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Case Report

Bicytopenia revealing SARS-Cov-2 pneumonia in a 4 month old infant: A case report☆

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ABSTRACT

Background
Introduction: Only a few cases of SARS-CoV-2 pneumonia in infants have been reported, and the epidemiological, clinical presentation and the course of these patients are not yet fully understood.
Clinical presentation: we report the case of a 4-month-old infant admitted to the intensive care unit for the management of a hemorrhagic syndrome which turned out to be Sars cov 2 pneumonia.
Discussion: While research into the COVID-19 pandemic is still ongoing, it appears that young children are less likely to be infected with SARS-CoV-2 and their infection is less severe.
Conclusion: SARS-CoV-2 pneumonia would be less frequent and less serious in infants, but this should not make us omit this diagnosis in the face of acute respiratory distress, especially if there is an underlying family cluster.

1. Introduction

SARS-CoV-2 pneumonia is a new disease that emerged in December 2019 in Wuhan province, China. The causative agent of this pathology was found to be a Coronavirus responsible for high contagiousness causing acute respiratory distress syndrome which can lead to multiple organ failure and death [1].

So far, few cases of SARS-CoV-2 infection have been described in infants, but the clinical course in the pediatric population appears to be significantly simpler than in adults [2]. Advanced age and the presence of comorbidities would be associated with a poorer prognosis in these patients [3].

The causes of the low incidence and mildness of SARS-CoV-2 infection in this age group remain unknown to this day. The assumptions made would be their youthful immune system, low expression of ACE2 receptors or even exposure to other coronaviruses that are generally common in children [4,5].

To date, the therapeutic strategy in infants and children is modeled on the experience of healthcare professionals in adults [6].

The work has been reported in lines with the CARE guidelines 2020 criteria [7].

2. Presentation of the case

We report the case of a certain BI, infant of 4 months, second of two siblings, resulting from a consanguineous marriage and a well-followed pregnancy brought to term delivered vaginally, with a birth weight of 3200g. She had good psychomotor development and was well vaccinated according to the national vaccination program. She had no significant personal pathological history and no concept of genetic disease or malformation in her family. The only notable family history was her mother's infection with the SARS-CoV-2 virus the week before, with which she kept intimate contact.

The history of her disease dates back to 1 week with the onset of a hemorrhagic syndrome made up of epistaxis and otorrhagia, reasons for which she was hospitalized in a pediatric ward where she underwent a biological assessment objectifying a bicytopenia with anemia at 7.7 g/dL and thrombocytopenia at 86,000 G/L.

☆ The infant's progress was favorable with improvement in his clinical condition, weaning from oxygen and improvement in the laboratory results: the control hemoglobin was 10.7 g / dL and the platelets at 130,000 G / L.

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During his pediatric hospitalization for transfusion and aetiological workup, the course was marked by the onset of a febrile syndrome associated with a coughing cough and moaning. A comprehensive infectious disease workup was performed in favor of 8700 white blood cells, 9 CRP, negative ECBU and normal chest x-ray.

The infant's symptomatology worsened 3 days later by the onset of acute respiratory distress with infectious assessment: anemia at 7.6 g/dL, hyperleukocytosis at 10940 e/mm3, thrombocytopenia at 52,000 G/L, a CRP at 106 g/L and a procalcitonin at 2.2 UNIT. The chest X-ray this time found a focus of left apical pneumonitis. The patient was then put on ceftriaxon, gentamicin and josamycin with transfusion of a red blood cell pellet.

Given the non-improvement in her symptoms, she was transferred to our intensive care unit for additional specialist care.

On admission, she was tonic and reactive, tachycardium at 180 beats per minute, polypneic at 40 cycles per minute, normal stretched to 98/66 mmHg, which desaturated at 60% AAA, accompanied by signs of struggle (thoraco-swaying). abdominal, suprasternal pulling, flapping of the wings of the nose) with cyanotic lips and snoring groans on pulmonary auscultation. The skin recoloration time was 2 seconds. She was 5kg or -1DS. She was afebrile at 37 °C and her urine test was negative for nitrites and leukocytes.

Given the infant's acute respiratory distress syndrome, we put him in a half-sitting position with oxygen therapy with glasses at a rate of 2L/min.

The haematological assessment still found bicytopenia with anemia at 9.8 g/dL and thrombocytopenia at 41,000 G/L. In addition, he objected to a biological inflammatory syndrome consisting of hyperleukocytosis at 1110 e/mm3, CRP at 56 g/L and PCT at 2.87 and ferritin at 3135 UNITE.

Given the clinical picture of a hemorrhagic syndrome associated with bicytopenia, we suspected hemopathy and completed the workup with a smear showing the absence of blasts.

A review of tumor lysis syndrome was also requested returning normal.

Further infectious investigation found a negative ECBU and a chest x-ray showing bilateral alveolo-interstitial syndrome. Fig. 1.

A CT scan was requested objectifying an interstitial lung disease of 80% suggesting a SARS-CoV_2 pneumonia (CORADS-5) with frosted glass images and crazy paving. Fig. 2.

