Tidsskriftet Tidsskrift for Den norske legeforening

A high-risk delivery patient with COVID-19

SHORT CASE REPORT

ANE CECILIE MUNK

E-mail: acmunk@lyse.net
Department of Research
Sørlandet Hospital, Kristiansand
and
Department of Obstetrics and Gynaecology
Sørlandet Hospital, Kristiansand
Ane Cecilie Munk, PhD, specialist in obstetrics and gynaecology, postdoc and senior consultant.
The author has completed the ICMJE form and declares no conflicts of interest.

LINDA REME SAGEDAL

Department of Research
Sørlandet Hospital, Kristiansand
and
Department of Obstetrics and Gynaecology
Sørlandet Hospital, Kristiansand
Linda Reme Sagedal, PhD, specialist in obstetrics and gynaecology, senior consultant and researcher.
The author has completed the ICMJE form and declares no conflicts of interest.

TURID STAVSETH KROGEDAL

Maternity ward, Department of Obstetrics and Gynaecology
Sørlandet Hospital, Kristiansand
Turid Stavseth Krogedal, midwife.
The author has completed the ICMJE form and declares no conflicts of interest.

IDA MCFADZEAN

Department of Obstetrics and Gynaecology

Sørlandet Hospital, Kristiansand
Ida McFadzean, specialist in general practice and specialty registrar in obstetrics and gynaecology.
The author has completed the ICMJE form and declares no conflicts of interest.

HANNA OOMMEN

Maternity ward, Department of Obstetrics and Gynaecology
Sørlandet Hospital, Kristiansand
Hanna Oommen, clinical midwifery educator.
The author has completed the ICMJE form and declares no conflicts of interest.

In this article we present the patient care pathway for a woman with a twin pregnancy who was confirmed with SARS-CoV-2 infection a short time before the birth.

A multiparous patient with a twin pregnancy in cephalic/breech presentation at 37 weeks gestation was admitted for induction of labour. While asymptomatic at admission, she developed a sore throat on her third inpatient day. She was isolated with contact and droplet precautions and tested positive for SARS-CoV-2. Examination detected mild disease, with only transient hypoxia that responded to nasal-cannula oxygen. Her induction continued as planned. Internal monitoring, epidural anaesthesia and treatment with fluids, antibiotics and oxytocin were required during labour. Due to signs of fetal distress at delivery, the first twin was delivered by vacuum extraction, the second by breech extraction. Both babies were healthy and roomed with their mother until discharge on day three postpartum.

Norwegian guidelines recommend vaginal delivery for COVID-19 patients without obstetric or maternal contraindications. Management requires planning and training, and good communication between personnel and departments.

Patient care involved several departments and personnel groups. No hospital personnel were infected.

A multiparous patient in her thirties with a twin pregnancy was admitted in early April 2020 for induction of labour with a balloon catheter and misoprostol in gestational week 38, due to uncertain chorionicity. The pregnancy had been uncomplicated and with a steady fetal growth rate. Twin 1 was in the cephalic position and twin 2 in the breech position. The woman had no symptoms of COVID-19 on admission.

On the third day of induction, she developed a sore throat with no fever. Isolation with droplet precautions (1) was introduced and she tested positive for SARS-CoV-2. Due to the need for close obstetric follow-up, induction was continued in the delivery room previously prepared for COVID-19 patients. The patient's husband was permitted to be present.

Because twin 1 showed signs of fetal distress, amniotomy was performed on the same evening with insertion of STAN (internal cardiotocography (CTG) with ST analysis) for closer monitoring. Incipient chorioamnionitis could not be excluded, and penicillin was administered intravenously. There was transient pathological CTG and STAN with poor signal quality, and fetal scalp lactate was 2.8 mmol/l (reference range < 4.2 mmol/l). A tocolytic drug (atosiban) and intravenous fluid were administered, and maternal position was changed. CTG normalised, and epidural analgesia was initiated. The ONEWS (Obstetric Norwegian Early Warning System) score (2), measured hourly, was predominantly normal, with the exception of tachycardia of approximately100 beats/min. Before active labour, the patient showed a drop in SaO_2 to 92 % (≥ 95 %), but this was normalised by means of O_2 by nasal cannula (1–2 l/min). During labour she had only a slight dry cough and no further need for oxygen therapy.

