

Clinical Features and Management of Patients Admitted for Emergency Surgery at Tertiary Care Hospital during COVID-19 Pandemic

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Abstract:

Nobel coronavirus disease 2019 (COVID-19) is an infectious disease and impact on health service was vast. Most of the health services, hospitals and clinics were providing emergency services only. The aim of this study was to assess sign and symptoms and surgical emergency management performed in Department of Surgery and Department of Obstetrics and Gynecology in a tertiary care hospital. A retrospective descriptive study was conducted among suspected and proven COVID- 19 patients admitted in Patan Academy of Health Sciences, Lalitpur. Clinical data of all patients admitted for emergency conditions extracted from the medical records were included in the study. A total of 130 patients admitted for surgery were selected by using convenient sampling method. Mean age of the patients was 29.56 ± 8.87 years. Most of the patients (72.3%) had visited Obstetrics and Gynecology department and 21.5% in Surgery department during the study periods. Among 130 patients 84 (64.6%) had to undergo emergency and elective Lower Segment Caesarean Section (LSCS) and spinal anesthesia was

administered for 83.1% of the cases. Appendectomy was performed in 15 (11.5%) patients. During COVID-19 pandemic, surgical procedures were limited to urgent surgical service. Most common emergency surgeries were LSCS, Appendicitis and surgical emergency management was lower segment caesarean section and appendectomy.

Key words: *Appendectomy; COVID-19; lower segment caesarean section*

Introduction:

Nobel coronavirus disease 2019 (COVID-19) is an infectious disease caused by severe acute respiratory syndrome by coronavirus 2 (SARS-CoV-2). The main sources of transmission of disease to human beings were through contaminated droplets, aerosols, hands and surfaces. The World Health Organization (WHO) responded immediately and declared COVID-19 as pandemic on March 11, 2020 (WHO, 2020). The disease spread quickly and the first case in Nepal was detected on 23 January 2020. In Nepal, country lockdown came into effect on 24 March 2020. Local transmission of COVID-19 was confirmed on 4 April 2020 and first death occurred on 14 May 2020 (Rayamajhee, Pokhrel, & et.al., 2021).

In Nepal, most patients infected with SARS-CoV-2 were asymptomatic and the infection was less fatal during first lock down phase. But, some patient had severe disease symptom with pneumonia and some had critical life-threatening complications; acute respiratory distress syndrome (ARDS), shock and multi organ dysfunction syndrome. The most common symptoms were fever, fatigue, dry cough, shortness of breath, loss of smell and/or taste, loss of appetite and myalgia. Less common symptoms were diarrhea, abdominal pain, sputum production, rhinitis, sore throat and headache (Dawadi, Syangtan, & et.al., 2022).

The impact of COVID-19 in health service was vast. Most of the health services, hospitals and clinics were providing emergency services only. According to hospital policy, every patient coming to hospital was being screened for COVID-19 before admission (Rajbhandari & Dangal, 2020). Personal protective equipment (PPE) and medical equipment were in high demand. During the outbreak, risk of transmission of diseases from the patients and healthcare providers was very high therefore; the care provided by health workers was also affected and management policy was changed (Rajak, 2020). The priority of health care service has changed to provide only emergency and semi-emergency conditions which need to be addressed immediately (Tiwary & Pandey, 2020). Elective surgical procedures might get worsen if intervention was not done on time and is usually life threatening. Therefore, the aim of this research is to find out surgical emergency management during pandemic in Nepal. This study was carried out to assess sign and symptoms and surgery performed in Department of Surgery and Obstetrics and Gynecology during COVID-19 outbreak in a tertiary care hospital.

