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Original Research Article

Management of the Surgical Patient during the First and Second Wave of COVID-19 Pandemic: Experience of a Tertiary Care Centre

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Abstract

Objective: Due to the COVID 19 pandemic healthcare providers all over the world had brought some changes in the management of surgical patients. This study is aimed to estimate the impact of pandemic on surgical practices.

Material and Method: We conducted a retrospective review of the medical records of all patients admitted to the department of general surgery (both elective & emergency), SCB Medical *College* and Hospital, Odisha, India from April 1 to July 31, 2020, and 2021 and the records were those of patients who were admitted in the same period in 2019. Data collection includes the number of admissions, the reason for admission, the age & gender of the patients admitted patients and type of management.

Result: There was a 57.5% reduction in total admission during first COVID in pandemic 2020 and 58.7% reduction during second wave of pandemic in 2021. The proportion of patient presenting to emergency department was more in 2020 and 2021 than 2019. Number of emergency admission decreased by 46.54% in 2020 and 46% in 2021. There was a 79.5% drop in the number of out-patients admission in 2020 and 84% in 2021. Furthermore a 79.8% reduction in elective surgical intervention noticed in 2020 and 80% in 2021. Conservative management was preferred over surgical management during the COVID era.

Conclusion: COVID-19 has led to a drastic reduction in outpatient and elective surgical practices. Hence creating a major concern for all surgeons about the critical situation.

Keywords: COVID-19, Surgical Management, Pandemic.

Introduction

Since the beginning of the COVID-19 disease from Wuhan in December 2019, the disease has spread globally and has been declared an epidemic by the World Health Organization on March 11, 2020 [1,4]. The world has already seen a two wave pattern of the disease. India witnessed the first and second wave of COVID 19 in 2020 and 2021 respectively with a surge in the summer and it remained badly placed to tackle the rapid spread of coronavirus despite several reforms. The second wave of COVID-19 was not just a wave, but a tsunami which had

rapidly crossed the daily count of any other nation across the world.

A rapid increase in the numbers of infected people took place since the beginning of COVID-19 pandemic with more than 226 million infected persons and over 4.6 million deaths worldwide [1]. Hence it represents a major health crisis for the world population. Coming to India total no of cases in India is 33 million with 4.43 lakh death till now.[1]

With the emergence of COVID-19 pandemic, governments around the world implemented curfews and sometimes nation-wide lockdowns to control the spread of the disease and help the already overwhelmed healthcare systems from getting collapsed. The Indian government was one of those countries that implemented a complete nation-wide lockdown which lasted from 25th March to 31st May 2020 and closed the borders and the airports to control the influx of COVID-19 cases from neighbouring countries. In addition, our state Odisha extended the lockdown till 31st July 2020 with weekend shutdown. The second wave of COVID 19 was even worse than the first wave and the lockdown restrictions continued during this time also.

There was an inevitable impact of the pandemic and the lockdown on the different specialties and especially the surgery practice at our institution, which is a tertiary referral hospital with one of the biggest hospitals and having most crowded emergency departments in Odisha, India.

Not only due to the impact of lockdown but also due to the changes in surgical system like cancellation of all elective procedure, deploying staff towards COVID management, lack of competent surgical staff, lack of protective measures (PPE), avoidance of outpatient appointments, the anxiety of health care staff about transmitting infection to their near and dear ones and the avoidance of patient to come to hospital due to the fear of getting infection have a significant impact on surgical practice. [7]

The aim of this study is to show the impact of this lockdown on the surgical practice at a tertiary care center SCBMCH, Cuttack, Odisha, India during the 4-month lock-down period and compared it with the same period of the pre COVID year.

Material and Method

We conducted a retrospective review of the medical records of all patients who were admitted to the department of general surgery(both elective & emergency) at the SCB Medical College and Hospital, Odisha, India in the periods from April 1 to July 31 2020 and 2021 and The records were compared to those of patients who were admitted in the same period from the year 2019.

Data collection includes the number of admissions, the reason for admission, the age of the patients admitted, gender and type of management.