After seven hours of active labour, oxytocin stimulation was initiated. When the patient was fully dilated, twin 1was found to have a pathological fetal heart rate pattern while twin 2 had mild tachycardia. Twin 1 was delivered by vacuum extraction on the indication of possible fetal distress. Apgar score was 9–10–10 and pH in the umbilical artery was 7.2 (7.05–7.38). Twin 2 had bradycardia (< 80 beats/min, > 3 min) and was delivered six minutes later by breech extraction. Apgar score was 7–9-10 and pH 7.18.

The mother and infants were moved to the COVID-19 ward of the internal medicine department, with post-partum care provided by postnatal ward personnel. The woman was asthenic but had no other pronounced symptoms. Penicillin was continued as prophylaxis during her hospitalisation. She was discharged three days after the birth. The twins were healthy throughout the neonatal course, and the woman was asymptomatic ten days after delivery. The patient's husband and older children also had upper respiratory symptoms, but did not meet the criteria for SARS-CoV-2 testing at the time in question. Fourteen hospital staff members were quarantined for two weeks due to contact with the patient. None had a confirmed case of the infection.

Discussion

Like most patients with COVID-19, the majority of pregnant women have mild symptoms (3, 4, 6). A meta-analysis showed that sore throat was an unusual presentation (5/35), whereas fever (48 %) and dry cough (46 %) were more frequent (7). In a study from maternity wards in New York, a number of intrapartum women developed symptoms following admission (3). Women who are hospitalised pre- and intrapartum generally come into contact with numerous hospital staff. We therefore believe that a low threshold for isolation and testing is necessary to avoid the spread of infection.

It is essential to avoid unnecessary caesarean sections. A review of the first published cases of COVID-19 in pregnancy shows that 46 of 48 deliveries were by caesarean section, with no described indication (7). It may be speculated that patient treatment in the early phase was influenced by experience from

other pandemics. For example, coronavirus infections such as SARS-CoV and MERS-CoV have a significantly higher maternal morbidity rate (4). Caesarean section may also have been chosen in order to reduce the risk of infection in the child, since it has been observed that the Zika and HIV virus can be transmitted from mother to fetus during pregnancy and birth (5). Norway has a low caesarean section rate compared with other countries, and the pandemic arrived later here. We were therefore able to learn from the reported experiences of others. The Norwegian Society of Gynecology and Obstetrics and the WHO recommend vaginal delivery for COVID-19 patients; caesarean section should be performed on maternal or obstetric indication (1).

Pregnant women with COVID-19 appear to have an elevated risk of premature rupture of membranes, premature birth and signs of fetal distress (7, 8). SARS-CoV-2 has not been detected in vaginal secretions to date, and studies of neonates in a UK national cohort study confirm that infection prior to or during labour is rare (4). The Norwegian guidelines recommend continuous fetal monitoring during labour. It is considered safe to use internal CTG recording and scalp lactate measurement to ensure proper monitoring (1). The Norwegian Society of Pediatricians, the WHO and the Norwegian Institute of Public Health recommend that asymptomatic neonates be kept in isolation together with their SARS-CoV-2-positive mother, unless she is seriously ill (9, 10).

Good preparation is crucial to ensure appropriate treatment and minimise the risk of infection (10, 11). In the absence of delivery rooms with a sluice, we have dedicated one in five delivery rooms and two patient rooms to COVID-19 patients. A separate neonatal resuscitation room for infected patients has also been established. Planning and cooperation with other departments is essential (10, 11). Treatment of the patient in this case report required cooperation between the maternity ward and the departments of internal medicine, anaesthesiology, surgery and paediatrics. In order to ensure emergency communication with the department of paediatrics and the department of anaesthesiology/surgery, the maternity ward has installed separate alarm buttons for COVID-19 patients. Electronic transmission of CTG/STAN recordings and telephone communication with the midwife enable close follow-up in spite of isolation measures. The delivery team found good communication and discussion of emergency scenarios to be essential to being able to adhere to infection control protocols during the birth.

