Case Report / *Olgu Sunumu*

An Atypical Case of Subacute Sclerosing Panencephalitis Presenting with Pseudotumor Cerebri

Psödotümör Serebri ile Prezente Olan Atipik Bir Subakut Sklerozan Panensefalit Olgusu

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Abstract

Subacute sclerosing panencephalitis (SSPE) is a progressive inflammatory disorder of the central nervous system with high mortality rate. The disease has been associated with a persistent infection with an aberrant measles virus and no effective treatment has been available. Herein, we describe the case of a nine-year-old female who presented with neurological findings, i.e. myoclonic jerks of the head and upper extremities and abnormalities in the executive function, and was diagnosed with SSPE. Her family reported that these complaints and findings have been present for three weeks. Past medical history revealed that the girl was not immunized according to the immunization calendar and had a febrile rash illness at the age of six years old. Ophthalmic examination showed bilateral papilledema. Cranial computed tomography (CT), magnetic resonance (MR) imaging and MR venography findings were not remarkable. The measles immunoglobulin G titers in the cerebrospinal fluid (CSF) and serum were 347 IU/mL and 265 IU/mL, respectively. Lumbar CSF opening pressure was elevated (270 mm water); intracranial hypertension secondary to SSPE was the remarkable feature of the present case. (*The Medical Bulletin of Haseki 2011;49: 150-3)*

Key Words: Intracranial hypertension, measles, pseudotumor cerebri, subacute sclerosing panencephalitis

Özet

Subakut sklerozan panensefalit santral sinir sisteminin hemen daima ölümle sonuçlanan ilerleyici bir inflamatuar hastalığıdır. Defektif kızamık virüsünün neden olduğu persistan bir enfeksiyon ile ilişkili olup etkili tedavi yöntemi yoktur. Burada baş ve üst ekstremitelerinde myoklonik sıçramalar ve yüksek beyin fonksiyonlarında bozulma olan ve subakut sklerozan panensefalit tanısı konan dokuz yaşında bir kız hasta sunduk. Bu yakınma ve bulgular aileden alınan anamneze göre üç hafta önce başlamıştı. Özgeçmişinden aşılarının olmadığı ve altı yaşında döküntülü bir hastalık geçirdiği öğrenildi. Göz muayenesinde bilateral papilödem saptandı. Kraniyal BT, manyetik rezonans görüntüleme ve MR venografi sonuçları normaldi. Serum ve beyin omurilik sıvısında kızamık immünglobulin G titreleri 265 IU/mL ve 347 IU/mL idi. Lomber ponksiyonda beyin omurilik sıvısı (BOS) açılış basıncı (270 mm su) yükselmiş bulundu. Subakut sklerozan panensefalite ikincil gelişen intrakraniyal hipertansiyon bu olgunun dikkat çekici noktasıdır. *(Haseki Tıp Bülteni 2011; 49: 150-3)*

Anahtar Kelimeler: İntrakraniyal hipertansiyon, kızamık, psödotümör serebri, subakut sklerozan panensefalit

Introduction

Subacute sclerosing panencephalitis (SSPE), a serious disorder of the central nervous system, is a slow virus infection caused by defective measles virus. It occurs in an incidence of 1 per 100 000 to 500 000 measles cases, usually affecting people aged 10-14 years (1). In developing countries, an incidence as high as 20-100 per 100000 has been reported. There is usually a long interval between the acute infection and symptoms of SSPE, nevertheless, there is also evidence that measles virus infection of brain occurs soon after the acute infection and subsequently spreads throughout the brain (2).

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Typical neurological manifestations include progressive intellectual deterioration, psychomotor impairment, myoclonic jerks and behavioural changes, with or without pyramidal and extrapyramidal symptoms (1,2). Ocular and visual symptoms are reported in 50% of patients. A broad spectrum of visual disorders has been described, including papilledema, papillitis, optic nerve pallor, retinitis, chorioretinitis, nystagmus and cortical blindness (2-4).

The syndrome of increased intracranial pressure without structural brain or cerebrospinal fluid (CSF) abnormalities was previously referred to as pseudotumor cerebri or benign intracranial hypertension. Now, it is usually termed as idiopathic intracranial hypertension. Pseudotumor cerebri is characterized by headache, nausea, diplopia and papilledema with normal cranial imaging findings (5).

We report the case of a 9-year-old girl who presented with atypical SSPE, a diagnosis based on clinical picture, electroencephalography (EEG) findings and CSF analysis, and who developed intracranial hypertension. The aim of this paper was to emphasize the importance of considering a different clinical presentation of SSPE and to add SSPE to the list of disorders associated with pseudotumor cerebri.

