



Four Cases of Papilledema in COVID-19 Multisystem Inflammatory Syndrome in Children

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To the Editor: Multisystem inflammatory syndrome in children (MIS-C) is a COVID-19–related illness [1]. There are only a few reports on papilledema associated with raised intracranial pressure in MIS-C [2–4]. Four pediatric patients (a 9-y-old boy, two 15-y-old boys, and a 6-y-old girl) presented to our institution in September 2021 with MIS-C and developed bilateral papilledema associated with potential elevated intracranial pressure. None of them had previous ocular problems. Besides other manifestations, 3 cases were referred with complaints of blurred vision, the fourth one (a 15-y-old boy) had no blurred vision but he had delusions related to meningitis. MIS-C–related heart defects including mild aortic insufficiency and mild tricuspid regurgitation were seen in 3 cases. C-reactive protein, erythrocyte sedimentation rate, aspartate aminotransferase, alanine transaminase, lactate dehydrogenase, and D-dimer were elevated in most cases. No lesion, meningeal irritation, or midline shift was seen following neurological/brain computed tomography (CT) examination.

As a sign of bilateral papilledema, increased diameter of the optic nerve sheath on both sides was observed in all the cases. No more abnormalities in eyes were detected since they had normal eye movements, normal visual acuity, normal anterior and posterior segment, and no proptosis.

Treatment with methylprednisolone, antibiotics, and beta-methasone was done for all the cases and 3 of them were

discharged with complete recovery. The treatment of the 6-y-old girl was discontinued following her parents' request.

It seems that papilledema observed in our reported cases is consistent with raised intracranial pressure in these MIS-C patients, although more studies are needed to confirm this. Neurologic visual defects should raise suspicion for possible MIS-C that has led to elevated intracranial pressure. Awareness of this manifestation is important in recognizing MIS-C syndrome quickly, in which a dilated fundus examination may be useful.

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Data Availability On reasonable request.

Declarations

Consent to Participate and Publish Informed consent was obtained from the parents of all four participants in this study, to participate in the research and to publish the condition details.

Conflict of Interest None.

References

1. Ahmed M, Advani S, Moreira A, et al. Multisystem inflammatory syndrome in children: a systematic review. *E Clinical Medicine*. 2020;26:100527.
2. Chung JE, Lee AR, Guerriero RM, Reynolds MM. Papilledema associated with COVID-19 multisystem inflammatory syndrome in children. *Can J Ophthalmol*. 2021. <https://doi.org/10.1016/j.cjco.2021.08.011>.
3. Baccarella A, Linder A, Spencer R, et al. Increased intracranial pressure in the setting of multisystem inflammatory syndrome in children, associated with COVID-19. *Pediatr Neurol*. 2021;115:48–9.
4. Becker AE, Chiotos K, McGuire JL, Bruins BB, Alcamo AM. Intracranial hypertension in multisystem inflammatory syndrome in children. *J Pediatr*. 2021;233:263–7.

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