



Management of the Index COVID -19 Obstetric Patient at the University of Benin Teaching Hospital

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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Case Study

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ABSTRACT

Introduction: The novel coronavirus (COVID-19) was first identified in Wuhan City, Hubei province of China, November 2019. As at September 2020, over 28 million infections have been identified with almost a million deaths worldwide causing an alarming pandemic. Clinical presentations in pregnant patients with COVID-19 could be atypical with normal temperature (56%) and leukocytosis. This is further masked by the features of pregnancy.

We present the management of a COVID-19 parturient in our obstetric unit.

Case Report: A 32 year old unbooked G₃P₁⁺¹ lady at 32 weeks who presented via referral from a private facility with a history of elevated blood pressure and ++ of protein in urine. Also, complaints of cough and difficulty with breathing. On examination she was noted to be anxious, afebrile, not pale, anicteric, acyanosed, not dehydrated. Had bilateral pedal oedema. Tachypnic with a respiratory rate of 28 cycles per min with basal crepitations. Pulse rate was 96bpm full and regular. Blood pressure was 180/100 mmHg. Heart sounds S₁S₂only. An impression of Chronic hypertension with superimposed pre-eclampsia at 32 wks GA in a primipara with one previous CS with pulmonary edema. Keep in view COVID-19.

She was managed with oxygen, antihypertensives, steroids, while observing strict infection control protocol. She had an emergency caesarean section under subarachnoid block and was delivered

of a live female neonate. A confirmatory positive result for covid-19 was obtained 24hrs later. Neonate was however negative. None of the staff became positive also.

Conclusion: The management of suspected cases of COVID-19 infection should be same as cases already confirmed. As the epidemic persists, numbers will continue to rise and hence our index of suspicion should be heightened. Pregnant women will also present with symptoms masked by the features of a sick parturient. Full complement of PPE must be worn by all staff attending to both confirmed and suspicious cases of COVID-19 infection and strict adherence to stated protocols must be observed.

Keywords: COVID 19; index case; obstetric; pre eclampsia.

1. INTRODUCTION

The novel coronavirus (COVID-19) was first identified in Wuhan City, Hubei province of China, November 2019 [1]. As at September 2020, over 28 million infections have been identified with almost a million deaths worldwide causing an alarming pandemic [2]. The first case in Nigeria was in February 2020. The number of confirmed cases has risen to over 56000 as of September, 2020 with over a thousand deaths. Edo state where our hospital is located has about 2600 cases and over 90 deaths [3]. SARS-CoV-2, is transmitted via droplet inhalation to close contacts of affected individuals and through fomites [4].

Current evidence suggests that neither are pregnant women at a greater risk of COVID-19 than other adults. Symptoms of the novel infection may be masked by features of pregnancy. Although the possibility of vertical transmission exists, this has not been fully established [5,6,7].

Clinical presentations in pregnant patients with COVID-19 could be atypical with normal temperature (56%) and leukocytosis [8]. This is further masked by the features of pregnancy.

We present the management of the index covid-19 parturient in our obstetric unit.

2. CASE REPORT

We present a case of a 32 year old unbooked G₃P₁⁺¹ lady at 32 weeks who presented via referral from a private facility with a history of elevated blood pressure and ++ of protein in urine. Also complaint of cough and difficulty with breathing. She was said to be well until presentation for routine ANC when it was noticed that her blood pressure was elevated 170/110mmHg. Urinalysis was subsequently done and it revealed ++ of protein in urine. There

was no history of headaches, blurring of vision, photophobia, epigastric pain nor history of seizures prior to presentation. No history of other intercurrent medical conditions. Had emergency CS 3 years ago for severe PIH with breech presentation under subarachnoid block nil sequelae.

She was not a known hypertensive but had been managed for PIH since booking and had been on Tabs Aldomet 250mg b.d, Nifedipine 20mg b.d and claims to be compliant with medications and hospital visits. Index pregnancy was booked at 24/52 and booking blood pressure was noted to be 170/100mmHg. History of fever for which she took antimalarials. No contact of history of contact with anyone with cough or fever. No history of recent travel to epicentres. Nil history of allergies or blood transfusion.