Result

The data in figure 1 reveals that a total of 1122 patient were admitted in the month of April to July during COVID period and 2640 patients were admitted during the same month of pre-COVID period that is 2019.so there was a 57.5% reduction in total admission during COVID period. So average IP admission per month was 281 in COVID period as compared to 660 during percoid era. Along with that total admission during the second wave of COVID (2021) was 1090 and average admission per month was 272. There was a 58.7% reduction in the admission during second wave of pandemic 2021 as compared to pre COVID era. So, the burden of admission remain less even during the second wave of COVID. The total number of male and female patients also decreased proportionally. There was a significant difference in the sex distribution

with the majority of those admitted in 2020 and 2021 being males [figure 2] Out of total 2640 admission in 2019 number of emergency cases were 1760 (66.6%) as compared to 2020 were out of total admission of 1122 number of emergency cases were 940 (83.77%). So, the proportion of patient presenting to emergency department was more in 2020 than 2019. During the second COVID outbreak out of total admission of 1090 emergency cases were 950 (87.1%) which was even more than the first pandemic.

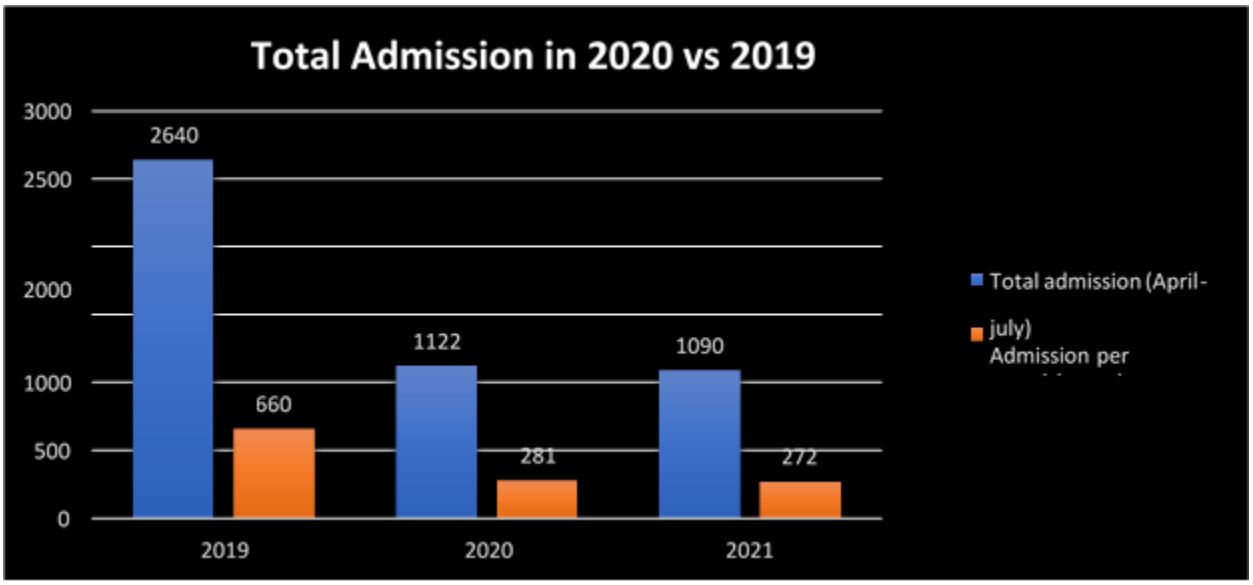

Figure 1: Total Admission in 2020 vs 2019

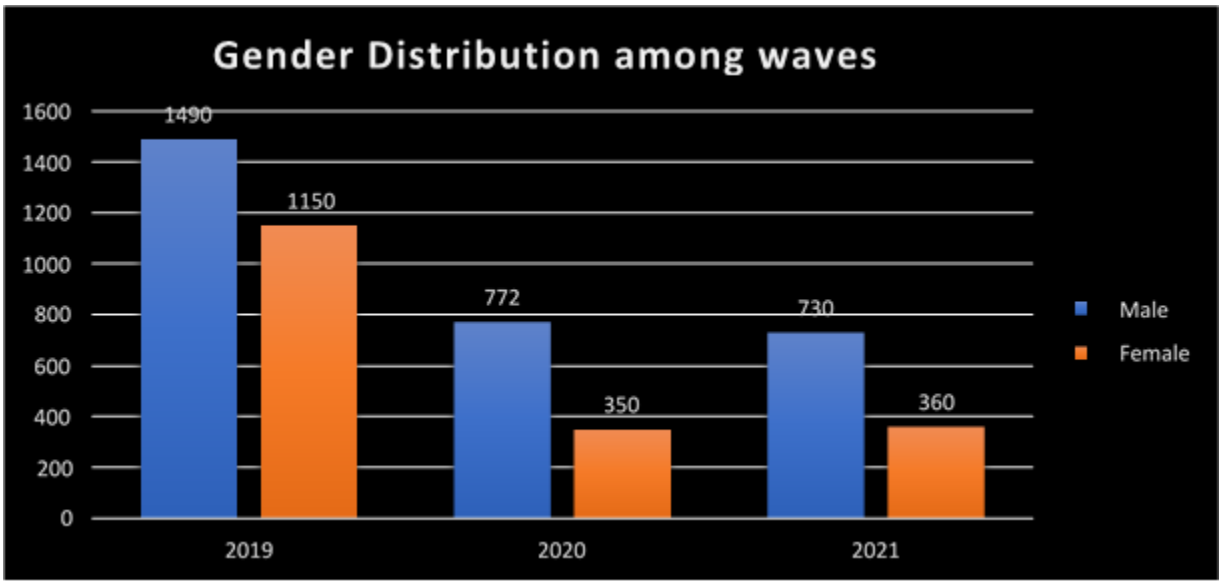

Figure 2: Gender Distribution among waves

Total no of emergency admission in 2019 was 1760 out of which number of trauma cases were 240 as compared to 2020 when total no of emergency admission was 940 out of which trauma cases were 104 [figure 3]. So number of emergency admission decreased by 46.54% and the number of trauma cases also decreased by 56.6% which is mostly due to the strict lockdown laws implemented in this period which limited vehicle movement

across the country. In 2021 out of total emergency admission of 950 trauma cases were 98. Here also total emerge admission decreased by 46% and trauma case decreased by 59.1%.

There was a significant drop in the number of patients admitted for elective surgery between 2019 and 2020 which is 79.5%. Even the no. of admission for elective surgery in 2021 also remain decreased by 84% due to implementation of COVID guidelines to avoid non-emergency surgeries.[figure 3]

