Original Article

Emergency Surgery during Lockdown: Experience at a tertiary care hospital

Muhammad Waqas Raza[1], Muhammad Zafar Iqbal[2], Malik Irfan Ahmed[3], Tariq Nawaz[4]

[1] Associate Professor, Department of Surgery, Rawalpindi Medical University, Rawalpindi.
[2] Assistant Professor, Department of Surgery, Rawalpindi Medical University, Rawalpindi.
[3] Senior Registrar, Department of Surgery, Rawalpindi Medical University, Rawalpindi.
[4] Professor, Department of Surgery, Rawalpindi Medical University, Rawalpindi.

Author`s Contribution
[1] Conception of study
[3] Experimentation/Study conduction
[2,3] Analysis/Interpretation/Discussion
[1] Manuscript Writing
[3,4] Critical Review
[2] Facilitation and Material analysis

Corresponding Author
Dr. Malik Irfan Ahmed
Senior Registrar,
Department of Surgery,
Rawalpindi Medical University,
Rawalpindi.
Email: rockblaster80@yahoo.com.uk

Article Processing
Received: 12/7/2020
Accepted: 27/7/2020

Cite this Article: *Raza, M.W., Iqbal, M.Z., Ahmed, M.I. & Nawaz, T.(2020). Emergency Surgery during Lockdown: Experience at a tertiary care hospital. Journal of Rawalpindi Medical College, 24 COVID-19 Supplement-1, 63-66.*
DOI: https://doi.org/10.37939/jrmc.v24iSupp-1.1436

Conflict of Interest: *Nil*
Funding Source: *Nil*

Access Online:

Abstract

Introduction: COVID-19 has halted the economic and social progression of the human race. This pandemic has exposed the vulnerabilities of all walks of life. But, most of all, this crisis has jolted the health care systems around the globe. A decrease in emergency surgical interventions was observed at District headquarters Hospital, Rawalpindi. The purpose of this study was to evaluate the impact of a pandemic on acute surgical emergency presentation and referral to a tertiary care hospital.

Material and Methods: It is a retrospective cohort study. We compared emergency surgical interventions requiring spinal or general anaesthesia followed by admission in a ward at DHQ hospital, Rawalpindi during a control period (15th March 2019–15th June 2019) and during the pandemic lockdown period (15th March 2020- 15th June 2020).

Results: A total of 228 cases were included in the study including both groups. About 73% (167) cases were performed in an emergency during Pre COVID-19 period i.e. from March 15th- June 15th, 2019. A total of 41 exploratory laparotomies were performed in a total of which 28 (68%) were done in the control period while 13 (32%) were done during the lockdown period. Out of 13 laparotomies due to road traffic accidents, only 3 were done during the lockdown period. Civilian Violence causing penetrating trauma resulted in 21 laparotomies in total out of which 11 were before the COVID-19 crisis and 10 during the lockdown. A total of 107 appendectomies were performed. Out of which 75 (70%) were performed in Pre COVID-19 pandemic. Less than half the number (32) of appendectomies were done during the lockdown. A marked decrease in emergency hernia surgeries was observed. In Pre COVID-19 time period, 13 emergency hernia surgeries were done, while only 03 surgeries were done during the lockdown. Regarding Hepatobiliary emergency surgeries, none was done during lockdown while 08 were done during three months of the Pre COVID-19 period.

Conclusion: Firstly, Keeping these figures under consideration, surgical units should expect more complicated cases in the coming days and a high influx of patients should be expected once the lockdown is over. Secondly, the question that remains unanswered is that Are we doing unnecessary surgeries other than trauma in an emergency? Thirdly, there is room to consider that all appendicitis and cholecystitis don't always need surgery. Fourthly, the private sector has the potential to share the burden on public hospitals.

Keywords: COVID-19, Emergency Surgery.

Introduction

COVID-19 has halted the economic and social progression of the human race.[1] This pandemic has exposed the vulnerabilities of all walks of life. But, most of all, this crisis has jolted the health care systems around the globe.[1] The first case of COVID 19 was reported in Pakistan on the 26th of Feb 2020. The country was set on Lock Down in the Mid of March 2020 to control the spread of COVID 19 among the masses.[1] Pandemic was an unprecedented event and therefore there was no proven strategy to control the effects of COVID-19 on society. To mitigate further viral transmission, a strategy of complete lockdown followed by smart lockdowns was adopted.[2] A successful media campaign was launched focusing on social distancing. Although the burden of COVID cases, suspected or confirmed, increased during the testing times of lockdown, the surgical emergencies were observed to decrease significantly.[3] District headquarters Hospital, Rawalpindi is a centrally located tertiary care hospital. It is a busy hospital catering to a vast range of surgical emergencies. It is a referral hospital for trauma and non-trauma patients. A decrease in emergency surgical interventions was observed in our hospital. The reduction in emergency surgical burden due to lockdown measures was first described by Stinner et al. Similar observation was made by Clark et al and the British Orthopaedic Association. As such, there is very little to explore how the COVID-19 pandemic affects the emergency referral workload. The purpose of this study was to evaluate the impact of a pandemic on acute surgical emergency presentation and referral to a tertiary care hospital.