On examination she was noted to be anxious, afebrile, not pale, anicteric, acyanosed, not dehydrated. Had bilateral pedal oedema. Tachypnic with a respiratory rate of 28 cycles per min with basal crepitations. Pulse rate was 96bpm full and regular. Blood pressure 180/100mmHg. Heart sounds S₁S₂ only. Abdominal examination was in keeping with a fundal height of 32/52. Singleton fetus in longitudinal lie and cephalic presenting with fetal heart rate of 138bpm.

An impression of Chronic hypertension with superimposed pre eclampsia at 32wks GA in a primipara with one previous CS with pulmonary edema to rule out COVID-19 infection. She was then admitted into the labour ward unit for stabilization in an isolated room with all staff placed on alert and strict NCDC protocol observed and use of PPE.

Routine investigations were carried out including a covid 19 screen and placed on oxygen via a facemask with rebreathing bag, magnesium sulphate, labetalol, dexamethasone, and

frusemide and antibiotics. The 6th hour review still noted elevated blood pressure and a decision was taken to carry out an emergency caesarean section. The Anaesthetists on call reviewed. History was as in the notes, Mallampati was not done due to suspicion of a covid 19 infection and she was assigned American Classification of Anaesthesiologists Class III. Placed on nil per oral. Investigations showed low platelets of 44000cells/ml. Bed side clotting time 5 minutes. Hb 10g/dl. Haematologist was informed due to this finding. Fresh whole blood was grouped and matched. Fresh frozen plasma was made available. Platelet concentrate was also asked for.

Patient was counselled for a subarachnoid block. General anaesthesia would also be an option considering the low platelet count. However, to avoid aerosolization of viral particles, spinal anaesthesia was decided on. Informed consent was obtained and a multidisciplinary team of obstetricians, anaesthetists, neonatologists, nurses, haematologists and infectious disease experts were assembled and were made to understand the use of PPE and the established infection prevention and control (IPC) guidelines. All staff caring for the woman wore appropriate personal protective equipment (PPE).

Patient was transported to the theatre in the left lateral position with full complement of PPE wore by the porters and oxygen therapy. She was moved straight to the operating table without the usual routine stop in the recovery room. A wedge was placed under the right buttocks to ensure displacement of the uterus. Monitors connected and baseline vital signs noted .Spo2: 98%BP: 171/108mmHg.PR:106bpm. Second venous access was secured with a size 18G cannula on left forearm. IV metoclopramide 10mg and IV Ranitidine 50mg was given as premedication.

Subarachnoid block was performed by the most experienced senior registrar. Patient circulation preloaded with 500ml of 0.9% saline. She was sat up and back was cleaned and draped aseptically. L4/L5 interspace located and infiltrated with 1ml of 2% lidocaine. After one minute with the aid of the introducer a 25G spinal needle was advanced. With the efflux of CSF, 2ml of hyperbaric bupivacaine and 15ug of fentanyl was administered. Needle and introducer removed and a sterile dressing placed over the site. Patient returned slowly to the bed, monitors reconnected and vital signs checked

every minute for 5 minutes and subsequently every 5 minutes.

Block height was T4 About 3 minutes into the surgery a live female neonate was extracted with a birth weight of 1.2 kg, requiring passive resuscitation and an APGAR score of 6₁ 7₅. Baby was transferred to an isolation cubicle in the scbu.

Third stage was managed with 100mcg carbetocin and tranexamic acid 1g. and maintenance with 40units of oxytocin in 500ml of 0.9% S to run at 100ml/hr. Intra op vital signs remained within normal limits and surgery lasted for 40minutes. Total IVF 1000ml. Estimated blood loss was 300ML. Urine output 100ml. Post op vital sign Spo2: 99% in room air PR: 96bpm BP: 171/102mmHg RR: 22cpm, chest clinically clear. She was then transferred to the isolation room in labour ward.

By the 6th hour, graded oral sips were commenced and oral antihypertensives too.

