

A RARE CASE: COVID-19 ASSOCIATED PAPILLEDEMA IN YOUNG PATIENT *Nadir bir olgu: COVID-19 ilişkili Papilödem*

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ABSTRACT

Neurological conditions related to COVID-19 have been previously reported in children. Here, we present an 11-year-old COVID-19 case who developed papilledema secondary to intracranial hypertension. An 11-year-old (previously healthy) patient presented with flu-like symptoms (fever, sore throat, cough) followed by severe headache and markedly blurred vision. The patient's neurological examination was normal. Ophthalmological examination revealed bilateral Grade 1 optic disc edema. The nasal swab PCR of COVID-19 was positive, and neuroimaging was normal. The patient was considered to have intracranial hypertension secondary to COVID-19 and the patient was treated with acetazolamide. No complications developed in the follow-up. COVID-19 infection can present with many different clinics. Here, we show papilledema, a rare neurological manifestation of COVID-19 infection, in a patient presenting with headache and blurred vision. In cases with headache (increasing with positioning) and blurred vision, detailed ocular and neurological examinations are very important in terms of diagnosing possible increased intracranial pressure and preventing secondary complications (such as vision loss).

Keywords: COVID-19, Headache, Neurological, Papilledema

ÖZET

COVID-19 ile ilişkili nörolojik durumlar daha önce çocuklarda bildirilmiştir. Burada, intrakraniyal hipertansiyona sekonder papil ödem gelişen 11 yaşında bir COVID-19 vakası sunuyoruz. 11 yaşında (önceden sağlıklı) bir hasta grip benzeri semptomların (ateş, boğaz ağrısı, öksürük) ardından şiddetli baş ağrısı ve belirgin bulanık görme ile başvurdu. Hastanın nörolojik muayenesi normaldi. Oftalmolojik muayenede bilateral Grade 1 optik disk ödemi tespit edildi. COVID-19 nazal sürüntü PCR testi pozitif ve nörogörüntüleme normaldi. Hastanın COVID-19'a sekonder intrakraniyal hipertansiyonu olduğu düşünüldü ve hastaya asetazolamid tedavisi uygulandı. Takipte herhangi bir komplikasyon gelişmedi. COVID-19 enfeksiyonu birçok farklı klinikte ortaya çıkabilir. Burada, baş ağrısı ve bulanık görme ile başvuran bir hastada COVID-19 enfeksiyonunun nadir bir nörolojik belirtisi olan papil ödemi gösteriyoruz. Baş ağrısı (pozisyonla artan) ve görme bulanıklığı olan olgularda, olası intrakraniyal basınç artışının tanısı ve sekonder komplikasyonların (görme kaybı gibi) önlenmesi açısından ayrıntılı göz ve nörolojik muayene çok önemlidir.

Anahtar Kelimeler: Baş ağrısı, COVID-19, Nörolojik, Papilödem

INTRODUCTION

Coronavirus disease 2019 (COVID-19) is primarily known as a respiratory tract infection, although it is a complex multi-system disease which affects several human systems. Neurological conditions related to COVID-19 such as headache, dizziness, seizure, encephalopathy, ataxia, ophthalmoplegia, hyporeflexia, Miller Fisher syndrome have been reported previously in children (Aljomah et al, 2021). To our knowledge, papilledema, one of the neuro-ophthalmological findings, has been described in a limited number of pediatric cases during the Covid-19 infection period (Rostamian et al, 2022, Chung et al, 2022). Here, we present an 11- year-old COVID-19 case with papilledema secondary to intracranial hypertension.

CASE

An 11-year-old (previously healthy) patient presented with flu-like symptoms (fever, sore throat, cough) followed by severe headache and markedly blurred vision. The patient had no chronic disease or drug use. The patient described headache that did not benefit from painkillers, awakened from sleep, increased with position and accompanied by nausea. The patient's neurological examination was normal. Ophthalmological examination revealed bilateral Grade 1 optic disc edema. Serum white blood cell count was 4300/IL (range, 4800–10,700/IL). Absolute lymphocyte count was 460/IL, there was no electrolyte abnormality and thyroid function tests were normal; The nasal swab PCR of COVID-19 was positive, cranial magnetic resonance imaging (MRI), MRI angiography, diffusion MRI were consistent with increased intracranial pressure, and minimal optic nerve sheath stretching was reported on MR T2-weighted images; Cranial venous MRI found no evidence of cerebral venous thrombosis. A lumbar puncture was not performed and cerebrospinal fluid (CSF) pressure was not evaluated. The patient's headache and blurry vision resolved during his hospital course, so observation was recommended. The patient was considered to have intracranial hypertension secondary to COVID-19 and the patient was treated with acetazolamide (5 mg/kg/day). The patient's clinical symptoms improved within two days