Material and Methods

It is a retrospective cohort study. We compared emergency surgical interventions requiring spinal or general anaesthesia followed by admission in a ward at DHQ hospital, Rawalpindi during a control period (15th March 2019–15th June 2019) and during the pandemic lockdown period (15th March 2020- 15th June 2020). The study included 167 patients during the control period and 61 during the pandemic lockdown period. Indications of emergency surgical interventions were assessed in both groups.

Results

A total of 228 cases were included in the study including both groups. About 73% (167) cases were performed in an emergency during the Pre COVID-19 period i.e. from March 15th- June 15th, 2019. A total of 41 exploratory laparotomies were performed in a total of which 28 (68%) were done in the control period while 13 (32%) were done during the lockdown period. Out of 13 laparotomies due to road traffic accidents, only 3 were done during the lockdown period. Civilian Violence causing penetrating trauma resulted in 21 laparotomies in total out of which 11 were before the COVID-19 crisis and 10 during the lockdown. The rest of the indications are shown in Table 2. Although the number of Laparotomies decreased that was statistically insignificant (p-value 0.318). Appendectomies were the most common procedure done. On account of non-traumatic causes resulting in exploratory laparotomies like infective etiologies and malignancies, 06 were done in three months before COVID-19 and only 01 during the lockdown.

Appendectomies always make to the top of the list among surgeries performed by any General Surgery team in an emergency, the same was the care here. A total of 107 appendectomies were performed. Out of which 75 (70%) were performed in the Pre COVID-19 pandemic. Less than half the number (32) of appendectomies were done during the lockdown.

A marked decrease in emergency hernia surgeries was observed. In Pre COVID 19 time period, 13 emergency hernia surgeries were done, while only 03 surgeries were done during the lockdown.

Regarding Hepatobiliary emergency surgeries, none was done during lockdown while 08 were done during three months of the Pre COVID-19 period.

The rest of the details are shown in Table 2.

Table 1: Indication of Exploratory Laparotomy * Groups Cross-tabulation

		Groups		Total
		15th March - 15th June 2019	15th March - 15th June 2020	
Indication of	Trauma (RTA)	10	2	12

Exploratory Laparotomy	**Trauma (Civilian Violence)**	11	10	21
	Non Traumatic	6	1	7
	Trauma (Fall etc)	1	0	1
Total		28	13	41

Table 2: Indications of Emergency Intervention * Groups Cross-tabulation

		Groups		**Total**
		15th March - 15th June 2019	**15th March - 15th June 2020**	
Indications of Emergency Intervention	**Exploratory Laparotomies**	28	13	41
	Appendectomies	75	32	107
	Incision Drainage/Debridment	14	4	18
	Vascular Explorations/ Emergencies	8	5	13
	Hernias	13	3	16
	Hepatobiliary Surgeries	8	0	8
	Thorax Trauma	12	2	14
	Amputations	4	1	5
	Miscelleneous	5	1	6
Total		167	61	228

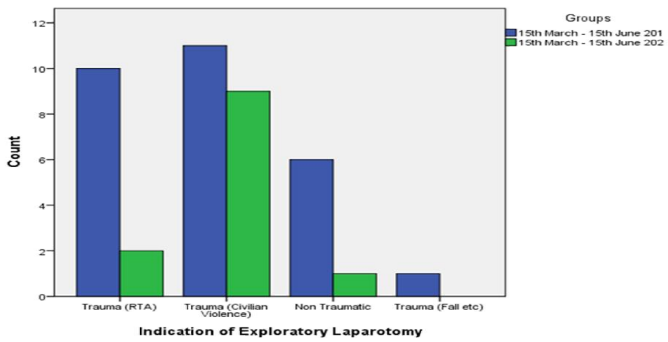

Figure 1: The bar chart

Discussion

The human race has been tested by various pandemics throughout human history. Millions of people died and uncountable civilizations vanished over time. Unfortunately, we are witnessing a pandemic of COVID-19 in our lifetimes. This may not have caused mortalities much in numbers compared to previously reported pandemics but its impact will keep hunting us throughout our lives. The number of infected cases is on the rise through the ease of smart lockdown is being opted.[1,2] It is a fact that the number of admissions in hospitals has increased but the number of emergency surgical procedures has decreased overall.[4] Similar findings were observed by Patriti et al. They observed an 86% decrease in cases of emergency surgery compared to the month before the lockdown.[5] Similarly, trauma-related injuries were observed to decrease in Ireland. Anecdotal evidence from Italy and
research from New Zealand and the UK have reported a significant decrease in the number of trauma cases presenting during the COVID-19 lockdown.[6,7]