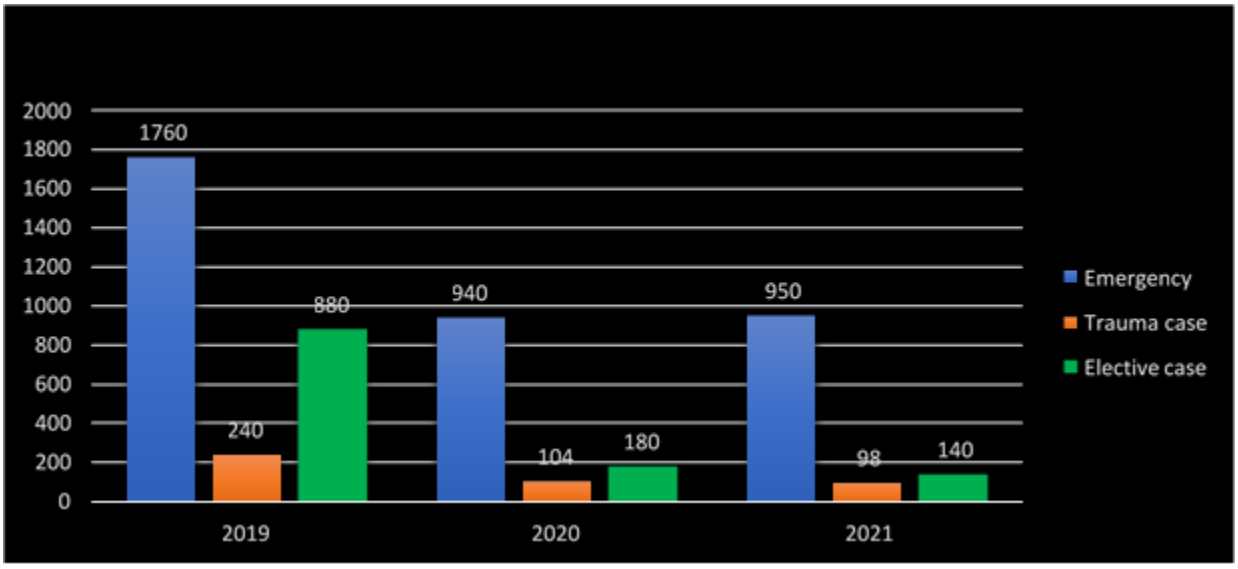

Figure 3: Total Admission emergency vs Trauma in respective years

Now coming to the management out of all the emergency admission 1355(76.91%) patients were managed conservatively and 405(23.01%) patients had undergone emergency surgery in the ER. Whereas in 2020, 598(63.61%) patients are managed conservatively and 342(36.3%) cases were operated [figure 4]. As for the type of management, there was no deference between the two groups with similar percentage of surgeries performed in the two periods. In 2021 650 (68.4%) were managed conservatively and 300 (31.5%) patients had undergone emergency surgery. Number of trauma surgery done in 2019 was 48 and in 2020 was 35 and in 2021 was 40 which shows no significant difference in practicing emergency managements during COVID outbreaks and during preCOVID era.

Elective surgery was affected the most among all surgical practices. Total open elective surgeries done in the 4month of 2019 was 447 but it came down to 90 in COVID era that is 2020 and to 82 in 2021.so there is a 79.8% reduction in elective surgeries in 2020 and 80% reduction in 2021.2021 which is about 86.1% reduction in laparoscopy practice.

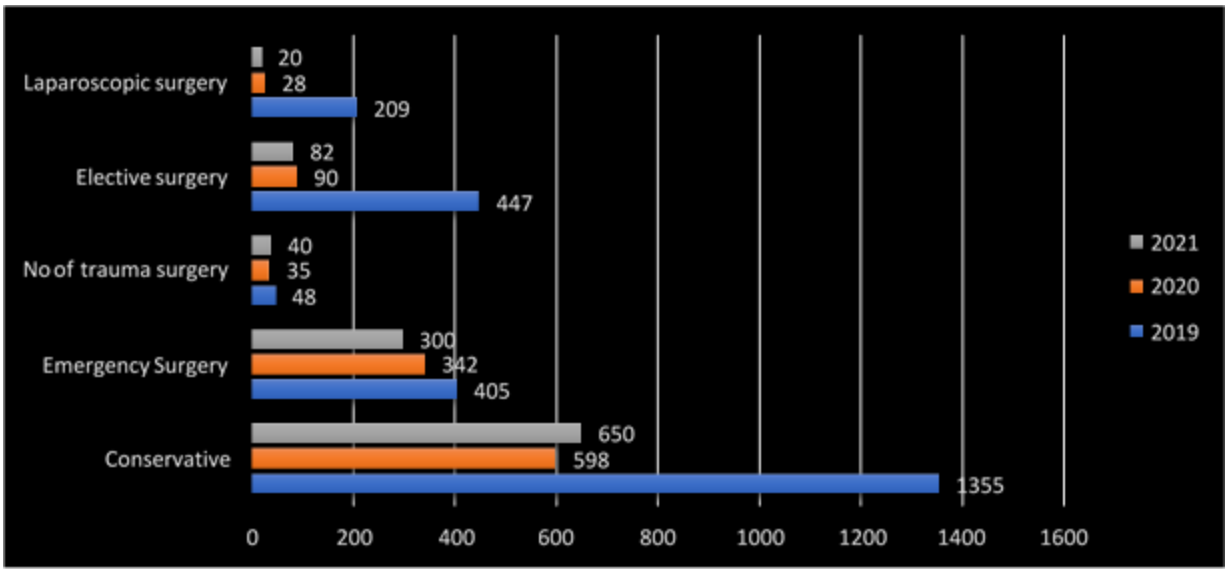

Figure 4: Treatment of different patients

As shown in the table patient came to emergency department with following complains.

