



Onset of nephrotic syndrome concomitant to SARS-CoV-2 infection in a 3-year-old child

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Dear Editors,

We read with interest the brief report from Alvarado et al. [1] describing the first pediatric case of nephrotic syndrome onset concomitant to SARS-CoV-2 infection.

A child aged 3 years and 4 months was treated in our Pediatric Unit for nephrotic syndrome onset concomitant to SARS-CoV-2 infection. Unlike the case previously described [1], our patient did not present respiratory involvement and no treatment for SARS-CoV-2 was administered.

The patient was admitted to our Emergency Department (ED) in April 2021 for abdominal distension and edema in the lower limbs in the previous 3 days. Past medical history was not significant. The child was born at term from Italian non-consanguineous parents. Blood pressure resulted high for age (119/80 mmHg). Weight was 16 kg. Urine analysis showed a significant proteinuria (> 400 mg/dl). Ten days before ED admission, the patient had close contact with a COVID-19-positive family member. Molecular test for SARS-CoV-2 resulted positive in the patient and he was hospitalized in the COVID pediatric ward of our hospital. Blood exams showed hypoalbuminemia (16 g/l), hypocalcemia (8 mg/dl), increased fibrinogen (865 mg/dl), antithrombin III reduction (50%), increased LDL cholesterol (273 mg/dl), and hypogammaglobulinemia (IgG 91 mg/dl). C-reactive protein (CRP) resulted negative. Auto-immune tests (C3, C4, ANA, ENA) and viral serologies (HIV, HBV, HCV) were negative. Clinical features and laboratory results were consistent with onset of nephrotic syndrome and treatment with oral steroids (prednisone 60 mg/m²/day) was started. Abdominal ultrasound showed discrete ascitic effusion. Intravenous albumin (1 g/kg) infusion was administered during the first day of hospitalization. For persistence of edema and oliguria, since the third day of hospitalization, therapy with furosemide was also started. Within the first 10 days after starting steroid therapy, the patient presented progressive increase

in diuresis, normalization of blood pressure values, weight loss, and increased serum calcium and albumin levels. Therapy with furosemide was gradually tapered and then discontinued. SARS-CoV-2 molecular test resulted negative 10 days after the first positive one. The patient was discharged within the first 14 days from onset of nephrotic syndrome with a weight of 13.6 kg. Control blood tests after 20 days since onset of disease showed a complete normalization of IgG, fibrinogen, and antithrombin III values. Therapy with oral steroid was gradually tapered with disease remission.

Interestingly, recent case reports have described a temporal relation between COVID-19 mRNA vaccines and onset of nephrotic syndrome in adults, in particular with the development of minimal change disease in kidney biopsies, responsive to steroids [2, 3].

Further studies are needed to understand the pathogenesis of kidney involvement in COVID-19.

Declarations

Conflict of interest The authors declare no competing interests.

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