

## Brief Note

### Five-year Follow-up Case Study of a Boy Referred for Suspected Autism at Age 22 Months

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Early screening for children with autism and other developmental problems, followed by early intervention, should facilitate earlier educational planning and provision for family support. However, in some children suspected of having, or diagnosed with, autism in early infancy, the symptoms of autism have disappeared by the time of entrance to elementary school and the child later receives another diagnosis or develops typically. In this study the case of a boy referred at age 22 months for possible autism was described. Consultations were conducted with him and his parent for one year, and then follow-up was continued until age 7 years and 4 months. His autistic symptoms gradually disappeared by age 4 years, and he entered a normal elementary school class where he received some special support. His symptoms, the process of development, and the process of consultation and follow-up were discussed.

**Key Words** : suspected autism, follow-up, diagnosis

#### Introduction

Autism has its onset in infancy. In many cases it is possible to diagnose a child with autism by about 3 years of age. Some cases of autism can be detected before age 2 years, because most children with autism begin to show symptoms after the age of 1 year. By the time the child is 18 months of age most parents feel that something is different, and they usually seek medical assistance by the time the child reaches age of 2 years (Baird, Charman, Cox, Baron-Cohen, Swettenham, Wheelwright, & Drew, 2001).

In several documented cases, the symptoms of children suspected of having, or diagnosed with, autism in early infancy have disappeared by the time of entry to elementary school, and these children have later received another diagnosis, such as general developmental delay, learning disability, or developmental language delay. For example, Perry,

Cohen, and DeCarlo (1995) reported on two siblings whose functioning deteriorated in the second year of life, until they clearly met DSM-III-R criteria for autistic disorder; however, after intensive behavioral and language therapy they made dramatic recoveries and were functioning normally by about age 5 years. In addition, Sonoyama, Hiramatsu, and Kumashiro (1994) reported on a boy who was suspected as having autism at his age-3 infant health checkup; after he was treated by a behavioral approach his autistic symptoms disappeared, and he was functioning typically at the time he entered elementary school. There are other documented cases in which the autistic symptoms have disappeared but the child has been diagnosed with other developmental problems. For example, Yamane (2000) reported on a boy who had autistic symptoms and mild mental retardation; his autistic symptoms disappeared when he was a toddler, and he had some behavior problems in elementary school, including

vocal tic and trouble with his peers.

The review by Baird et al. (2001) concluded that the diagnosis of autism is reliable at age 3 years but can be made earlier, and that experienced clinical judgment, taking information from a variety of sources, is most reliable. One reason for the difficulty of diagnosing autism in early infancy is that individual differences in development are large at this time.

In this study the case of a boy referred with possible autism at age 22 months was reported. The consultations were conducted with him and his mother for one year and then followed him up until age 7 years and 4 months. His autistic symptoms disappeared gradually by 4 years and he entered a normal class at elementary school. His symptoms, the process of development, and the process of consultation and follow-up were discussed.

## Method

### *Participant*

The participant was a Japanese boy aged 1 year and 10 months at the beginning of this study; he was 7 years and 4 months at the end. He lived with his father and mother and had no siblings. His grandfather and grandmother lived near his home. In the third month of pregnancy his mother was suspected of having a threatened miscarriage and was instructed to lie down quietly for one month. A fist-sized chunk of blood was found on a diagnostic ultrasound scan, but it gradually vanished. The boy was born at full term by vacuum extraction because the mother had weak contractions. His birth weight was 3,182 g and his sucking was feeble. He began to walk independently at age 1 year, and he achieved head control at 6 months. His physical development was typical.

However, the boy showed the following behavioral problems during the first year of life. Until age 1 year he slept not in a bed, but only when being rocked in the arms of his mother or

grandmother. At age 1 year he began to sleep in a bed, but his nocturnal sleep pattern was sleep for 2 hours and then wakefulness for 3 hours. At his infant health checkup at the age of 1 year and 6 months, he cried all the time and clung to his mother's arms. At this time a public health nurse told his mother that his language development was delayed because he was a boy and a first child, and referred him for a medical check by a pediatrician. The pediatrician told the mother that the autistic tendency of her son was strong, although the problem was not apparent upon EEG or hearing tests.

