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Chronic subdural hematoma and arachnoid cyst in an adolescent patient with 10q chromosomal deletion

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ABSTRACT

Background. Presence of related symptoms of chronic subdural hematoma (SDH) as a part of a syndrome with some atypical presentations in children may be a confusing manifestation. Here we report an adolescent chronic subdural hematoma and arachnoid cyst in an adolescent case with 10q chromosomal deletion.
Case presentation. A 14-year-old boy with chromosomal deletion of 10q leading to tyrosine phosphatase deficiency and arachnoid cyst in left parieto-occipital region beside of Sylvain fissure visited our clinic. He had history of occasional headaches all over the head with exacerbation since one month before admission. Decreased consciousness, imbalance, ataxia, and nausea and vomiting with decreased GCS of 8 were seen in this patient. He had no history of head trauma. The patient underwent surgery for the treatment of chronic subdural hematoma located in the right frontotemporal region and the burr hole trephination was carried out. After operation the patient was discharged from the hospital with GCS of 15.
Conclusions. Chronic subdural hematoma accompanying with arachnoid cyst in cases with syndrome manifestations should be considered as a part of inheriting biochemical disorders and further assessment by genetic and biochemical tests should be considered to diagnose possible syndromes and improve the prognosis with required additional treatments.

Keywords: chronic subdural hematoma, arachnoid cyst, pediatric

INTRODUCTION

Terminal deletion of the long arm of chromosome 10 (10q) is a rare condition and the patients show phenotypic manifestations, including facial dysmorphisms, postnatal growth retardation, mental retardation, developmental delay, cardiac defects, digital anomalies, and genitourinary defects (1,2). Chronic subdural hematoma (SDH) is usually seen in elderly subjects (3) with a history of head trauma (4). SDH is extremely rare in pediatrics (3). Presence of SDH symptoms as part of a syndrome with some atypical presentations in children may be confusing (5,6) leading to delayed diagnosis and

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treatment and poor prognosis (7). Assessment of simultaneous developmental and mental problems may help in diagnosis (8). Here, we report an adolescent male case with 10q chromosome deletion, as well as chronic SDH and arachnoid cyst.

CASE PRESENTATION

A 14-year-old boy with a history of occasional generalized headache exacerbating during the last month was admitted to Department of Neurosurgery of Poursina Hospital of Rasht in 2019. Decreased consciousness, imbalance, ataxia, and nausea and vomiting with decreased GCS of 8 were seen in this patient. The patient had facial dysmorphism (Figure 1). The patient had had chromosomal deletion of 10q (Figure 2), confirmed by tyrosine phosphatase deficiency in his lab test. Further investigation with CT scan was led to diagnosis of an arachnoid cyst in left parieto-occipital region with a size of 85×20×17 mm adjacent to Sylvain fissure, as well as a chronic SDH located in the right frontotemporal region and the burr hole trephination. The patient showed no history of head trauma.

