CASE STUDY

RARE COMPLICATION OF COVID -19 DISEASE TINU SYNDROME IN A 11-YEAR-OLD BOY, FEATURES AND MANAGMENT

DOI: 10.36740/WLek202210142

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ABSTRACT

Tubulointerstitial nephritis and uveitis syndrome (TINU) is a rare disease defined by a combination of different abnormalities, tubulointerstitial nephritis and uveitis. We describe an 11-year-old boy who got sick with the Covid-19 disease with positive outcome and after 2 weeks developed a complication – tubulointerstitial nephritis with pain in the abdominal cavity, loss of appetite, weakness and low-grade fever with further subsequent attachment of anterior uveitis. Laboratory indicators corresponded to renal insufficiency of tubular origin. Ophthalmological examination conducted against the background of redness of both eyes, photophobia, pain in the eyeball area and decreased vision confirmed bilateral uveitis. Analysis showed high levels of La/SS-B, anti-SARS-CoV-2 IgG with confirmed the suspicion of post-covid TINU syndrome. This case showed a good response to steroid therapy with long-term remission of nephritis and less clinical efficacy in the treatment of uveitis. Special attention should be paid to the occurrence of such a rare syndrome at an early stage after recovery from the Covid-19 disease.

KEY WORDS: children, tubulointerstitial nephritis and uveitis syndrome

Wiad Lek. 2022;75(10):2541-2543

INTRODUCTION

While Covid-19 is commonly associated with infection of the lungs and heart, a growing number of cases indicates that infection can also impact the eyes and others internal organs. Approximately 10% people exposed to Covid-19 have at least one eye problem, such as dryness, redness, blurred vision and sensitivity to light. Conjunctivitis, or "pink eye," may also appear in the early stages of infection, suggesting that it may be one the first markers of acute Covid-19 infection [1-3], another patients suffer from kidney damage [4]. Multi-organ involvelment is based on data from recent studies [5] which show that the angiotensin-converting-enzyme-2 receptor is expressed not only in lungs but in many another internal organs such as eyes (conjuctival, corneal cell, retina), vessels, nerves, enterocytes of the small gut, the kidney proximal tubules. Combined eye and kidney damage – TINU syndrome in the acute Covid-19 disease has recently been described as a result of SARS-Cov-2 infection [6], where the ocular and kidney manifestations have an independent outcome; for the first – bilateral anterior uveitis (in early phase of disease) then tubulointersticial nephritis – two weeks later. Treatment includes topical and oral corticosteroids, which were supplemented with anti-TNF-alfa treatment. At the same time, the occurrence of TINU syndrome in the early period after recovery from Covid-19 infection, which is the subject of our publication, is of interest.

CASE REPORT

An 11 – years old boy applied 21.12.2020 for an outpatient appointment with complaints for abdominal pain, subfebrile temperature, weakness, loss of appetite. From the anamnesis, it is known that 2 weeks ago he recovered from COVID – 19 disease (nasopharyngitis, pneumonia, conjunctivitis and diarrhea, with positive nasopharyngeal swab for SARS-CoV-2 infection). Patient was examined clinically and paraclinically, the following changes were established – blood tests revealed: erythrocyte sedimentation rate (ESR) 38 mm/h, C – reactive protein (CRP) 1.59 mg/dl (n.v. < 0,5), platelets – 459 ×10*9/l, creatinin 56.8 (mkmol/L), it was above the normal value(n.v < 59), cholesterol 5.86 (mmol/L). The examination of the urine shows the following: albuminuria 150 mg/L, glukosuria 148 mg/dl, protein trases, urine specific gravity – 1025, an ultrasound examination of the kidneys was performed (moderate swelling), also was find the high level of specific anti – SARS – CoV -2 IgG: 11,25 (>1.1 positive) and diagnosis of post COVID – 19 interstitial nephritis was confirmed. Patient was treated with steroids – prednisone 1,0 mg/kg/day for 2 month with a gradual tapering of the steroids. The control tests showed the normalization of the relevant blood and urine indicators.