On the other hand, his grandmother had the strong impression that he was different from her own three children. He did not establish eye contact during feeding, did not turn when his name was called, and his shyness was very intense. The grandmother had concerns that the boy might have developmental problems; she read many books on child rearing and developed a concern that he had a condition resembling autism. The grandmother then telephoned the author of the book that she had read about autism. The book's author introduced her to a professor (i.e. this article's author) living in a nearby prefecture. The boy and his mother came to the university when the boy was 1 year and 10 months old, and the consultations started.

### *Procedure*

*Interview.* At the beginning of the study (i.e. when the boy was 1 year 10 months old), interviews were conducted with the boy's mother and grandmother to gather information about his developmental history and patterns of behavior. The CHAT (Checklist for Autism in Toddlers; Baron-Cohen, Allen, & Gillberg, 1992) was filled out at the same time.

*Consultation session.* Seventeen consultation sessions were conducted in a playroom at the university. Each session was held 90 minutes once every 2 weeks from age 1 year and 10 months to 2 years and 10 months. The boy, his mother, his

grandmother, and the author (as the consultant) participated in every session. There were many toys, dolls, a slide, a trampoline, a small table, and four chairs in the playroom. In the first half of the session the consultant interacted and played with the boy to model the desired behaviors, and his mother and grandmother observed the interactions. In the latter half the mother interacted and played with her son, and the consultant observed their interactions and advised the mother on the skills needed to interact with him. All sessions were videotaped.

*Follow-up.* After this series of consultation sessions had ended, the subsequent history of the boy was followed up until he reached age 7 years and 4 months, i.e. the beginning of second term in the first grade of elementary school. After one follow-up session was conducted to observe the boy's behavior and interview his mother at age of 3 years and 3 months, the follow-up information was gathered through mail, e-mail, and videotape from his mother. The mother sent mails and e-mails to the consultant several times a year, informing of the boy's condition and the records of psychological testing carried out by the clinical psychologist at the facilities the boy attended at the time. Sometimes the mother sent the consultant videotapes recording the boy's participation in events at nursery school.

*Developmental assessment.* To assess the boy's developmental improvement the consultant used several questionnaires, checklists, and intelligence tests. The Questionnaire for Psychological Development in Infants (Tsumori & Isobe, 1965) and the T-CLAC (Tsukuba-Check List for Autistic Children; Kobayashi, Sugiyama, & Yamane, 1978) were used. WISC-III and Tanaka-Binet IQ data were obtained from records that the mother had obtained from the facilities the boy attended.

## Results

The behavioral changes in the boy, together with the facilities he attended after birth, are summarized in Fig. 1. The leftmost column shows the level of difficulty of rearing the boy, as estimated by his mother. The second column shows the numbers of different words the boy spoke spontaneously.

*Behavior patterns at the beginning of the study.* At the beginning of this study, the boy's patterns of behavior were assessed through interviews with the mother and grandmother, and through observation in the playroom. The boy showed various patterns of behavior suggestive of autism. He used no reciprocal verbal or nonverbal communication. He did not play with his mother and did not use toys appropriately. He manipulated or lined up toys without apparent awareness of what the toys represented, and he did not engage in pretend play. He would put a toy on the floor and run round it. He watched television and jumped around alone. He had abnormal eye contact and avoided people's eyes; even if he had eye contact, he immediately looked away. His shyness was so intense that he screamed when somebody spoke to him. He was so cautious initially that he moved away when others came near to him. He showed temper tantrums if any change was introduced in his routine, e.g. if the route taken to drive to his grandmother's home was changed because of road repairing. He showed some repetitive or stereotyped behavior, including turning lights on and off and shutting all the doors in his home. He would laugh spontaneously for no apparent reason. He refused to walk along the road to the university from his home. Until age 1 year and 4 months he did not turn toward parents who his name was called and acted as thought deaf, but at the beginning of the study he began to sometimes turn to face others. He was able to understand easy directions and to utter some voices, but not towards others. These behavior patterns met the DSM-IV criteria for autistic disorder. The boy was also