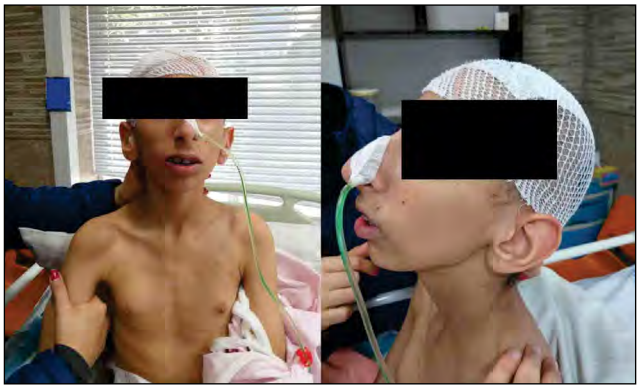

FIGURE 1. *Facial dysmorphism in the patient*

FIGURE 2. *Chromosome deletion in the patient*

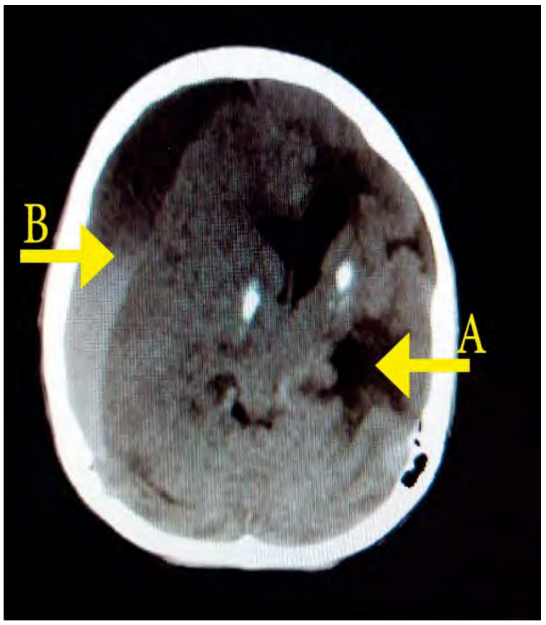

FIGURE 3. *CT scan of the patient (A: arachnoid cyst; B: subdural hematoma)*

His birth characteristics were normal, despite a positive history of phototherapy for his neonatal jaundice. Developmental course especially in motor function and social and attention skills were delayed, as well as an IQ of between 80 and 90 without mental retardation at 5 years of age. Abdominal ultrasonography at the age of 12 years showed normal findings. Moreover, deep tendon reflexes were normal, but the force in both upper and lower extremities was M3-4 according to Medical Research Council (MRC) criteria. The EEG was normal at the age of 8 years. Laboratory assessment at 6 years of age showed increased AST and ALT levels, but the blood sugar and CPK levels were normal. Moreover, blood aldolase, ammonia, and lactate levels were in normal range. In addition, thyroid tests and vitamin D level were normal. There was low blood concentration of serine and glycine and increased level of phenyl-alanine.

The patient underwent surgery for the treatment of SDH located in the right frontotemporal region and the burr hole trephination was carried out. After operation the patient was discharged from the hospital with a GCS of 15.

DISCUSSION

Chronic SDH is one of the most common neurosurgical conditions seen as encapsulated bloody collection on cerebral surface (7-9). Although dis-

tinct history of head trauma usually exists in a majority of cases with chronic SDH, some others may show intracranial hypotension, coagulation defect, and use of antiplatelet and anticoagulant agents (7). SDH is extremely rare in pediatrics (3).

The most interesting finding in presented case was existence of chronic SDH without head trauma history, but with simultaneous arachnoid cyst and chromosomal deletion of 10q. The reported case had medium level of IQ. However, it is said that if a refractory pattern is seen, further dementia and mental problems are inevitable (10). Diagnosis of such cases is important because of its possible refractory course. It is worth noting that in such cases, it is necessary to obliterate the chronic subdural hematoma (11).

Wright et al. (9) reported a 13-year-old boy with history of minor head trauma and a thin chronic subdural hematoma having an underlying arachnoid cyst; however, chromosomal assessment was not done. Additionally, Wang et al (12) reported a healthy 14-year-old girl with spontaneous chronic subdural hematoma with severe headache since two weeks ago without any history of head trauma that had uneventful recovery subsequent to performing burr hole drainage.

Guevara-Campos et al (13) presented a 7-year-old girl with primary carnitine deficiency that had atypical features of the disease, including a developmental delay and attention span, similar to the case we reported, and apparent findings in brain MRI due to hygroma that was related to chronic SDH, with simultaneously chromosomal 5q deletion. However, brain imaging in the reported case refused to show an arachnoid cyst. These cysts may be complicated by some congenital abnormalities including malformations of corpus callosum and Chiari malformation (14). Hence, in such cases further assessments should be done. Arachnoid cysts are usually considered as possible risk factors for subdural hematoma, especially in children (15) as shown in our reported case. These cases are significantly younger than the patients with chronic subdural hematoma without arachnoid cyst (16). But the final prognosis is usually good (17) as the case presented in current paper.

CONCLUSIONS

Chronic subdural hematoma accompanying with arachnoid cyst in cases with syndrome manifestations should be considered as a part of inheriting biochemical disorders and further assessment by genetic and biochemical tests should be considered to diagnose possible syndromes and improve the prognosis with required additional treatments.

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