Fig. 3.

Based on the imaging results, we took a nasopharyngeal sample for RT-PCR and a blood sample for COVID-19 serology. The results returned later found a positive PCR and positive IgM and IgG serologies, respectively.

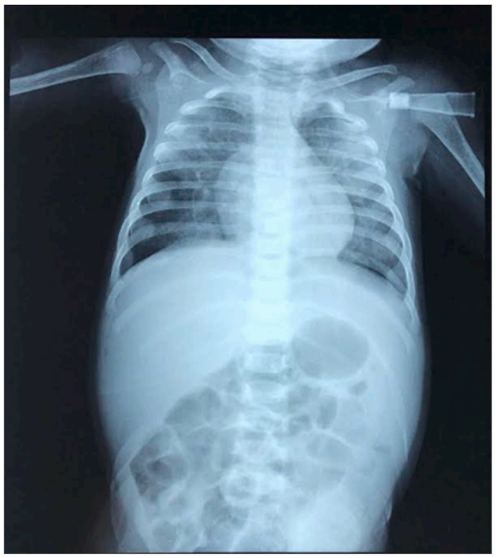

Fig. 1. Chest x-ray showing a bilateral alveolo-interstitial syndrome.

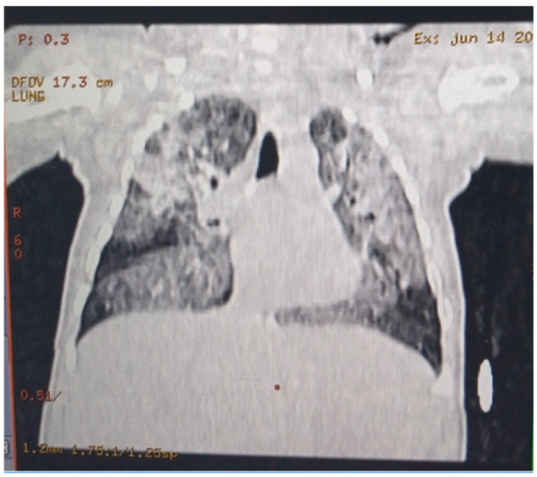

Fig. 2. Frontal cut in parenchymal window of a pulmonary CT showing SARS-CoV_2 (CORADS-5) pneumonia with frosted glass images and crazy paving.

In view of the clinical, biological and radiological elements, the diagnosis retained was acute respiratory failure with SARS-CoV-2 pneumonia.

The patient was then put on a basic ration, antibiotic therapy (Triaxon 50mg/kg/day, gentamycin 5mg/kg/day, josamycin 25 mg/kg/12h), betamethasone 10 drops/kg, oxygen therapy with glasses under 2L/min respiratory physiotherapy. She also received a red blood cell transfusion.

She was then transferred to pediatrics for surveillance.

3. Discussion

While research into the COVID-19 pandemic is still ongoing, it appears that young children are less likely to be infected with SARS-CoV-2 and their infection is less severe [1,2].

Current research suggests that this is likely due to the scarcity of SARS-CoV-2 angiotensin converting enzyme 2 (ACE2) receptors in the infantile airways [2].

Another hypothesis calls into question the existence of previous infections with other human coronaviruses, offering protection against severe forms of SARS-CoV-2 infection in children [3].

Very few studies report cases of SARS-CoV-2 infection in infants, but around 12–18% of infected children are believed to be under 12 months of age [4].

In a systemic review and meta-analysis of 880 children, 95% of them were symptomatic. The main symptoms were fever (38%), respiratory signs (35%) and digestive signs (7.7%) [5].

In our study, the infant presented with hemorrhagic syndrome and bicytopenia in addition to typical respiratory signs [6].

Despite our extensive searches on Pubmed and Google Scholar, we did not find a clinical presentation similar to that in our study.

Indeed, faced with a clinical picture as described above, it is obvious to first think of a malignant hemopathy with pulmonary leukosis [8]. Especially since the mother's history of infection with COVID-19 was only communicated to us late in our investigations, making the suspicion of SARS-CoV-2 pneumonia less obvious [9].

As cases of infection of infants and young children are rare, it is no less diagnostic and therapeutic knowledge with regard to this pediatric population [10]. However, the juxtaposition of behavior in adults by several teams has so far proven to be effective [11].

Since the impairment is only mild to moderate in almost 90% of cases in children under 5 years old, the outcome is most often favorable and only 7% of patients do not have to be hospitalized in a intensive care unit