Materials and Methods

The retrospective descriptive study was conducted among suspected and COVID-19 positive patients admitted in Patan Academy of Health Sciences, Lalitpur. Clinical data of all patients

admitted for emergency surgical condition in Department of Surgery and Department of Obstetrics and Gynecology was extracted from the medical records. The inpatient admitted for surgery which was entered in medical record from May 2020 to April 2021 were included in the study. A total of 130 patients admitted for surgery were selected by using convenient sampling method. The data included demographic profile of patients, sign and symptoms, diagnosis, management, type of anesthesia given and outcomes, and length of stay in hospital were recorded. Data were analyzed by using SPSS v.20 and descriptive analysis was done.

Results

In this study, a total of 130 patients who underwent surgery were enrolled, with mean age of the patients 29.56(±8.87) years, among them 29(22.3%) were male and 101(77.7%) were female. Most of the patients 94(72.3%) had visited Obstetrics and Gynecology department, 28(21.5%) in Surgery, 5(3.8%) in ENT, 2(1.5%) in Orthopedic and 1(0.8%) in Urology department during the study periods. Most common clinical features were previous CS, patient in labor, oligohydramnios and appendicitis. Different indications of surgery of the patients were shown in Table 1.

Table 1: Indications of surgery (N=130)

Diagnosis	Frequency (%)
Previous CS/Labor/Oligohydramnios	28(21.5)
Appendicitis/Appendicular Perforation	25(19.2)
Decrease Fetal Movement with Failed induction of labor	12(9.2)
Cephalo Pelvic Disproportion (CPD) in Labor/Previous CS	10(7.7)
Meconium	10(7.7)
Fetal Bradycardia/Trachycardia/Distress	9(6.9)
Non progress of labour (NPOL)	7(5.4)
Deep neck/Perianal abscess	6(4.6)
Incomplete/Missed Abortion	4(3.1)
Abruptio placenta	4(3.1)
Penile Fracture	2(1.5)
Pre-eclampsia with twin pregnancy	2(1.5)
Ectopic pregnancy	2(1.5)
Foreign body Bronchus	1(0.8)
Acute reactive lymphadenitis bilateral pneumonia with prolonged intubation	1(0.8)
Prolonged intubation with COVID pneumonia with down syndrome	1(0.8)
G2A1 at 35wks with Gestational diabetes medicine	1(0.8)
Gastroschisis	1(0.8)
Non delivery post partum hemorrhage	1(0.8)
Stridor with bilateral pneumonia with acute kidney injury	1(0.8)
Tibia fracture	1(0.8)
Vesicoureter stone with pyelonephritis	1(0.8)

Table 2: Covid-19 screening result (N=130)

Test	Frequency(%)
Covid Positive	62(47.7)
Covid suspected	44(33.8)
Antigen Positive	17(13.1)
Negative	7(5.4)

COVID-19 suspected participants were 32%, COVID 19 positive were 52% and 2.3% was under isolation but 25.4 % COVID suspected patient were subsequently diagnosed negative(Table 2). The number of confirmed cases is constantly increasing worldwide and in present study the confirmed positive cases were 60.8%. Various measures were initiated by health care facilities and health professionals to tackle the pandemic.

Table 3: Different types of surgeries performed and mean duration of hospital stay (N=130)

Surgery	Frequency(%)	Mean No. of days stayed in hospital
LSCS	84(64.6)	6.70 (\pm 4.34)
Laparotomy	12(9.2)	8.17 (\pm 4.10)
Appendectomy	15(11.5)	6.87 (\pm 5.05)
D& C	3(2.3)	5.33 (\pm 5.13)
Debridement	5(3.8)	6.40 (\pm 3.97)

Among 130 patients 84(64.6%) had to undergo emergency and elective LSCS, 15(11.5%) underwent appendectomy and 12(9.2%) underwent laparotomy. The mean hospital stay was more in laparotomy compared to other procedures (Table 3). Due to limited available resources the hospital management needed to utilize resources carefully, so that more patients could be benefited with medical care. Early diagnosis of appendicitis and appropriate surgical treatment is important to prevent complications such as appendix perforation, abscess formation, and other postoperative complications including death.

