□ Case Report □

A Case of Young-Simpson Syndrome

Ja-Young Hwang, M.D., Se-Young Seo, M.D., Seong-Hoon Hahn, M.D.
So-Young Kim, M.D., Hyun-Hee Kim, M.D. and Wonbae Lee, M.D.

Department of Pediatrics, College of Medicine, The Catholic University of Korea, Seoul, Korea

Young Simpson syndrome is a rare malformation syndrome characterized by congenital hypothyroidism, dysmorphic face, mental retardation, severe postnatal growth retardation, hypotonia and congenital heart abnormalities. In the present study, we report a case of 4-year-old girl with Young Simpson syndrome for the first case in Korea. **(Korean J Pediatr 2005;48:1016-1018)**

Key Words : Young Simpson syndrome

Introduction

In 1987, Young and Simpson for the first time reported a case of a girl with hypothyroidism, mental retardation, dysmorphic face and congenital heart defect[1]. To the best of our knowledge, so far only 10 patients have been reported in the world to be suffering from this disorder[1-9]. But, there had been no reports of this disease in Korea. We experienced a case of Young Simpson syndrome, which had not been reported in Korea. Hence, we report a case of 4-year old girl with symptoms very similar to Young Simpson syndrome.

Case Report

Patient : ○○ Park, F/4 years

Chief complaint : Global developmental delay.

Birth and family history : The girl was born as the second child after 40 weeks of gestation. The Apgar score was 7 at 1 minute and 9 at 5 minutes, and the birth weight was 3,250 g (50 percentile), and her body length was 52 cm (50 percentile). Her parents were both healthy and unrelated and none of the relatives had mental retardation or congenital abnormalities or genetic disorders. Her sister was also healthy and had no developmental disorders.

접수 : 2005년 5월 24일, 승인 : 2005년 8월 3일
책임저자 : 이원배, 가톨릭의대 성가병원 소아과
Correspondence : Wonbae Lee, M.D.
Tel : 032)340-7045 Fax : 032)340-2673
E-mail : LWB@hfh.cuk.ac.kr

Past history : After birth, the girl had poor sucking power and she was hospitalized in neonatal intensive care unit for 20 days. During the time of her stay, neonatal screening test, and brain ultrasonography were all unremarkable. But echocardiogram revealed that she had 2 mm atrial septal defect (ostium secundum type). After getting discharged, hypotonia and failure to thrive sustained, but parents did not re-visited the hospital due to high medical costs.

Present illness and physical examination : She visited pediatric outpatient department at 4 years of age, because of global developmental delay. In gross motor milestone, she could not control her head, creep or sit alone. In fine motor milestone, she could grasp rattle but could not transfer object from hand to hand. In communication and language milestone, she could smile in response to face and voice but could not say any meaningful word or monosyllabic babbles. Her developmental age was as about 3-month old.

Her body weight was 10 kg (less than 3 percentile), and height was 88 cm (less than 3 percentile). She had clear breathing sound and there was no heart murmur. She had the following abnormalities : dolichocephaly, hypertelorism, bilateral short palpebral fissures, low set ears, anteverted nostrils, tongue tie, micrognathia, macroglossia, hypermobile joints of the elbows, clinodactyly of the fifth fingers and both palmar single transverse creases (Fig. 1). Her muscle tone was very hypotonic.

Laboratory data : The complete blood counts, blood gas analysis, blood chemistry, urinalysis, blood amino acids, urine organic acids, serum lactate, pyruvate, ammonia, im-

munoglobulins and TORCH serology were unremarkable. She also had normal karyotype (46, XX). An elevated thyroid-stimulating hormone (TSH) level of 31.34 mIU/L (reference range 0.7-6.4 mIU/L) was also detected. Total thyroxine (T_4) level was 7.76 μg/dL (reference range 5.5-12.8 μg/dL), and total triiodothyronine (T_3) was 162.36 pg/dL (reference range 100-260 pg/dL).