and she was discharged two days after admission. No complications developed during follow-up, no blurred vision or diplopia was observed (One month after discharge).

DISCUSSION

COVID-19 is an emerging disease that mainly causes respiratory infection; extrapulmonary manifestations presenting as systemic inflammatory storm, cardiovascular diseases (such as Kawasaki-like syndrome, myocarditis) or neurological symptoms have been reported (Aljomah et al, 2021; Magboul et al, 2022). The neurological symptoms presented were different clinical spectra such as myalgia, headache, drowsiness, anosmia, seizure, dizziness, encephalopathy, ataxia, Miller Fisher syndrome and ischemic stroke (Aljomah et al, 2021, Lam et al, 2021). Papilledema as a neuroophthalmic sign was reported from a 10-year-old girl who was diagnosed with COVID-19, of our knowledge, it is the only case published (Aljomah et al, 2021). Here, we presented a rare case of papilledema secondary to COVID-19 associated with probable intracranial pressure increase. Idiopathic intracranial hypertension refers to elevated intracranial pressure in the absence of a mass lesion or underlying central nervous system infection. When there is a possible explanation for this increased intracranial pressure, the term secondary intracranial hypertension is preferred. Idiopathic intracranial hypertension is uncommon in childhood which is often characterized by the presence of positional headache, tinnitus, diplopia and blurred vision (Gaier et al., 2019). Idiopathic intracranial hypertension has been associated with obesity, recent weight gain, polycystic ovarian syndrome and thin children (Friedman et al, 2013). Causes of secondary intracranial hypertension include venous sinus thrombosis, certain medications (steroid withdrawal, oral contraceptives, tetracycline, hypervitaminosis A), infections (otitis media, mastoiditis, Lyme disease) and endocrinologic conditions (hyperthyroidism, Addison disease), (Masri et al., 2015), The patient, who had headache and blurred vision, was admitted to the hospital for further investigation, after detection of papilledema in the fundus examination. COVID-19 infection was detected by nasal swab. Headache is

one of the frequent neurological symptoms associated with COVID-19 (Tisdale et al, 2021). According to our case, headache can be severe and associated to intracranial hypertension. On the other hand, grade 1 papilledema was detected in our patient's fundoscopic examination, but CSF pressure could not be measured and the symptoms regressed in a short time. This situation constitutes an important limitation of our case in terms of false positivity. Cranial MRI is more sensitive than computed tomography in detecting intracranial hypertension, and midline shift, effacement of the basilar cisterns or sulci and fluid along optic nerve sheath are MRI findings indicating increased intracranial pressure (Brun et al, 2021). When conditions that may cause brain edema are evaluated (cytotoxic edema, vasogenic edema, or interstitial edema), signal hyperintensity in the affected region is seen on T2-W imaging. Papilledema is a medical emergency that must be diagnosed promptly (Thaller et al, 2021). Secondary causes (certain drugs, cerebral venous system abnormalities or predisposing systemic diseases) should be treated (Friedman et al, 2013). In addition, the treatment of idiopathic intracranial hypertension is also necessary to prevent conditions such as blindness or severe visual impairment, cranial nerve palsy, generalized weakness, loss of coordination and brain herniation in patients (Tadevosyan et al, 2021).

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CONCLUSIONS

The COVID-19 infection can present with many different clinics. Here, we show papilledema, a rare neurological manifestation of COVID-19 infection, in a patient presenting with headache and blurred vision. In cases with headache (increasing with positioning) and blurred vision, detailed ocular and neurological examinations are very important in terms of diagnosing possible increased intracranial pressure and preventing secondary complications (such as vision loss).

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