

A Case Report of Covid-19 in a 13-day-old new born

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Abstract

Today, Covid-19 faces the world with a dangerous pandemic that threatens all age groups. The presented case reported a 13-day-old newborn with fever and poor sucking. The mother mentioned a recent history of exposure to a patient with Covid-19. Differential diagnoses of sepsis, metabolic disorders and Covid-19 were presented. The newborn was immediately isolated. The vital signs and oxygen saturation were measured. All essential care, including pulse oximeter, cardiac monitoring, and fixing the foley catheter was performed. The oxygen therapy was started using the hood. The results of counseling and echocardiography of the neonatal heart were reported normally. The pediatrician's medication instructions, including D/W 10% + NaCl+ KCl+ Cefotaxime + Vancomycin were done. The Covid-19 PCR was reported positive. On the 5th day of hospitalization, the newborn was general well-being, therefore, she was discharged after complete parent training about the caring of infected new born by Covid-19. Although neonatal infection with Covid-19 is uncommon compared to adults, the possibility of infection in newborn and infants should not be overlooked, therefore, all suspected or exposed to Covid-19 should be evaluated as soon as possible.

Keywords: Covid-19; Newborn; Pediatrics; Infection

Background

Covid-19 is a new disease that was found firstly in Wuhan, China in December 2019[1]. In addition to the devastating effects on the world economy, this viral disease threatens human health in most parts of the world [2]. So far, total numbers of 21,756,357 cases have been confirmed of Covid-19 and 771,635 of these cases have been died [3]. All age groups are at risk for Covid-19. However, severe symptoms in the elderly and milder symptoms in infected children have been reported [4]. There is still no definitive criterion for judging the severity of the disease in young age groups. But a study found that infants less than one year old had milder symptoms than older children [5]. Despite the uncertainty of vertical

transmission from mother to fetus, it is necessary to use proper hygiene strategies in mothers with Covid-19 to prevent infection of their new-borns and infants [6]. We report a case of a 13-day-old newborn referred by her parents with non-specific symptoms of fever and decreased sucking power.

Case presentation

The patient was a 13-days-old female. She was born to a 36-year-old mother, G2 P2 and a cesarean section delivery method. The newborn birth characteristics are presented in table1.

Table 1: The birth characteristics

| Sex | Female |
|--------------------|----------|
| Birth weight | 3400 gr |
| G. A | 40 weeks |
| Length at birth | 50 cm |
| Head circumference | 35 cm |

The newborn's parents referred with the chief complaint of fever and poor sucking, and referred to the emergency department of Abdomen non-specialized hospital in the south of Ilam province.

There was no history of cardiovascular or respiratory disease or problems during pregnancy in the mother's medical history. Except for a history of hypothyroidism and treatment with oral tablets of Levothyroxine NE.

In the newborn's history, urination and defecation were performed normally without diarrhea and vomiting. The mother mentioned a recent history of exposure to a patient with Covid-19.

Primary care was performed, including intravenous administration and serum infusion with D/W 10% 100 cc K.V.O. All necessary assessments, including vital signs and laboratory tests, were performed. The results are presented in table 2

Table 2: Vital signs and laboratory tests of the new born at admitted to hospital.

| Variable | | |
|-------------------|------------------|--------------|
| Vital signs | Body temperature | 39 0c |
| | Pulse Rate | 110/ min |
| | Respiration Rate | 26/min |
| Oxygen Saturation | 88% | |
| CBC & Diff | W.B.C | 12.2 103/ µl |
| | Neutrophil | 58% |
| | Lymphocyte | 42% |
| | Hemoglobin | 14.9 g/dl |
| Blood glucose | 137 mg/dl | |
| BUN | 190.8 mg/ dl | |
| Cr | 1.58 mg/ dl | |
| Na | 174 mmol/l | |
| K | 4.1 mmol/l | |
| E.S.R | 5 mm/h | |
| C.R.P | + 1 | |

Differential diagnoses of sepsis, metabolic disorders and Covid-19 were presented. Due to the lack of specialized facilities, the newborn was sent to the Taleghani Hospital as a specialized hospital in the province for further follow-up.

At the beginning of admission to a specialized hospital and due to the uncertainty of the initial diagnosis, the infant was isolated. The vital signs an Oxygen Saturation were measured at admitting to the hospital. Then a newborn physical examination was performed by a pediatrician. The results were reported table 3.

Table 3: The results of vital signs were measured and newborn physical examination at admitting to the hospital

| Variable | Examination result | |
|------------------------------|--|----------|
| Vital signs | Body temperature | 37.8 0c |
| | Blood pressure | 100/70 |
| | Pulse Rate | 105/ min |
| | Respiration Rate | 55/min |
| Oxygen Saturation | 87% | |
| Eyes | Natural shape and size - slightly pale conjunctiva | |
| Heart and circulatory system | Normal | |
| Respiratory system | Respiratory distress | |

| | |
|---------|---|
| Abdomen | Natural shape, no bloating, no guarding |
|---------|---|

In order to further evaluate, performed essential care, including pulse oximeter, cardiac monitoring, and fixing the Foley catheter. Then oxygen therapy was started using the hood. The newborn was N.P.O. Diagnostic examinations were requested, including chest x-rays, abdominal and pelvic ultrasound, cardiac counseling, and echocardiography. Diagnostic tests were requested and their results are presented in table 4.