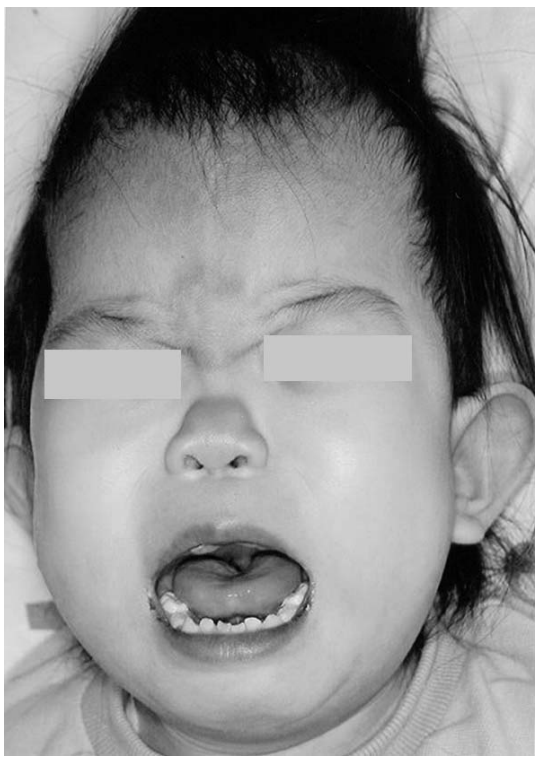

Fig. 1. Front view of patient. Note anteverted nostrils, bulbous nose and micrognathia. Informed consent to take a picture of the patient was obtained from her parents.

Both the thyroid lobes were found to be of normal size on ultrasound examination. ^{123}I-scintigraphy demonstrated that thyroid gland was normal in size, shape, and position. The TSH response to thyrotrophin-releasing hormone (TRH) was normal. We could diagnose the transient hyper-TSHnemia or mild congenital hypothyroidism that required no further treatment. Echocardiogram revealed spontaneous closure of atrial septal defect. Brain magnetic resonance imaging demonstrated multifocal high signal intensity and thinning of periventricular deep white matter on T2-weighted image. T1-weighted image showed slightly increased signal intensity on globus pallidus areas of both the basal ganglias (Fig. 2).

Progress : We followed up her in communication with rehabilitation medicine for physical therapy.

Discussion

Young and Simpson reported a case of a female infant with abnormal face characterized by microcephaly, blepharophimosis, small and low set posteriorly rotated ears, bulbous nose, carp shaped mouth, micrognathia, congenital heart abnormalities with large atrial and ventricular septal

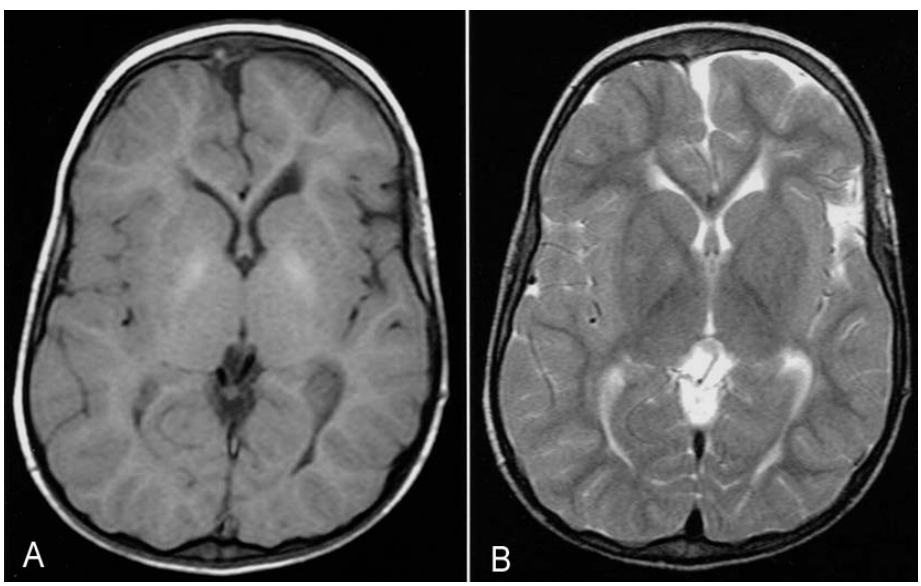

Fig. 2. MRI findings. **(A)** Slightly increased signal intensity of both globus pallidus areas of basal ganglias on a T1-weighted image. **(B)** Multifocal high signal intensity and thinning of both periventricular deep white matter on a T2-weighted image.