Table 1: Presenting complaint and diagnoses

Category	2019	2020	2021
Abdominal pain	308	146	160
Acute appendicitis	108	56	47
Acute cholecystitis	97	30	38
Acute pancreatitis	155	60	59
Intestinal obstruction	116	81	74
Complicated hernia	98	57	62
Perianal pain	129	69	70
Sqoft tissue infection	204	137	130
Burn	116	93	102
Trauma	286	141	132
Others	143	70	76
Total	1760	940	950

Discussion

The COVID-19 virus is the biggest health pandemic in the 21st century with more than 226 million confirmed cases worldwide to this day [1]. From the beginning, governments and healthcare officials started implementing measures that would stop the sharp rise of new COVID-19 cases all over the world and to decrease the load of this pandemic on the healthcare system. Measures taken during this crisis time included strict lockdown with weekend shutdown, reduction in outpatient services, delaying elective surgeries and following safe surgical practices like conservative treatment of surgical conditions that do not need urgent surgical interventions. COVID-19 RTPCR was mandatory for all cases planned for elective surgery. Every patient was assumed to be COVID-19 positive. In every surgery precautions were taken to decrease the risk of viral transmission that is full personal protection equipment, decreasing the Operating Room staff, and sterilizing the theater after every case

according to the guidelines and protocols of the hospital. At our institution, we noticed a 57.5% decrease in admission rate during the lockdown period. Additionally, a 56.6% decrease in trauma patients was found.

Though patient getting admitted to emergency department decreased in 2020 as compared to 2019 due to inaccessibility to health care system due to national wide lockdown but the proportion of patient admitted to emergency department out of total admission in 2020(83.76%) was much higher than 2019 (66.6%). This may be due to decrease in outpatient services by doctors, delay in diagnosis, people avoiding coming to hospital at the early stage of disease and postponement of non-urgent surgeries which all lead to a situation where most of people land up in an emergency condition.

The postponement of non-urgent surgical services will ultimately result in a significant backlog in future. This will have a significant impact on the capacity of the surgical system, on learning of surgical skills by residents and on patients causing extreme stress and anxiety.

Laparoscopy practices by surgeons had also been reduced due to the fear of transmission of virus by aerosol released during surgery from ports or after the operation(during deflation). But as emergency surgeries could not be postponed or delayed, it remained the same as preCOVID era and it was done with all precautions like minimal number of healthcare staff, use of PPE and regular Sanitization of operation theatre. Complicated hernias was considered one of the most common emergent surgeries performed .As elective hernia repair for uncomplicated hernias were postponed in our institution and many others around the world there was an increase in patients presenting to our emergency room with hernia related complications.

The American College of Surgeons (ACS) advised to postpone non-urgent surgeries during the beginning of the pandemic. However, the recommendations were changed later. Elective surgeries for confirmed cases or patients with high risk for post- operative complications were rescheduled. For low-risk patients, elective surgeries should not be avoided [6].

Lastly the pandemic has caused a significant disruption to the provision of surgical education to the junior surgeons [2,5] .Cancellation of elective surgery leading to decrease in operative experiences by the resident, decreased time spent in the hospital and the use of telemedicine for remote consultation, increase in recommendation for conservative approach and decrease in operative volume, deployment of residents to COVID ward during their training period, cancellation of surgical educational conferences, suspension of Surgical research (both laboratory and clinically based) due to the COVID-19 pandemic has a negative impact on learning skill of trainees.

Conclusion

The COVID-19 pandemic has negatively affected the health care systems around the world to the point of collapse in some countries. COVID pandemic has brought a major change in the daily routine of a medical professional, outlook of situation of a surgical patient and subsequent decision making. This study has shown the effects of pandemic on both elective and emergency surgery practice at our institution which was mainly related to the delay in getting medical care caused by the strict lock-down laws implemented in the country.

While COVID-19 continues to make its presence felt in healthcare all over the world, surgeons have to play non-surgical roles in the crucial fight against the COVID-19 pandemic. [3]. Thus, we recommend that special measures should be taken to improve

the access to health care in future that may require limiting the movement of people and vehicles in the country, strict adherence to an institutional protocol as per the available resources and population which are likely to bring good outcomes with respect to health and quality of life and sticking to general measures of wearing mask, hand washing and social distancing.

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