Table 4: Diagnostic tests at different time of admission in Taleghani Hospital as Ilam specialized hospital

| Variable | Day of hospitalization | | | | |
|------------|--|--------------|------------|-------------|------|
| | 1st | | 2nd | 3 th | 4 th |
| CBC & Diff | W.B.C | 11.3 103/ µl | | 6.7 103/ µl | |
| | Neutrophil | 63% | | 58% | |
| | Lymphocyte | 32% | | 40% | |
| | Hemoglobin | 15.1 g/dl | | 12.2 g/dl | |
| | Hematocrit | | | 41.7 g/dl | |
| | Platelets | | | 242 103/ µl | |
| | Blood glucose | 122 mg/dl | | | |
| Urea | First: 136 mg/ dl Rechecked: 113 mg/ dl | 67 mg/ dl | 32 mg/ dl | | |
| Cr | First: 1.1 mg/ dl Rechecked: 0.9 mg/del | 0.8 mg/ dl | 0.6 mg/ dl | | |
| Na | First:161 mmol/l Rechecked: 158 mmol/l | 153 mmol/l | 150 mmol/l | 145 mmol/l | |
| K | First:3.8 mmol/l Rechecked: 4.1 mmol/l | 4.3 mmol/l | 4 mmol/l | 4.1 mmol/l | |
| Ca | 11.2 | | | | |
| C.R.P | Negative | | | | |
| AST | 38 U/L | | | | |
| ALT | 36 U/L | | | | |
| ALKP | 237 U/L | | | | |

| | | | | | |
|--------------|------|------------|--------------|----------|--|
| UA | | Protein 3+ | | | |
| UC/ 24 h | | Negative | | | |
| ABG | PH | 7.48 | 7.4 | | |
| | Pco2 | 29.6 mmHg | 39.3 mmHg | | |
| | Po2 | 151.5 mmHg | 108.8 mmHg | | |
| | Hco3 | 22 mmol/ L | 23.9 mmol/ L | | |
| Covid-19 PCR | | | | Positive | |

On the 1st day of the hospitalization Taleghani Hospital, the results of counseling and echocardiography of the neonatal heart were reported normally. The pediatrician's medication instructions were carried out as follows:

- D/W 10% 330 cc + 10 cc Nacl+ 3.5 cc Kcl
- Cefotaxime 15 mg/ kg I.V / 8h
- Vancomycin 50 mg/ kg I.V / 8h

According to the results of laboratory tests on the 1st day of hospitalization, Serum infusion DW 10% increased to 460 cc and Urea, Cr, Na and K were rechecked.

On the 2nd day of hospitalization, the newborn was in good condition. There was no respiratory distress and abdominal and pelvic ultrasound was normal. So NPO was stopped and started feeding with mother's milk 10 cc/ 3 h. On the 2nd day of hospitalization an executed medication instruction included:

- 1-D/W 10% 580 cc + 13.5 cc Nacl+ 5.8 cc Kcl
- 2-Both Cefotaxime and Vancomycin

On the 3th day of hospitalization feeding with mother's milk was carried out 20 cc / 3 h

- 1-D/W 10% 100 cc + 13.5 cc Nacl+ 1 cc Kcl
- 2-Both Cefotaxime and Vancomycin

On the 4th day of hospitalization feeding with mother's milk was carried out 35 cc / 3h and D/W 10% K.V.O was being infused. Both Na and K serum levels were rechecked.

On the 5th day, the newborn was general well-being, therefore, she was discharged after complete parent training about the caring of infected newborn by Covid-19.

DISCUSSION and CONCLUSION

The current article presents a case of coronavirus in a 13-day-old female.

This newborn has nonspecific symptoms of fever and decreased sucking power. Initial diagnoses of sepsis, metabolic disorders, and Covid-19 infection have been proposed for her.

The results of another study, in line with our study, reported nonspecific symptoms in infants with Covid-19 [6].

Newborn sepsis was one of the differential diagnoses for our report. In another study, newborn sepsis was the initial diagnosis, however, newborn's coronavirus infection was reported as final diagnosis [6].

According to the current report, the level of oxygen saturation in our case has been decreased. Respiratory problems and distress have been suggested as one of the clinical manifestations in infants with coronavirus [6-8].

Fever was the main complaint in the newborn we studied. In several studies, fever has been reported as one of the main symptoms in affected infants [6-8].

In our study, the mother mentioned her history of exposure to the infected person. The study and colleagues also confirmed that a infants whose mother had been exposed to a coronary artery was infected [7] in the current case, the infant was discharged after stopping the fever and relieving respiratory distress, as recommended in another study[9].

However, breastfeeding is recommended in women with coronavirus, but also, the severity of Covid-19 is unclear among newborns and infants. Therefore, families need to follow protective protocols properly in dealing with their infants.

In conclusion, although neonatal infection with Covid-19 is uncommon compared to adults, all suspected or exposed to Covid-19 newborn and infants should be evaluated as soon as possible.

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