ELECTIVE CAESAREAN DELIVERY IN A PATIENT WITH CONFIRMED COVID-19: CASE REPORT

Owende P.A[1], Odongo B.E[2], Mary M[3]

Affiliation

1. Department of Obstetrics and Gynaecology, Kenyatta National Hospital
2. Kenya Obstetrical and Gyneacological Society
3. Kenyatta University Teaching, Referral and Research Hospital

Correspondence: akothowende@yahoo.com

ABSTRACT

Introduction: In December, 2019, coronavirus disease 2019 (COVID-19) caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) emerged in Wuhan, China and has spread to Kenya with the first case being confirmed on 13th March 2020[1]. By the end of June 2020, there were about 6000 confirmed cases in Kenya, with 143 deaths[1]. Currently, there are no statistics regarding pregnant women infected with COVID-19. Standard policies and precautions for facilities and personnel to safely care for COVID-19 patients as outlined in CDC and WHO guidelines have been adopted locally[2,3]. The facilities have also formulated creation of standard operating procedures to manage these patients e.g. operating separate labor and delivery units for COVID-positive patients and limiting the number of people in the delivery room, increased communication between neonatal and obstetric teams, limiting staff exposure and staff training on personal protective equipment procedures[3].

Kenyatta University Teaching, Referral and Research Hospital (KUTRRH) has been identified as one of the facilities designated for managing COVID-19 cases in Kenya (Figure 1). KUTRRH, established in 2019 is the third National Referral Hospital in Kenya with a 650 bed capacity and equipped with state-of-art medical amenities including eight negative pressure theatres, 24 bed capacity ICU and 12 bed HDU with a designated COVID 19 theatre[4]. Staff in all areas have been trained about the use of PPE and correct donning and doffing techniques. In order to minimize staff exposure, and therefore infection, only essential staff are present in the delivery rooms and theatres (Figures 2-5).

Keywords: Caesarean delivery; COVID-19; SARS-CoV-2

CASE SUMMARY

We present the first reported case of caesarean section delivery in a COVID 19 positive patient in Kenya. Jane Doe (JD), 37 years Para 3+0 Gravida 4, who was unsure of dates but was determined to be at 38 weeks by ultrasonography. She was on management for hypertensive disease in pregnancy for 4 months before admission for which she was on Methyldopa and Junior Aspirin.

She was initially admitted in the isolation ward having tested positive for COVID19 and with a fever of 38^0 C and SPO2 ranging from 88-92% while breathing ambient air. Oxygen was administered with nasal prongs at 3 liters per minute. JD is an employee at a restaurant and was due to return to work subject to conditions that were set by the Government of Kenya requiring mandatory COVID19 testing before reopening. Oropharyngeal and nasal swabs were obtained and subjected to PCR testing for SARS-CoV-2 at the National Influenza laboratories, Nairobi.

She was transferred to HDU for close monitoring due to severe gestational hypertension with systolic blood pressure range of 170-180/100-110 mmHg although she did not exhibit other symptoms of severity e.g. epigastric pains, headache and blurred vision. The Doppler studies on middle cerebral and umbilical arteries were within acceptable limits. She received

Magnesium Sulphate and antenatal corticosteroids. She had undergone a caesarean section in her last delivery in 2016 due to non-reassuring fetal status.

Considering her history of one previous scar, physical condition, and severe gestational hypertension, an elective Caesarean delivery was decided. This was done in a negative pressure theatre with air exchanges of 12 cycles per hour and air-conditioning to ameliorate the discomfort of several layers of protective gear.

The laboratory results were Haemoglobin of 12.5g/dl, Platelets of $301x10^9$/L, White blood cell count of $7.6x10^9$/L, Neutrophils $4.82x10^9$/L, Lymphocytes $1.34.10^9$/L and C-reactive protein of 15.7, ESR 68mm/hr. Other blood biochemical i.e. LFTs and UECs and coagulation parameters were within normal limits.

The preoperative evaluation was by non-contact means including phone conversations and communication through a glass shield to avoid donning and doffing multiple times. Informed verbal consent was obtained.

The protection measures were implemented in the operating theatre under the instructions of a donning and doffing supervisor. This included hand washing, wearing standard mask (N95) sandwiched between two surgical masks, face shield, hazmat suits with overlying polythene, shoe covers and boots, disposable surgical caps, medical goggles with vents and adjustable straps, disposable protective clothing, disposable gloves, and disposable shoe covers. The N95 masks were fit tested to effectively prevent aerosol or fluid secretions.

The nursing team performed the setup for surgery before the patient was wheeled into theatre and they vacated the OR upon her arrival, exiting via a designated lift. Based on the symptoms of COVID-19 and her general situation, spinal anesthesia was chosen. While seated on the operation table, the skin overlying L3-5 was cleaned with povidone iodine and then infiltrated with 3mls of 2% lignocaine. Spinal needle Gauge 22, Quinkie needle was inserted in L3-4 interspace, 25mcg of fentanyl and 10mg heavy bupivacaine instilled. Once anesthesia was complete, the patient was cleaned and draped and caesarean section was performed. Perioperative monitoring consisted of five-lead electrocardiography, pulse oximetry, noninvasive BP.