Regarding exploratory laparotomies, a noticeable fall in numbers was observed. About 35% of the total laparotomies that were performed during the control period were contributed by road traffic accidents and during the lockdown, only 15% laparotomies were due to RTA. This decrease is self-explanatory. This decrease has been observed in different countries. Dayananda reported in his study that since the start of national 'lockdown' there has been a 48% reduction in trauma surgery compared to the same period in 2019.[8] Civilian violence resulted in 39% of the laparotomies during the control period and while during lockdown 77% laparotomies during lockdown were caused by civilian violence. Similar findings were observed by Campbel.[7] Due to psychological stress, civilian violence increased. This phenomenon was explained by Campbel.[9] It was hypothesized that lockdown measures and widespread organizational closures related to COVID-19, resulted in stress due to different factors such as unemployment, reduced income, limited resources, and limited social support.[Error! Bookmark not defined.]6 This stress could have caused an increase in domestic violence.[6]

Other than RTA and civilian violence, non-trauma surgeries make a significant proportion in overall laparotomies. About 21% laparotomies done during the control period were because of non-traumatic

causes like infections and malignancies while about 08% were done during a lockdown. Few studies have tried to explain this decrease. People are encouraged to stay at home and to call the emergency number or the GP in case of illness. This could explain the reduced affluence to the emergency department with respect to the past. Due to fear of transmission, non-trauma surgical emergencies are being managed by general practitioners conservatively. There may be an increasing unknown number of patients suffering from acute abdominal and thoracic disease at home. The destiny of such patients is still unpredictable.[5]

Appendectomies are the most commonly done procedure in an emergency. A total of 107 appendectomies were done during 06 months of study groups. Out of these, 75 were done in the control group and 32 were done during the lockdown. As there was a general decrease in the number of emergency surgeries overall, a similar trend was observed for appendectomies. Appendectomies share out of all emergency surgeries during the control period were about 45% and it was about 52% during the lockdown. Although the percentage has not changed much, the number has decreased. A similar finding was observed in Spanish hospitals. They had a similar pattern of decrease in appendectomies (acute appendicitis (32·3 *versus* 25·0per cent).[4]

Emergency hernia surgeries are also common in any surgical emergency. A total of 16 hernia surgeries were performed. Of these, 13 (81%) were during the control period before the COVID-19 pandemic. This number dropped to only 03 during the lockdown. This finding was contrary to the observation by Valderrama O et al. They observed an increase in hernia surgery (5·5 *versus* 14·0 percent).[4]

Hepatobiliary surgeries like emergency cholecystectomies made about 5% of all surgeries done during the control period while no such surgery was performed during the lockdown. changes in lifestyle during confinement, eating at home and less outing could explain the lower incidence of some diseases (acute cholecystitis). Also, more patients could be being treated without surgery and infection may be treated by antibiotics and NSAIDs. Another reason may be that cholecystectomies and simple procedures like hernia surgery and appendectomies diverted to the private sector rather than coming to public hospitals which are presumed to have an infective environment regarding COVID-19.

Conclusion

Firstly, Keeping these figures under consideration, surgical units should expect more complicated cases in the coming days and a high influx of patients should be expected once lockdown is over. Secondly, the question that remains unanswered is that Are we doing unnecessary surgeries other than trauma in an emergency? Thirdly, there is room to consider that all appendicitis and cholecystitis don't always need surgery. Fourthly, the private sector has the potential to share the burden on public hospitals.

References

1. Christey G, Amey J, Campbell A, Smith A. Variation in volumes and characteristics of trauma patients admitted to a level one trauma centre during national level 4 lockdown for COVID-19 in New Zealand. N Z Med J. 2020;133(1513):81–88
2. Abid K, Hons BS, Bari YA, Younas M, Javaid ST, Imran A, et al. Progress of COVID-19 Epidemic in Pakistan. 2020;19–21.
3. Patriti A, Eugeni E, Guerra F. What happened to surgical emergencies in the era of COVID 19 outbreak ? Considerations of surgeons working in an Italian COVID 19 red zone. Updates Surg [Internet]. 2020;72(2):309–10.
4. Cano-Valderrama O, Morales X, Ferrigni CJ, Martín-Antona E, Turrado V, García A, et al. Reduction in emergency surgery activity during COVID-19 pandemic in three Spanish hospitals. BJS (British J Surgery) [Internet]. 2020 Jul 1;107(8):e239–e239. 7
5. Earnshaw CH, Id O. Reduction in skin cancer diagnosis, and overall cancer referrals, during the COVID-19 pandemic. 2020;(April):0–2.
6. Moore J, Kelly M, Flannery O. Analysing the variation in volume and nature of trauma presentations during COVID-19 lockdown in Ireland. 2020;1(6):261–6.
7. Motterle G, Morlacco A, Iafrate M, Bianco M, Federa G, Xhafka O. The impact of COVID 19 pandemic on urological emergencies : a single center experience. World J Urol [Internet]. 2020;(01234567892
8. KSS Dayananda, T Yasin, P Jemmett and RW Trickett. COVID-19: The Impact and Changes to Trauma Services in Cardiff. https://www.boa.ac.uk/policy-engagement/journal-of-trauma-orthopaedics/journal-of-trauma-orthopaedics-and-coronavirus/covid-19-the-impact-and-changes-to-trauma-services.html
9. Campbell AM. An increasing risk of family violence during the Covid-19 pandemic: Strengthening community collaborations to save lives. Forensic Science International: Reports. 2020; 2:100089.