Case

A previously healthy 9-year-old girl presented to our hospital with complaints of deterioration in school performance, slurred speech, unstable gait, involuntary movements, head drop and urinary incontinence for three weeks. She also had headache and vomiting for two days before admission. Her past medical history was unremarkable. No history of measles immunization was obtained. She had had uncomplicated measles at the age of 6. Her parents were nonconsanguineous and she had two healthy brothers. There was no family history of any neurological disorder.

On admission, her weight and height were on the 25th and 50th percentile, respectively. The patient had a pulse rate of 104 beats per minute, respirations of 25 per minute, and her temperature was 36.8ºC. The blood pressure was 90/60 mm/Hg. On neurological evaluation, she was oriented. The examination of cranial nerves was normal. The deep-tendon reflexes were normoactive and symmetrical. The plantar responses were flexor. Myoclonic jerks were found especially in the upper extremities. Dropping of the head and falling were observed. The extraocular movements and reaction of her pupils to light were bilaterally normal. Visual acuity was measured to be 0.5 in the right eye and 0.6 in the left eye, but it could not be sufficiently evaluated because she was not cooperating. Funduscopic examination revealed bilateral papilledema (engorged and dusky veins, hyperemic and swollen optic disk) (Figure 1). The rest of the systemic examination was normal at the time of presentation.

Laboratory investigations revealed that hemoglobin, white blood cell count, erythrocyte sedimentation rate, C-reactive protein, serum biochemistry, cortisol, and thyroid function tests were all in normal limits. Serological screening tests for herpes simplex virus, varicella-zoster virus, Epstein-Barr virus, cytomegalovirus, parvovirus, human immunodeficiency virus and hepatitis viruses were negative.

EEG showed generalized periodical high-amplitude sharp and slow-wave bursts and multiple spikes and slow-wave complexes. CT, MRI and MR venography were normal (Figure 2). Lumbar puncture was performed in lateral decubitus position and revealed an opening pressure of 270 mm H2O. No cell was seen at CSF analysis. Protein, glucose and chloride levels in CSF were 37.4 mg/dL, 62 mg/dL and 127 mmol/L, respectively. Anti-measles IgM titers in serum and CSF were negative. The measles immunoglobulin G titer in CSF was 347 IU/mL, which was greater than the serum titer (265 IU/mL). Serum IgG and CSF IgG were found to be 1490 mg/dL and 16 mg/dL, respectively. Oligoclonal bands in CSF and serum were separated by isoelectric focusing and immunoblotting, and they were positive in CSF.

The patient was diagnosed as having SSPE complicated with pseudotumor cerebri. Carbamazepine (20 mg/kg/day) was started to treat the generalized myoclonic movements and acetazolamide (30 mg/kg/day) was given for the intracranial hypertension. Isoprinosine (100 mg/kg/day) treatment was also initiated.

Discussion

Consensually, the measles infection is the most important risk factor for SSPE. The World Health Organization has targeted measles for eradication in the European region by 2007. In Turkey, since 2003, the Ministry of Health carried out a common and gratis immunization program for the elimination of measles completely. There were no indigenous cases of measles since 2008 in our country. Unfortunately, 24 cases of measles have been reported since the start of 2011. Despite the elimination of endemic transmission, Turkey remains at risk of measles importation from countries where measles is still endemic.

Most patients with SSPE have a history of primary measles infection at an early age (<2 years) (2). The latent period of infection noted in some texts (3) was 6-8 years, but there is literature reporting shorter incubation periods, as in our case.

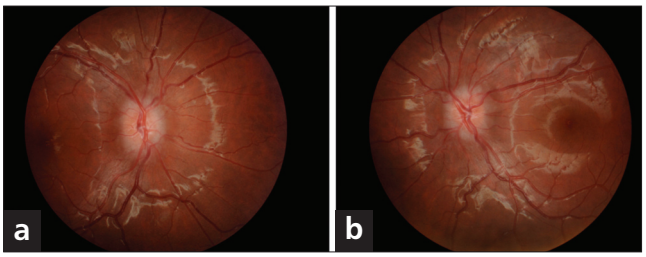

Figure 1. The photographs of (a) right fundus (b) left fundus showing papilledema.