5 minutes after skin incision, a male infant weighing 3140 grams was delivered with 1- and 5-min Apgar scores of 8 and 9 respectively (Figure 6). The newborn was immediately transferred to a neonatal ICU ward for specialist neonatal treatment to minimize the potential risk of infection from other patients. Although asymptomatic, she has been put under the suspected category. Her swab sample for coronavirus testing was collected and taken for analysis.

After delivery, oxytocin was given IV 10 units. The vital signs of the patient were stable, and she was wheeled out of the operating room (Figure 7) and taken back to critical care unit. Postoperative analgesia was achieved using subcutaneous morphine 6mg QID, IV paracetamol 1 gram 6hourly and Diclofenac Rectal Suppositories.

Surgical prophylaxis was with cefuroxime 1.5 grams stat then 8 hourly for the first 24 hours. The postoperative follow-up blood pressure was normal on Methyldopa and Nifedipine.

Repeat PCR testing was performed after two weeks post admission and it was negative.

DISCUSSION

On the 11th of March 2020, SARSCoV-2 (COVID -19) outbreak was recognized as a pandemic by the World Health Organization (WHO) [5]. On March 15th 2020, the first confirmed case of COVID-19 in Kenya was reported [6]. With the disease burden increasing daily, there is a lack of evidence regarding the impact of COVID19 in pregnancy. We report the first caesarean section performed in a patient with confirmed COVID 19 in pregnancy at term complicated by hypertensive state of pregnancy.

Although pregnant women are not recognized as a vulnerable group for COVID-19, there is a growing body of evidence linking late pregnancy and prior maternal risk factors such as high BMI, diabetes and hypertension to adverse pregnancy outcomes, including maternal and neonatal deaths (7, 8).

The patient had hypertension, which is a high-risk factor that has been linked to an increased likelihood of a severe course for COVID-19. While previous retrospective studies have shown successful trials of labor in patients with COVID-19, our patient presented with worsening hypertension complicated by previous caesarean section scars and thus could not deliver SVD.

In our case, after an interdisciplinary discussion, we opted for spinal anaesthesia rather than perioperative general anesthesia with intubation, which our patient was able to successfully tolerate. We believe this is a safer method of anaesthesia for both obstetric COVID-19 patients and neonates if maternal respiratory status allows, and has the added benefit of decreasing viral exposure to medical staff.

A healthy infant was born who was not affected by COVID-19 after testing. The postpartum and neonatal course was without any event. All the healthcare workers remained asymptomatic.

To our knowledge this is also the first case described of parents with COVID-19 not separated from their infant. Management provided supports the current CDC and WHO guidelines suggesting that it is possible to consider rooming in post-delivery for COVID-19 positive patients. Encouragement of breastfeeding appears possible and safe when viral precautions are observed.

CONCLUSION

Elective caesarean section with appropriate procedures in a patient with confirmed COVID-19 appears feasible and safe.

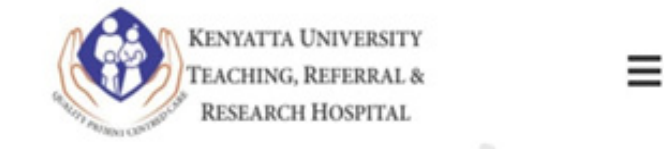

Figure 1: KUTRRH

Figure 2: Surgical Team members donned

Figure 3: Dr. Owende PA, Gowned and ready for surgery.

Figure 4: Patient JD before surgery-in the background

Figure 5: Dr. Owende PA, donned

Figure 7: Wheeling the patient to theatre

Figure 6: Live baby delivery

Declaration of interest: The authors declare that they have no conflicts of interest.

REFERENCES

1. MINISTRY OF HEALTH – REPUBLIC OF KENYA https://www.health.go.ke
2. CDC. Steps healthcare facilities can take now to prepare for coronavirus disease 2019 (COVID-19) [Internet]. Available from: <https://www.cdc.gov/coronavirus/2019-ncov/hcp/steps-to-prepare.html>.
3. KENYA COVID 19 RMNH GUIDELINES: A Kenya Practical Guide for Continuity of Reproductive, Maternal, Newborn and Family Planning Care and Services in the Background of COVID19 Pandemic MOH, April 2020 https://www.health.go.ke
4. Kenyatta University Teaching, Referral & Research Hospital https:// kutrrh.go.ke
5. World Health Organization. WHO Timeline - COVID-19. 2020. [online] Who.int. Available at: <https://www.who.int/news-room/detail/08-04-2020-who-timeline—covid-19>
6. www.health.go.ke
7. Y. Liu, H. Chen, K. Tang, Y. Guo, Clinical manifestations and outcome of SARS-CoV-2 infection during pregnancy, J. Inf. Secur. (2020) (S0163-4453:30109-2).
8. M.M. Ramos Amorim, M.L. Soligo Takemoto, E.B. Fonseca, Maternal deaths with Covid19: a different outcome from mid to low resource countries? Am. J. Obstet. Gynecol. (2020)(Epub ahead of print)

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