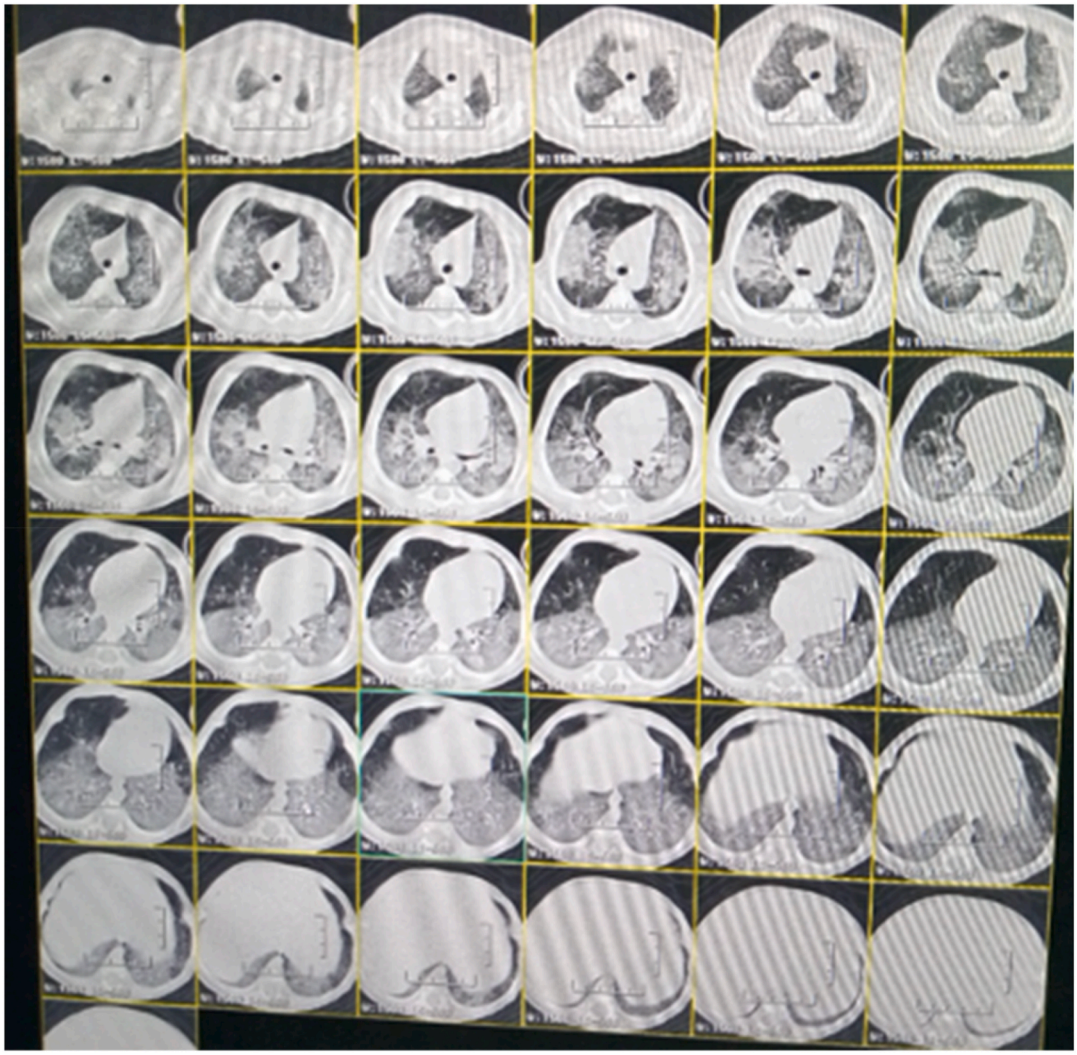

Fig. 3. Transverse sections in parenchymal window of pulmonary CT showing SARS-CoV_2 (CORADS-5) pneumonia with frosted glass images and crazy paving.

[12,13].

4. Conclusion

SARS-CoV-2 pneumonia is said to be less frequent and less serious in infants, but this should not make us omit this diagnosis in the face of acute respiratory distress, especially if there is an underlying family cluster.

Along with typical clinical signs such as fever, cough, dyspnea and digestive signs, COVID-19 infection can manifest itself through several other atypical signs. In our case, it was hemorrhagic syndrome and bicytopenia.

The vaccine remains one of the most effective public health interventions to prevent the transmission of infectious diseases. However, the immature immune system of newborns makes them vulnerable to several vaccines. The future will tell us about the COVID-19 vaccine.

Ethical approval

This is a case report.

Sources of funding

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Author contribution

Dr El Rhalete abdelilah and Dr Inas Rhazi: Writing the paper. Dr Amine Bensaid: Collection a Data. Pr Houssam bkiyer and Pr Ibrahim Housni: Supervising the study. This a case report. It's not a case series.

Consent

The patient parent's have given consent for publication.

Provenance and peer review

Not commissioned, externally peer reviewed.

Research registration

Not applicable. This is a case report.

Guarantor

MD EL RHALETE ABDELILAH.

Please state any conflicts of interest

The authors declare no confclits of interest.

Please state any sources of funding for your research

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Ethical Approval

This is case report, no Ethical Approval needed, Consent from patient was obtained.

Consent

The patient's parent have given consent for publication.
The consent was obtained, it's been written and signed.

Registration of research studies

1. Name of the registry:
2. Unique Identifying number or registration ID:
3. Hyperlink to your specific registration (must be publicly accessible and will be checked):

Guarantor

Dr EL RHALETE ABDELILAH.
Dr RHAZI INAS.

Declaration of competing interest

The authors declare no conflicts of interest.

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