Blood Pressure had stabilized to 148/78mmHg and the plan to discontinue urethral catheter upon completion of MgSo4. To retrieve covid19 result. By the second day post op SARS COV2 result came out positive and she was transferred to the isolation ward. All units where she had been previously managed were notified.

The nasopharyngeal swabs collected from the neonate (at birth and 48 hours after birth) were all negative for COVID-19 infection. Both mother and baby remained asymptomatic during the postpartum period. On day 15 after delivery, the mother met the criteria for discharge because the cough has stopped and has remained asymptomatic for more than 14 days after her initial positive result [9]. She was discharged home and scheduled for a follow up visit. Throughout the period of care, contact between staff and patient was minimised and she wore a surgical mask all the time.

3. DISCUSSION

A pregnant woman presenting to the delivery suite with symptoms suggestive of a prevailing infectious disease must be triage to assess imminent risk to both mother and baby.

When there is imminent risk, emergency caesarean delivery must be performed. A

coordinated team response is initiated for assessment and optimization of maternal oxygenation and infection control measures. Our patient had severe pre-eclampsia and hence waiting for a confirmatory covid test result would compromise mother and also baby. Previous studies reported an increased maternal morbidity in pregnant women compared to non-pregnant women, though no significant difference in mortality has been found [10,11].

Our patient had pulmonary oedema with basal crepitations. Respiratory complications may occur in preeclampsia and covid 19 infections. Oxygen therapy, steroids and diuretics may play a role in covid 19 infections and also in preterm deliveries. Our patient had all this to aid fetal lung maturity and reduce basal crepitations [12,13]. Prompt delivery had also been shown to improve maternal oxygenation by reducing oxygen consumption and by allowing prone positioning and a wider range of therapies without concern for fetal wellbeing. Intrauterine and perinatal deaths in late stage pregnancy has been shown to occur in 23% of patients with ARDS [14].

Airway examination and Mallampati score was not done to reduce viral aerosolization and protect the anaesthetist. The decision for a regional technique was taken due to this same reason. Also general anaesthesia with endotracheal intubation is usually difficult due to airway oedema and short necks associated with the obstetric patient [15,16]. General anaesthesia may be considered if the oxygen saturation drops below 93% in oxygen [17].

The low platelet count our patient had was a challenge to the use of regional techniques due to the risk of epidural and spinal haematoma. The risk of these occurring should be assessed on an individual basis depending on the presence of other risk factors such as anticoagulant use, platelet function defects, congenital coagulopathies and decreasing platelet counts [18]. Counts of 40×10^9 may be acceptable for lumbar puncture in patients in whom the risk of general anaesthesia are high [19]. Our patient had a count of 44×10^9 . Platelet function is not available in our centre. Fresh whole blood, fresh frozen plasma and platelet concentrate were requested for this patient. Platelet concentrate remains a challenge in our setting due to cost and availability. It is also time consuming in the face of an emergency.

Regional techniques in the face of coagulopathy should be performed by the most experienced anaesthetist to reduce the risk of repeated attempts that may lead to spinal or epidural haematoma. This patient never developed this complication.

To further limit the spread of suspected infection, the number of staff in the operating room was reduced to its barest minimum. Ideally a negative pressure theatre should have been used but this does not exist in our setting [20]. HEPA filters were also not available. PPE was made available and strict adherence to all protocol was fully observed.

The neonate remained negative in the days following birth. No reliable evidence has been provided in support of the possibility of vertical transmission of COVID-19 infection from mother to baby [21,22]. However the baby died following complications of respiratory distress.

None of the staff who attended to her tested positive.

4. CONCLUSION

The management of suspected cases of covid 19 infection should be same as cases already confirmed. As the pandemic persists, numbers will continue to rise and hence our index of suspicion should be heightened. Pregnant women will also present with symptoms masked by the features of a sick parturient. Management of obstetric patients to ensure a healthy mother and baby is key. Prevention of disease transmission to the baby is important as most are born negative. Full complement of PPE must be worn by all staff attending to both confirmed and suspicious cases of covid 19 infection and strict adherence to stated protocols must be observed.

CONSENT

As per international standard or university standard, patients' written consent has been collected and preserved by the authors.

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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