

Original Research Article

Impact of the first wave of Covid -19 pandemic on RGGGH, MMC in Institute of General Surgery during the year of 2020

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Abstract

Background: The severity of COVID-19 symptoms is highly variable, ranging from unnoticeable to life-threatening. COVID-19 transmits when people breathe in air contaminated by droplets and small airborne particles. The risk of breathing these in is highest when people are nearby, but they can be inhaled over longer distances, particularly indoors. Transmission can also occur if splashed or sprayed with contaminated fluids, in the eyes, nose, or mouth, and, rarely, via contaminated surfaces. People remain contagious for up to 20 days and can spread the virus even if they do not develop any symptoms.

Aim of the study: To investigate the impact of covid 19 pandemics in general surgery.

Materials and methods: Patients who were admitted between the period of March 2020 to December 2020 and within the same period of March to December 2019 were reviewed retrospectively.

Results: This study was conducted in our unit (S5 unit) institute of general surgery, RGGGH, MMC, in Chennai. Weekly one day, we are admitting unit and admitting all elective and emergency cases. The number of admitted pandemic group cases (n=639) was lower than the control group (n=1329). There was a 51% reduction in admission. Among 639 cases admission, 484 (75.74%) were trauma cases which were transferred to orthopedic wards, neurosurgery ward, vascular ward, plastic ward based on their need. 155 (24.25%) general surgery cases were operated on emergency bases in these

89 cases (57.41%) were male, 66 cases (42.58%) were female. Mean age was 46.2 ± 17.7 years. 15 cases were operated (open appendicectomy) for appendicitis, appendicular perforation. 4 cases were operated on for appendicular abscess. 6 cases were operated for hollow viscus perforation. Laparotomy and proceed was done for 4 blunt injury abdomen cases, open cholecystectomy was done for 2 cholecystitis cases. 5 cases were operated for intestinal obstruction. Emergency hernial repair for 4 obstructed hernia cases. 7 cases were operated for testicular torsion. Pigtail drain was kept 20 liver abscess cases. Surgical debridement was done for 32 DFS cases. Debridement was done for 4 furniors gangrene. 8 BK/AK Amputation was done for septic limb. Rest of the 44 cases was treated for abscess, carbuncle, Infected sebaceous cyst, etc.

Conclusion: By studying the impact of covid on general surgeries we came to know some protective measures like quarantine, wearing a proper mask, hand washing, and wearing PPE KIT.

Key words

Covid, Appendicitis, Vaccination, Quarantine, Laparotomy.

Introduction

The virus causing covid-19 is designated as severe acute respiratory syndrome coronavirus 2. Since its appearance in December 2019 in Wuhan, a city in China, the Covid infection has spread globally and has been declared a pandemic by the World Health Organization on March 11, 2020 [1]. SARS-CoV-2 is characterized by fever, fatigue, dry cough, myalgia, dyspnea, vomiting, diarrhea, rhinorrhea, sore throat and chest infiltration .mild illness was reported in 81% patients. Severe cases is characterized by hypoxemia, >50% lung involvement on CT image [2]. The critical disease is presented with respiratory failure, multi-organ failure, and shock, which was reported in 5-10%. The overall case-fatality rate was 3-5%. The first covid case in Tamil Nadu was reported on 7th March 2020.in 2020 in Tamil Nadu, the largest single-day spike (6993 cases) was reported on 27th July 2020. Tamil Nadu was the highest number of confirmed cases in India after Maharashtra, Kerala, Karnataka, and Andhra Pradesh [3]. Also, the districts of Tamil Nadu are affected by the pandemic, with Chennai being the worst affected district, a large local cluster in Koyambedu of Chennai was identified in May. Tamil Nadu has been under a lockdown since 25th march which was relaxed to some extent from 1st July from august 2020 onward covid cases started to decline. In hospital, we had

started to operate elective cases in September month of 2020 [4].

Materials and methods

In the first wave of the covid pandemic period between march to December 2020 is compared with the same period of the previous year, the files of patients who underwent emergency surgery and followed up non-operatively were reviewed retrospectively. All surgical procedures performed on patients requiring surgery in the first 24 hours of admission are categorized as Emergency surgery in this study. Also, patients who followed non-operatively by surgery in the emergency department were included in to study. Patients who underwent emergency surgery in the pandemic period in 2020 were named as Pandemic group and patients who underwent emergency operations during the same period in 2019 were named as Control group. The pandemic group patients with findings consistent in preoperative chest tomography with COVID-19 pneumonia and patients with symptoms suggestive of COVID -19 infection were RT-PCR tested and these patients were hospitalized in isolated rooms in the surgery ward. In addition, chest CT and RT-PCR tests were performed on patients with postoperative clinical findings. Finally, the doctors, nurses, ward boy, and other healthcare professionals who had

contact with these patients were screened for the COVID-19 infection.

Inclusion criteria: All cases who all undergone general surgical intervention. All cases who got treated conservatively by a general surgeon in my unit. All covid positive cases who undergone general surgical intervention in my unit.

Exclusion criteria: All cases who got transferred to other specialties department. Cases below 13 years of age. In this study, we compared the emergency surgeries performed in my unit during the first wave of covid 19 pandemic period with the same period of last year. We aimed to investigate the effect of covid-19 on emergency surgeries. We analyzed the effectiveness of the measures. We have taken and the incidence of covid-19 of patients and healthcare professionals.