Table 4: Type of anesthesia used during surgery (N=130)

Type of anesthesia	Frequency(%)
General anesthesia	14(10.8)
Intra-Venous anesthesia	7(5.4)
Spinal anesthesia	108(83.1)
Saddle	1(0.8)

In present study, spinal anesthesia was administered to 83.1% of patients and only 10.8% patient was given general anesthesia during surgery (Table 4). Spinal anesthesia technique is

the choice for cesarean section as it avoids risk of failed intubation. It provides effective pain control and fast anesthetic recovery.

Discussion

The study was conducted at a tertiary care hospital of the country Nepal during the COVID-19 pandemic. During the pandemic era most of the medical centers postponed or canceled regular elective procedures. The policy of the hospital had been changed to designated COVID-19 care centers so that health personnel can focus on health service needed during the pandemic (Piryani, Piryani, & Shah, 2020). During the coronavirus-19 (COVID-19) pandemic, there has been reported delay in the presentation of some urgency to the emergency hospital departments (Suwanwongse & Shabarek, 2020). However, surgical procedures were limited to urgent surgical service especially emergency and semi-emergency conditions as per the instructions of the government during pandemic (Tiwary & Pandey, 2020).

Gynecological emergencies if postponed may have serious consequences and should not be delayed (Saha, Roy, & et.al., 2021). Most common way to deliver the baby is lower segment caesarean section (LSCS) and in present study 64.6% had LSCS during study period and mean number of hospital stay days was 6.70 days. Similar study in New York City reported only 40% LSCS during the first wave of COVID-19 period (Malhotra, Miller, Bajaj, Sloma, & Wieland, 2020). Some study had reported reduced caesarean section rates due to COVID-19 impact on health care in low- and middle-income countries (COVIDSurg, 2020).

Appendectomy is the gold standard of treatment for acute appendicitis. It is the most effective and safe treatment option and provides curative treatment without recurrence risk. Acute appendicitis is one of the most common surgical emergencies. Many studies suggest that conservative management with intravenous antibiotics can be used as an alternative (Podda, Gerardi, & Cillara, 2019) (Suwanwongse & Shabarek, 2020). In present study 11.5% had appendectomy and mean number of days of hospital stay was 6.87 days. The study reported that there was 22% drop in the number of appendicitis patients treated during COVID-19 period as compared to the pre-COVID-19 period (Bosak, Sestan, & et.al., 2022).

During COVID-19, general anesthesia was recommended for surgery as it reduces airborne and droplet transmission from the patient's mouth and nose (Chen, Liu, & et.al., 2020). The present study had reported that general anesthesia was given to only 10.8% patient during surgery. Spinal anesthesia is the primary choice of anesthesia for cesarean delivery with COVID-19 and present study has reported that 83.1% had undergone surgery using spinal anesthesia. A similar study by Eleju et al reported that 29.8% and 70.2% patient was given general and spinal anesthesia respectively during COVID-19 (Eleju, Ugwu, Enebe, J.T., & Okoro, 2022). Study done in United Kingdom had reported significant reduction in the general anesthesia rate during the COVID19 period (Bhatia, Columb, Bewlay, & et.al., 2021).

The present study has some limitations as the study was retrospective in nature and single centered. Only one year data was extracted from the medical record and could not predict the

duration of the situation. COVID-19 disease specific treatment was not documented as the main purpose was to assess sign and symptoms and surgical emergency management performed in Department of Surgery and Obstetrics and Gynecology in a tertiary care hospital.

Conclusion

During COVID-19 pandemic, surgical procedures were limited to urgent surgical service especially emergency and semi-emergency conditions. Most common emergency cases were previous CS, patient in labor and Oligohydramnios and surgical emergency management was lower segment caesarean section followed by appendicitis and appendectomy. The health professional and management need to select and adopt best practice to overcome the pandemic. The health care facilities and policy makers should prepare all the health professionals and communities for future unanticipated pandemics.

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