rise in the cases of obstructed inguinal hernia by 166.69%.

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**FIG-3]NUMBER OF CASES OF VISCERAL PERFORATION IN CONTROL AND LOCKDOWN PHASE:**





Due to lockdown there has been sudden decrease in the cases of road traffic accidents by 63.64%

The diagnosis of acute appendicitis is predominantly a clinical one; many patients present with a typical history and examination findings. The cause of acute appendicitis is unknown but is probably multifactorial; luminal obstruction and dietary and familial factors have all been suggested. Appendicectomy is the treatment of choice and is an emergency operation[6]. Delaying operating a case of acute appendicitis can increase the risk of ruptured appendicitis.

#### DISCUSSION:

There is a huge impact of covid lockdown on surgical emergencies due to stoppage of elective surgeries. There is rise in the surgical emergencies which could have been prevented by doing elective surgeries. On the basis of the survey conducted in our hospital, SMIMER hospital, SURAT, covid 19 lockdown has a huge impact on the surgical emergency cases. Due to hold on the non urgent elective surgeries, there is increase in surgical emergencies due to DELAYED TREATMENT OF THE CASES.

Hernia is defined as an abnormal protrusion of a whole or part of viscous through a normal or abnormal aperture in wall of the containing cavity. All weak spots in the abdominal wall are potential sites for hernias. Groin hernias (inguinal) form the commonest subgroup. Along with such common condition comes the problem of development of complications. A minority of patients with a groin hernia present as an emergency, with a painful and irreducible mass or with intestinal obstruction and delay in presentation is known to result in high morbidity and mortality as well. Trapped tissues and blood vessels can lead to irreversible necrosis within a few hours. The duration of hernia frequency before acute episode was more in first year. The right sided hernia was most complicated than left. The common site of constriction was deep inguinal ring than the superficial inguinal ring and femoral ring. Thus cases of obstructed hernia have magnificently increased post lockdown in the lockdown phase, as elective surgeries of inguinal hernia repair has been on hold.

Similarly there has been an increase in cases of ruptured appendicitis in acute appendicitis, which may have occurred due to delay in diagnosis in lockdown. In study the journal of American students of medicine it showed, rupture risk was  $\leq 2\%$  in patients with less than 36 hours of untreated symptoms. For patients with untreated symptoms beyond 36 hours, the risk of rupture rose to and remained steady at 5% for each ensuing 12-hour period. Rupture was greater in patients with 36 hours or more of untreated symptoms, age 65 years and older, fever  $> 38.9$ , and tachycardia (heart rate  $\geq 100$  beats/min)[7].

Due to stoppage of elective laparoscopic cholecystectomy there has been increase in cases of cholelithiasis presenting with perforated gallbladder. Thus there has been increase in 28% of the surgical

emergencies seen during lockdown. However, lockdown period has witnessed increased stress among families, friends which have led to significant increase in the stab wound cases. Various psychological problems like depression, anxiety, and panic disorder, the COVID-19 pandemic has caused severe threats to the lives and physical health of people around the globe. In response to the problems posed by the pandemic, various public health strategies such as isolation of infected or at-risk persons, reduction of social contact, and simple hygiene like frequent hand wash, have been advised to reduce the risk of infection. Although isolation helps in achieving the goal of reducing infections, reduced access to family, friends, and other social support systems causes loneliness increasing mental issues like anxiety and depression[8]. This might have impacted on the increase in the number of suicides, fatal drug overdoses and instances of domestic violence in the lockdown period[9]. There has been a sudden spike in the cases of acid ingestion due to combination of enforced isolation, increased anxiety, financial worries, and reduced access to therapy leading to it[10]. Diseases related to food and water have reduced and this is primarily due to lockdown and people are eating simple, home-cooked food which might have impacted on the decrease number cases of mesenteric lymphadenitis, due to reduced intake of junk food[11].

Social distancing measures have important effects on activity participation. A lot of people are temporarily unemployed or work from home, and most out-of-home (leisure) activities are cancelled. As a result, travel demand decreases and many countries have already witnessed spectacular drops in road traffic accidents[12].

#### CONCLUSION

There is a huge impact of covid 19 lockdown on surgical emergencies due to hold on the elective surgeries. There is rise in the surgical emergencies which could have been prevented by doing elective surgeries. On the basis of the survey conducted in our hospital, SMIMER hospital, SURAT we conclude that covid 19 lockdown has caused decline in incidence of certain emergencies like RTA, RENAL CALCULI, MESEMERIC LYMPHADENITIS, GALL STONE, GASTROENTERITIS in lockdown period in comparison to similar period before lockdown while at the same time it has caused surge in incidences of certain other emergencies LIKE OBSTRUCTED INGUINAL HERNIA, RUPTURED APPENDICITIS, RUPTURED LIVER ABSCESS, PERFORATED GB in comparison to similar period before lockdown. So lesson can be learned from this study and hospital can have different strategy to allow selectively elective operation of cases showing significant surge in incidence during lockdown.

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