defects, congenital hypothyroidism and severe global retardation[1]. Fryns and Moerman reported a case of second male patient with a similar pattern of malformations[2]. Cavalcanti described a third male infant with a similar pattern of malformations and postaxial polydactyly[3]. Bonthron, et al. reported a case of fourth female infant with identical features to that of Young and Simpson's original case[4]. Her parents were first cousins, which implied that this unknown syndrome was inherited by autosomal recessive pattern. Nakamura and Noma reported a case of an 8-month-old Japanese boy with virtually identical features to those observed in Young and Simpson's first case[5]. Mitsuo, et al. reported two cases with similar features to that of Young and Simpson's first case[6]. Tatsuro decribed eighth unique male suffering from Young Simpson syndrome comprising of transient hypothyroidism, normal growth, macular degeneration and torticolis[7]. Except fourth case, patients' parents were non-consanguineous and phenotypically normal. Seven patients out of ten were sporadic. There is no further knowledge about inheritance pattern or genetic locus or etiologies of this new syndrome. We need to study more cases in order to gain further insights on Young Simpson syndrome.

한 글 요 약

Young-Simpson 증후군 증례

가톨릭대학교 의과대학 소아과학교실

황자영 · 서세영 · 한승훈 · 김소영 · 김현희 · 이원배

Young Simpson 증후군은 선천성 갑상선 기능 저하, 특이한 얼굴 생김새, 정신 지체, 심한 성장 지연, 근력 저하, 선천성 심장 기형을 특징으로 하는 드문 질환으로 국내에서는 보고된 적이 한 번도 없는 질환이다. 저자들은 Young Simpson 증후군인 4살 여아를 경험하였기에 문헌 고찰과 함께 국내 최초로 보고하는 바이다.

References

1) Young ID, Simpson K. Unknown syndrome : abnormal facies, congenital heart defects, hypothyroidism, and severe retardation. J Med Genet 1987;24:715-6.
2) Fryns JP, Moerman P. Unknown syndrome : abnormal facies, hypothyroidism, and severe retardation : a second patient. J Med Genet 1988;25:498-9.
3) Cavalcanti DP. Unknown syndrome : abnormal facies, hypothyroidism, postaxial polydactyly, and severe retardation : a third patient. J Med Genet 1989;26:785-6.
4) Bonthron DT, Barlow KM, Burt AM, Barr DG. Parental consanguinity in the blepharophimosis, heart defect, hypothyroidism, mental retardation syndrome (Young-Simpson syndrome). J Med Genet 1993;30:255-6.
5) Nakamura T, Noma S. A Japanese boy with Young-Simpson syndrome. Acta Paediatr Jpn 1997;39:472-4.
6) Masuno M, Imaizumi K, Okada T, Adachi M, Nishimura G, Ishii T, et al. Young-Simpson syndrome : further delineation of a distinct syndrome with congenital hypothyroidism, congenital heart defects, facial dysmorphism, and mental retardation. Am J Med Genet 1999;84:8-11.
7) Kondoh T, Kinoshita E, Moriuchi H, Niikawa N, Matsumoto T, Masuno M. Young-Simpson syndrome comprising transient hypothyroidism, normal growth, macular degeneration and torticolis. Am J Med Genet 2000;90:85-6.
8) Marques-de-faria AP, Maciel-Guerra AT, Junior GG, Baptista MT. A boy with mental retardation, blepharophimosis and hypothyroidism : a diagnostic dilemma between Young-Simpson and Ohdo syndrome. Clin Dysmorphol 2000;9:199-204.
9) Manaka S, Yamanaka I, Tateda T, Tajiri O. Anesthetic management of a patient with Young-Simpson syndrome. Masui 2002;51:1272-4.