

COVID-19 in a child with multiple comorbidities

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ABSTRACT

A female child, 1-year-old and 2 months, diagnosed with multiple neurological conditions, including myelomeningocele and operated hydrocephalus, was diagnosed with SARS-CoV-2 in October 2020 and hospitalized in our clinic. At the time of the onset of the disease, the patient had a febrile episode, laboratory blood tests showed a slightly increased biological inflammatory syndrome, and mixed pneumonia was described radiologically. Thus, antibiotic treatment was initiated, with laboratory tests and control imaging within normal limits after several days of admission. Being an institutionalized child, according to the epidemiological recommendations of that time, she was hospitalized in our clinic during the 14 days of the illness. Thus, on the 15th day of the disease she was discharged, with negative SARS-CoV-2 control RT-PCR, with good general condition, afebrile over 10 days.

Keywords: COVID-19, spina bifida, SARS-CoV-2, child, neurological diseases, plurimalformative syndrome

INTRODUCTION

SARS-CoV-2 is also present in the Central Nervous System of patients with COVID-19, and may affect the brainstem through the olfactory nerve, because viral glycoproteins bind to angiotensin-2 (ACE2) receptors. Severe forms of COVID-19 in children are rare, and the late effects of infection in patients with pre-existing neurological disease are not yet completely known. Therefore, children with pre-existing conditions of specific concern. No comprehensive data are available on the impact of COVID-19 in children. Although the most common and important presentation is with respiratory disease, reports of neurological features are increasing [1,2].

AIM

By presenting this case, we want to highlight the clinical and paraclinical aspects of COVID-19 in a

child with plurimalformative syndrome and neurological impairment. The informed consent of the patient's legal representative was obtained.

CASE PRESENTATION

We present the case of a 14 months old patient, social case, institutionalized, known with plurimalformative syndrome (operated lumbar spina bifida, with internal hydrocephalus with ventricular-atrial drainage, right clubfoot, thoraco-lumbar scoliosis, with major surgical history). She is hospitalized in our clinic on 08.10.2020, in the context of the positive result of the RT PCR SARS-CoV-2, test performed on 07.10.2020. The patient presented a febrile episode on 04.10.2020.

At admission: relatively good general condition, afebrile T = 36.5° Celsius, G = 8 kg, pale skin, macrocephaly, right cranial skin scar and palpable shunt at this level, post-surgical mid-abdominal scar, my-

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elomeningocele, spontaneous eye opening, oculomotricity preserved, fixes and follows intermittently with the eye, mobilizes the upper and lower limbs spontaneously symmetrically, right clubfoot.

From the personal physiological antecedents, the patient was extracted by cesarean section at gestational age (GA) = 41 weeks, head circumference at birth = 40 cm.

Personal pathological informations: sepsis, acute enterocolitis with *Candida spp.*, focal impaired awareness, operated lumbar meningomyelocele, subdural hematoma of the right cerebral hemisphere due to ex-vacuo hemorrhage operated on 26.08.2020.



FIGURE 1. Right cranial skin scar with shunt visible at this level and post-surgical mid-abdominal scar from myelomeningocele

On 07.10.2020, SARS-CoV-2 PCR is performed, with a positive result, and the patient was admitted in the infectious diseases clinic. The blood tests showed a biological inflammatory syndrome with C-reactive protein 0.95 mg/dl (normal value = 0-0.3 mg/dl), ESR (erythrocyte sedimentation rate) of 53 mm/h (VN = 1-25 mm/h), and D-dimer = 1.97 µg/ml (VN = 0-0.5 µg/ml). Radiography performed at admission describes moderate accentuation of the right infrahililar peribronchovascular interstitial pattern. Treatment with Ceftriaxone 200mg was instituted at 12 hours, for 7 days, personal treatment with Aspirin 35mg/day, and antipyretics, as needed, was continued. During hospitalization, the patient remained afebrile, balanced cardiac, respiratory and digestive, SaO₂ was maintained with values of 98-99% in the ambient air.

The SARS-CoV-2 PCR control test performed 8 days after the first test is also positive, so a second control test is harvested on 20.10.2020, with a positive result. The patient remains hospitalized for 14 days from the first positive test, and is discharged on the sixteenth day of illness, in good general condition, being transported by ambulance service to the orphanage, where she is in care.

DISCUSSIONS

Spina bifida is a type of neural tube defect, generally due to a lack of folic acid. The most severe



FIGURE 2. Cardiopulmonary radiography performed in dorsal decubitus: Moderate accentuation of the right infrahililar peribronchovascular interstitial pattern and small isolated alveolar focus located apical left

type of spina bifida is myelomeningocele, in which part of the spinal canal remains open along several vertebrae, leaving exposed part of the spinal cord with protective membranes on the outside, in the form of a sac. The vast majority of children with spina bifida will develop hydrocephalus, an accumulation of fluid in the brain. Usually, hydrocephalus requires surgical treatment, with the installation of a shunt, which will remain for the rest of the child's life [4,5].

COVID-19 has affected more than 3 million people worldwide, affecting the lung, cardiovascular and hematological systems alike. Neurological manifestations were also observed, including acute cerebrovascular events, encephalitis, Guillain-Barré syndrome, lymphohistiocytosis, necrotizing hemorrhagic encephalopathy.

Most children with COVID-19 have mild symptoms or can be asymptomatic [6]. So far, no similar cases have been found in the literature. Antibiotic treatment was instituted according to medical protocols at the time, to prevent a bacterial superinfection [7].

The peculiarity of the presented case consists in the fact that it is a child patient aged 1-year and 2 months, with multiple neurological disorders (myelomeningocele operated with shunt, hydrocephalus with ventricular-atrial drainage, right clubfoot), is a social case, and in October 2020 is diagnosed with COVID-19, a mild form of the disease.

CONCLUSIONS

In children, COVID-19 in most cases wears mild forms of the disease. In the present case, this form was present in a child with many previous neurological disorders.

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