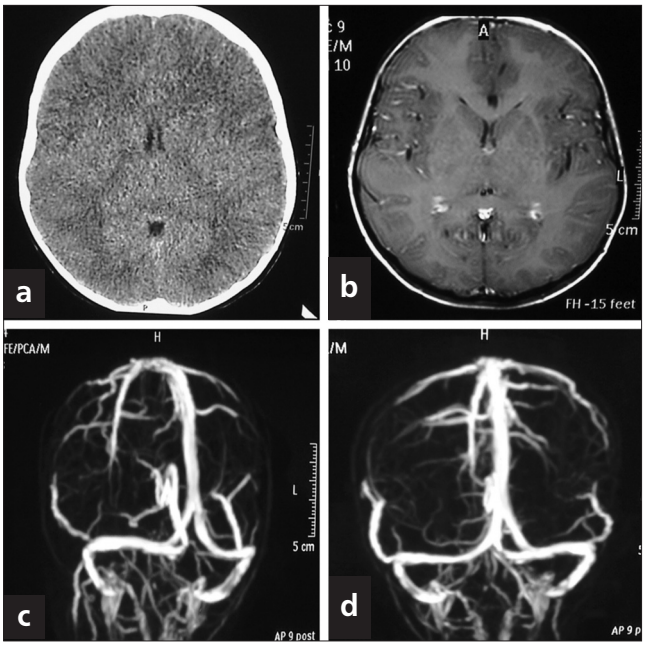

Figure 2. Normal neuroradiologic findings (a) cranial CT (b) cranial MRI (c) MR venography

A diagnosis of SSPE was made based on three criteria (clinical presentation, EEG findings, and laboratory results), combined with the exclusion of differential diagnoses by neuroimaging and other viral CSF serologies, and the clinical course. In our patient, the diagnosis of SSPE was made based on these criteria.

Pseudotumor cerebri can lead to significant visual impairment. Although, first described more than 100 years ago, the cause of the disorder remains unknown. The diagnostic criteria of this disorder have been updated in 1985 in the form of the Modified Dandy Criteria (4,5). After that date, the new advances in neuroimaging technology and the better understanding of the causes of intracranial hypertension have contributed to the early detection of conditions that may mimic pseudotumor cerebri.

In our patient, signs and symptoms of increased intracranial pressure (headaches, vomiting and papilledema) were present. To establish the diagnosis of pseudotumor cerebri, the opening pressure of CSF should be greater than 250 mm of water. The upper limit of normal CSF opening pressure in children is generally considered to be 180 to 200 mm of water (5). In our patient, CSF opening pressure in recumbent and relaxed position was 270 mm of water. Her CSF composition was found normal with no evidence of pleocytosis, cellular atypia, or hypoglycorrhachia. Hydrocephalus, mass, structural or vascular lesion was not observed on her CT, MRI and MR venography. Other causes of intracranial hypertension were excluded. She was diagnosed as pseudotumor cerebri according to the Modified Dandy Criteria (4,5).

The aetiology of pseudotumor cerebri has not been established yet. Impairment of CSF reabsorption is the most probable underlying pathophysiological cause of the raised intracranial pressure. A massive overload of the cerebral venous outflow resulting in an increased cerebral blood volume is another hypothesis (4). A marked inflammatory infiltrate containing macrophages, plasma cells and lymphocytes is present around the vessels in patients with SSPE. We suggest that this condition has lead to thickening of the venous walls and stenosis of the venous lumen (2). However, these opinions have not been proven yet. In the case of our patient, the mechanism of the intracranial hypertension was not clear.

Although the majority of cases of pseudotumor cerebri are idiopathic, there have been reported cases secondary to infections (roseola infantum, sinusitis, chronic otitis media and mastoiditis), hematological disorders, drug use, vitamin A deficiency or intoxication, certain endocrine disorders, metabolic disorders, as well as to obstruction of intracranial drainage or superior vena cava (6). In our patient, the secondary cause was identified as SSPE.

In the literature, there are a few cases of pseudotumor cerebri secondary to SSPE. Duman et al. (2) and Tan et al. (4) reported two pediatric patients with pseudotumor cerebri secondary to SSPE and both of them were eight years old. In a retrospective study (6), pseudotumor cerebri secondary to SSPE was observed in five of 56 patients with SSPE. Ophthalmic signs in cases of SSPE are frequent. Papilledema was the most common ocular finding in some studies, unfortunately, opening pressure was not reported, thus these cases were not evaluated as having pseudotumor cerebri (3-5).

In conclusion, intracranial hypertension can be secondary to SSPE. Contrary to expectations, intracranial hypertension is not rare in this disorder. Therefore, SSPE should be added to the list of disease causing pseudotumor cerebri.

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