

Pseudotumor Cerebri in a Child With Familial Mediterranean Fever

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ABSTRACT

Familial Mediterranean fever is an autosomal recessive polysystemic disease characterized by attacks of relapsing and self-limiting fever, peritonitis, pleuritis and arthritis. Neurologic involvement is rare but serious in Familial Mediterranean fever. Headache, seizures, demyelinating lesions, stroke, posterior reversible leukoencephalopathy syndrome, aseptic meningitis, convulsions, and cranial neuropathy have been reported in the literature. In this article, we present the first Familial Mediterranean fever and pseudotumor cerebri association in a child and discuss the pertinent literature.

Keywords: Children; familial Mediterranean fever; pseudotumor cerebri.

Idiopathic intracranial hypertension (IIH) or pseudotumor cerebri is a well-defined condition with various clinical manifestation. The usual presentations are headache, vomiting, visual disturbances such as papilledema, cranial nerve palsies, or a combination of these signs.¹

Familial Mediterranean fever (FMF) is an autosomal recessive autoinflammatory disease, presenting with recurrent episodes of fever and polyserositis. Neurological involvement in FMF is rare and shows a wide spectrum, including optic neuritis, recurrent aseptic meningitis, cranial nerve lesions, IIH, ischemic stroke due to coincidental reasons, and subclinical visual evoked potentials abnormalities with demyelinating lesions.^{2,3}

Only a few reliable reports are present on the association of FMF and IIH in adults.^{4,5} To our knowledge, there is no report involving children. Thus, in this article, we report a rare case of a child with FMF and IIH. To our knowledge, this is the first report of an association of these two conditions.

CASE REPORT

A 10-year-old boy presented with a history of frontal headache, vomiting, and diplopia for 10 days. He was known to have FMF (homozygous with M694V mutation) and had been treated with colchicine for one year. Before FMF diagnosis and treatment, his complaints had been recurring two or three times each month for approximately two years. His complaints resolved with colchicine treatment.

On examination, vital signs including blood pressure were normal. His height and weight were also normal for his age. On neurologic examination, he was fully oriented with fluent speech and intact memory. There was bilateral papilledema and a left sixth cranial nerve palsy. The remainder of the physical and neurological examination was unremarkable.

On laboratory examination, routine hematological, biochemical, and urine analyses were normal. A lumbar puncture revealed elevated

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intracranial pressure (450 mmH₂O). Patient was not agitated and did not cry during lumbar puncture. Cerebrospinal fluid composition was normal, and cultures were negative. Serologic tests for toxoplasmosis, rubella, cytomegalovirus, herpes simplex virus, Epstein Barr virus, brucella, salmonella, hepatitis A, B, human immunodeficiency virus, *Borrelia burgdorferi*, and *Mycoplasma pneumoniae* were negative. Brain magnetic resonance imaging and magnetic resonance venography studies showed no intracranial lesion or thrombosis. Thus, the patient was diagnosed with IIH. He was started on oral acetazolamide (20 mg/kg) daily. Further examinations of associated conditions of IIH including serum levels of vitamin D, vitamin A, thyroid hormones, iron and ferritin levels, antibodies for several viruses, and immunological tests for autoimmune disorders were all normal. After treatment, we observed that his neurological symptoms significantly improved and optic disc edema resolved on ophthalmological examination. Therefore, repeat lumbar puncture was not performed.

DISCUSSION

Familial Mediterranean fever is an inherited disorder affecting several ethnic groups in the Middle East and Mediterranean countries. The FMF gene, located on chromosome 16p13.3 and symbolized as “MEFV” (for Mediterranean Fever), encodes a 781 amino acid protein named pyrin. Pyrin is expressed mainly in granulocytes and is thought to be a negative regulator of inflammation.⁶

Although FMF is a multisystem disease, its involvement with central nervous system is not certain. Neurologic involvement in children with FMF is relatively uncommon and rarely described in the pediatric literature.^{2,7-9} Although headaches occur frequently, other manifestations are rare. A large part of these manifestations may be directly related to FMF, its complications, associated diseases, and treatment adverse effects.³

Ertekin et al.¹⁰ described seizures in two of 52 children with FMF. While one of the patients with seizures had electroencephalography abnormality, the other was considered as simple

febrile convulsion. In another study, Gedalia and Zamir⁸ reported neurologic manifestations in 13 of 101 children with FMF. Of these 13 patients, 10 had headaches during acute episodes of the fever, two had convulsions, and another patient had aseptic meningitis. Kalyoncu et al.² reported 18 patients with neurological signs and detected seven patients with demyelinating lesions, seven patients with cerebrovascular disease, and four patients with reversible posterior leukoencephalopathy syndrome.

In the literature, IIH has been reported in two adult patients with FMF.^{4,5} Gokalp et al.⁴ reported a female patient with concurrent IIH and FMF. Their patient had normal weight and all her relevant laboratory and radiological parameters were also normal. The other patient was described by Kumar.⁵ However, to our knowledge, FMF's association with IIH has not been reported before in children. The pathogenetic mechanism of IIH in FMF is not yet fully understood. However, autoinflammatory mediated injury within the arachnoid villi and the resultant decrease in cerebrospinal fluid absorption and/or thrombotic, vasculitic obliteration of cerebral arteriolar and venous systems are among the most probable mechanisms.³

In conclusion, to our knowledge, our patient is the first case of FMF and IIH coexistence in the literature. Although the central nervous system is rarely affected in patients with FMF, neurologic involvement might carry the risk of severe disability. IIH may be a manifestation of FMF in children. Early diagnosis is important for preserving visual functions.

Declaration of conflicting interests

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