However, during the third week from the moment of recovery from interstitial nephritis, the boy turned to an outpatient appointment (18.03.2021) of an ophthal-

mologist with complaints of bilateral red eyes, eye pain, photophobia. The optical computerized tomography was done and bilateral irido-capsular synechiae, papilla edema, makulo edema were found and the diagnosis of anterior bilateral uveitis was made. Futhermore, the relapse of nephitis occurred. In addition to the previous analysis autoimmune tests were made – Ro/SS-A52, dsDNA, MPO, AMA M2, HLA B27 – negative, but the La/SS-B was moderately increased up to 2.3 kU/L (<0.3 negative result). On this background the diagnosis was specified to tubulointersticial nephritis and uveitis syndrome. To the steroid treatment (prednisone 0,5 mg/kg/day) were added topic 0,1% dexamethasone and mydryatics. According to the control survey data on 13.05.2021 recovery was established, however, the boy continued to receive steroid therapy, with its withdrawal at the end of May (20.05.2021). A new recurrence of uveitis occurred 7 days after withdrawal of steroid therapy and this relapse was treated by intraocular steroids with mydriatics which led to the stabilization of the disease. The third exacerbation of uveitis occurred after 2 months of remission and was treated by topic dexamethasone for 10 days, then for 1 month with topical nonsteroidal agents with positive outcome.

Now the patient is under dynamic observation and the last analyzes (0.6.07.2022) show long-term normalization of laboratory parameters: white blood cels – $5{,}27\times10^{9}$/L, Hemoglobin 131 g/l, platelets $431\times10^{9/L}$, erythrocyte sedimentation rate – 9 mm/hour, creatinin 52.6 (mkmol/L), cholesterol 4.79 (mmol/L), urine tests: urine specific gravity – 1025, albuminuria < 30 mg/L, glucose – negative, creatinin- 8.8 mmol/L (normal level), the La/SS-B – 0,17 kU/L and the patient has no complaints.

TINU syndrome is present with combined kidney and eye damage and was described for the first time in 1975 by Dobrin R.S. [7]. More than 250 cases have now been reported including post Covid-19 TINU and 60% patients were children [6,7,8]. The majority of cases have been reported in the pediatric nephrology and ophthalmology literature in the form case reports and small cohort samples of patients. Kidneys and eyes involvement can persist as asymptomatic and can have an independent outcome. The clinical picture of renal disease shows as acute kidney injury and resolves spontaneously with full recovery of kidney function, in contrast to this uveitis can persist longer or it recurs years after its first presentation [9]. There are no specific serum markers that are unique to patients with TINU syndrome, findings include elevated erythrocyte sedimentation rate, C-reactive protein, leukocyturia, glycosuria, antinuclear antibody, an autoantibody directed against renal tubular cells [8, 10]. Further more, antibodies that react to both tubular and uveal cells have been identified in the case of TINU syndrome [11].

The clinical picture of our patient during one and half year of follow up showed the full recovery of the kidney function after steroids therapy and several relapses of uveitis after its initial presentation. In addition, this is the first pediatric case with TINU syndrome after recovery from SARS CoV 2 infection in the international literature.

CONCLUSIONS

This case of the TINU syndrome showed several features of the course of interstitial nephritis with uveitis – existence of a "latent" interval between recovery from Covid-19 disease and starting of complication, independent outcome of tubulointerstitial nephritis and uveitis, good response to the steroid treatment, a long period of remission after relapse of nephritis, severe course of uveitis with frequent relapses, bad response to uveitis treatment.

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Conflict of interest

The Authors declare no conflict of interest

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Received: 12.04.2022
Accepted: 05.09.2022

A – Work concept and design, **B** – Data collection and analysis, **C** – Responsibility for statistical analysis, **D** – Writing the article, **E** – Critical review, **F** – Final approval of the article