Appropriate patient treatment during a pandemic requires targeted training of healthcare personnel (10, 11). More than 140 staff members in the maternity ward and neonatal ward in Kristiansand had undergone theoretical and practical training in infection control procedures early in the coronavirus crisis. Flowcharts, procedures, a training film and information folders were prepared. Many staff members have since expressed that this provided security in a high-pressure situation.

The patient and the father of the child have consented to the publication of this article. The article has been peer reviewed.

LITERATURE

1. Findal G, Greve-Isdahl M, Sitras V et al. Koronavirus ved svangerskap og fødsel. Veileder i fødselshjelp. Versjon 3. https://www.legeforeningen.no/foreningsledd/fagmed/norsk-gynekologisk-forening/veiledere/ Accessed 24.6.2020.

2. Øverland EA, Ellingsen L, Heide HC et al. ONEWS: Obstetric Norwegian Early Warning Score System. Veileder i fødselshjelp, 17.2.2020.

3. Breslin N, Baptiste C, Gyamfi-Bannerman C et al. COVID-19 infection among asymptomatic and symptomatic pregnant women: Two weeks of confirmed presentations to an affiliated pair of New York City hospitals. Am J Obstet Gynecol MFM 2020; 2: 100118. [PubMed][CrossRef]

4. Knight M, Bunch K, Vousden N et al. Characteristics and outcomes of pregnant women admitted to hospital with confirmed SARS-CoV-2 infection in UK: national population based cohort study. BMJ 2020; 369: m2107. [PubMed][CrossRef]

5. Arora N, Sadovsky Y, Dermody TS et al. Microbial vertical transmission during human pregnancy. Cell Host Microbe 2017; 21: 561–7. [PubMed] [CrossRef]

6. Wu Z, McGoogan JM. Characteristics of and important lessons from the coronavirus disease 2019 (COVID-19) outbreak in China: Summary of a report of 72314 cases from the Chinese Center for Disease Control and Prevention. JAMA 2020; 323: 1239–42. [PubMed][CrossRef]

7. Della Gatta AN, Rizzo R, Pilu G et al. Coronavirus disease 2019 during pregnancy: a systematic review of reported cases. Am J Obstet Gynecol 2020; 223: 36–41. [PubMed][CrossRef]

8. Liu Y, Chen H, Tang K et al. Clinical manifestations and outcome of SARS-CoV-2 infection during pregnancy. J Infect 2020; S0163-4453(20)30109-2. [CrossRef]

9. Lang AK, Klinkenberg C, Greve-Isdahl M et al. Rutiner for håndtering av barn av fødekvinner med påvist/mulig Covid-19 infeksjon V-3.1. Norsk Barnelegeforening. https://www.legeforeningen.no/contentassets/7fe2786b43cb44a9a3affe4a8f944d75/20200330_covid19_fode_nyfodt_v3.1.pdf Accessed 24.6.2020.

10. Hospital Preparedness for Epidemics. Geneva: WHO Press, 2014. https://www.who.int/publications/i/item/hospitalpreparedness-for-epidemics Accessed 24.6.2020.

11. Helse Sør-Øst. Regional beredskapsplan for pandemi og alvorlig smittsom sykdom. Delplan til Regional Beredskapsplan og Regional Smittevernplan. https://www.helse-sorost.no/beredskap Accessed 24.6.2020.

Publisert: 16 July 2020. Tidsskr Nor Legeforen. DOI: 10.4045/tidsskr.20.0425
Received 11.5.2020, first revision submitted 5.6.2020, accepted 24.6.2020.