Statistical analysis

Statistical analysis was done using Microsoft Excel and SPSS software with the help of a statistician. P-value was used to assess the significance of the correlation between variables. A statistically significant correlation was one in which Pearson correlation was used to assess the strength of correlation between variables Pearson correlation: > 0.5 - Strong correlation, 0.3 to 0.5 - Moderate correlation, 0.3 - Weak correlation Chi-square Test: Chi-square test was performed between two groups and its statistical significance was calculated. The chi-square (χ^2) test of independence was used to test for a statistically significant relationship between two categorical variables. The term "degrees of freedom" was used to refer to the size of the contingency table on which the value of the Chi-Square statistic has been computed value was calculated using the Excel CHITEST function: If $P\text{-value} \leq 0.05 \rightarrow$ statistically significant, If $P\text{-value} > 0.05 \rightarrow$ statistically insignificant.

Results

Number of admitted Pandemic group cases ($n=639$) was lower than the control group ($n=1329$). There was a 51% reduction in

admission. Among 639 cases, 484 (75.79%) were trauma cases and then 155 (24.25%) cases were general surgery cases. The total census of general surgical cases excluding trauma cases was decreased by 69.3% during the first wave of covid. The biggest decreases observed were in uncomplicated appendicitis, cholecystitis, hollow viscus perforation. The biggest increases observed were in complicated cases like an appendicular abscess, septic limb which undergone amputation. The biggest increase in the cases treated conservatively. Trauma cases decreased in the trauma cases because of lockdown happened most of the months during 2020. Among 155 cases 24 cases were Covid positive (**Table – 1**).

Among the pandemic group, 24 patients were covid positive .one of COVID -19 positive cases which was diagnosed as obstructed femoral hernia died 15 days after surgery because of viral pneumonia and respiratory failure. The rest of the 23 cases got operated on and discharged with minimal respiratory complications (**Table – 2**).

Discussion

The virus is transmitted mainly via the respiratory route, when people inhale droplets and particles that infected people release as they breathe, talk, cough, sneeze or sing. The closer people interact, and the longer they interact, the more likely they are to transmit COVID-19, but infection can occur over longer distances, particularly indoors [5]. People are at their peak of infectiousness when their symptoms start and are infectious for up to 3 days before this. Their infectiousness declines after the first week, but they remain contagious for up to 20 days and can spread the virus even if they never developed any symptoms. The total census of general surgical cases is decreased by 69.3% during the first wave of the covid period (pandemic group). The biggest decreases observed were in uncomplicated appendicitis (appendicitis, appendicular perforation), acute cholecystitis, hollow viscus perforation, intestinal obstruction [6]. The biggest increases observed were in

complicated cases like an appendicular abscess, Fournier's gangrene, septic limb which undergone amputation [7]. The biggest increases in the cases treated conservatively on comparing with previous year cases. Trauma cases decrease in the census because of lockdown most of the months during 2020. Road traffic accident cases were very less during 2020. The decrease in the number of surgeries for uncomplicated appendicitis, cholecystitis may be due to the more antibiotic treatment administered during a pandemic [8]. Although there was a decrease in total urological emergencies, acute obstructive pyelonephritis, acute obstructive renal problem,

epididymal orchitis, paraphimosis did not decrease. Among 155 cases 24 cases were covid positive. 7 out of 24 cases were admitted for the surgical problem and acquired infection in a hospital during post-operative periods [9]. According to these recommendations, we have to postpone our elective cases from March 2020 to August 2020, we had to reduce the surgical admissions in outpatient clinics and wards to protect the patient, doctors, and staff health and meet the increased need for a bed. Emergency surgeries were performed during the covid-19 pandemic period. We targeted to investigate the effect of covid-19 on emergency surgeries [10].

Table – 1: Demographics data with clinical conditions.

	Control group	Pandemic group
Census	505(38%)	155(24.25%)
Male	363(71.88%)	89(57.41%)
Female	142(28.11%)	66(42.58%)
Appendicectomy done for appendicitis	52(10.29%)	15(9.67%)
Peritoneal wash for appendicular abscess	13(2.57%)	4(2.58%)
Blunt injury abdomen	14(2.77%)	4(2.58%)
Cholecystectomy	7(1.38%)	2(1.29%)
Hallow viscus perforation	15(2.97%)	6(3.87%)
Intestinal obstruction	21(4.15%)	5(3.22%)
Hernial surgery	13(2.57%)	4(2.58%)
Testicular torsion and gangrene	14(2.77%)	7(4.51%)
Pig tail drain for liver abscess	46(9.10%)	10(6.45%)
DFS	96(19%)	22(14.19%)
Fournier's gangrene	8(1.58%)	4(2.58%)
Amputation of septic limb	14(2.77%)	8(5.16%)
conservatively treated cases	192(38.01%)	64(41.29%)

Table – 2: Complications.

	Control group (n=505)	Pandemic group (n=155)
Total post-operative complication, n(%)	45(8.91%)	24(15.48%)
Respiratory complication	6(1.18%)	2(1.29%)
Surgical site infection	16(3.16%)	6(3.87%)
Cardiovascular complication	4(0.79%)	2(1.29%)
Urinary complication	8(1.58%)	1(0.64%)
Reoperation	4(0.79%)	1(0.64%)
Mortality	3(.59%)	2(1.29%)

Conclusion

Most symptomatic people experience symptoms within two to seven days after exposure, and

almost all will experience at least one symptom within 12 days. Most people recover from the acute phase of the disease. However, some people continue to experience a range of effects for months after recovery - named long COVID - and damage to organs has been observed. Multi-year studies are underway to further investigate the long-term effects of the disease.

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