Difficulty of rearing	Age	Number of word	Behavior change	Facilities	Note
①②③④⑤	0	1 112151 } } } } 0 102050	<ul style="list-style-type: none"> <li>threatened miscarriage suspects</li> <li>birth</li> </ul>		
	0:6		<ul style="list-style-type: none"> <li>sleeping only in the swinging mother's arms</li> <li>feeble sucking</li> <li>head control (0:6)</li> <li>no eye contact</li> <li>no turning to his name</li> </ul>		
	1		<ul style="list-style-type: none"> <li>beginning to walk (1:0)</li> <li>frequent screaming</li> <li>not walking out his home</li> </ul>	Health Center	1-year and 6-month infant health checkup "autism suspects"
	1:6		<ul style="list-style-type: none"> <li>increasing eye contact</li> </ul>	consultation at the university (2 days/M)	
	2		<ul style="list-style-type: none"> <li>pointing, motor imitation, playing with mother</li> <li>imitation spoken word</li> <li>spontaneous uttering one word (2:2)</li> <li>increasing temper tantrum</li> <li>decreasing temper tantrum</li> </ul>	small daycare group (1 day/W)	"not autism"
	2:6			large daycare (4 days/W)	
	3		<ul style="list-style-type: none"> <li>increasing spontaneous utterance</li> <li>increasing temper tantrum</li> <li>walking out his home</li> <li>decreasing temper tantrum</li> </ul>	speech therapy (2 days/M)	
	3:6			nursery school (6 days/W)	
	4		<ul style="list-style-type: none"> <li>refusing to wear uniform</li> <li>wearing uniform</li> </ul>	D center* (1 day/M)	
	4:6				
	5		<ul style="list-style-type: none"> <li>playing with other children</li> </ul>		
	5:6			E facility* (2 days/M)	
	6				
	6:6				
	7			elementary school	

Note: Number of Difficulty of rearing means ①no problem, ②little hard, ③hard, ④very hard, ⑤extremely hard, respectively.  
 ※ : private facility

Fig.1 Developmental History and Behavior Change

prospectively identified as autistic because he did not pass all the items in the CHAT.

*Behavioral change during consultation.* The consultation sessions were conducted for 2 years. The changes in the mother's behavior should be described first. The mother did not know how to play with her son at the start of the consultations, but by the third session she became to interact with her son very well. The following were the behavioral changes observed during the course of the consultations. The boy gradually began to look at his mother and the consultant after the beginning of the consultation. By the fourth session he would turn to mother and grandmother when his name was called. At fifth session he was able to frequently point to animals to describe them and to toys and food items that he wanted. At the same time he began to imitate the hand movements of his mother and other family members. At sixth session he could imitate his mother's mouth movements and vocalize "oh". At the seventh session he could imitate voices the mother spoke, e.g. "buu", "moo", and "gaa". Then at age 2 years and 1 month he spontaneously uttered a meaningful word – "banana". His spontaneous one-word utterances had increased to about 20 words by the end of the consultations.

Relatedness gradually improved. At age 2 years and 7 months, 1 day a week he began to attend a small daycare group for children with mild developmental delay, but he required special help. He would not touch the clay or paste and at first danced only with a specific teacher, but over a period of 2 months he eventually began to play with every teacher and shake hands with other children.

His odd behaviors had almost gradually disappeared by the final consultation session. When he began to attend the small daycare group, the pediatrician told his mother that he probably did not have autism, but that he might have learning disabilities or ADHD in future.

*Behavioral change during follow-up.* After the

end of the consultations, the boy attended a large daycare group from age 2 years and 11 months to age 3 years and 9 months. He attended a normal nursery school at age 3 years and 10 months, and he received speech therapy twice a month until he entered elementary school. In addition, he attended several private facilities (see Fig. 1). At first the boy refused to wear the nursery school uniform, but after 2 months he was wearing the uniform. At the time of graduation from nursery school he was behaving like other children of the same age. He entered a normal elementary school class at age 6 years and 11 months and received some special support. Because he had difficulties in solving Japanese tasks and had poorer skills in interacting with his peers than with the teacher, he attended a small-group teaching session 1 hour a week.

*Developmental assessment.* The results of the Questionnaire for Psychological Development in Infants were presented in Fig. 2. The boy was developing almost typically at age 5 years and 11 months, though he showed a small delay in the area of motor and social behavior. The results of the T-CLAC were presented in Fig. 3. The boy was performing like other children of the same age at age 5 years and 11 months. His IQ scores on the Tanaka-Binet intelligence test were 69 (CA=2:11), 85 (CA=3:05), 92 (CA=4:00), and 94 (CA=5:10). The IQ scores on the WISC-III were 87 (FIQ), 80 (VIQ), 97 (PIQ) at age 5 years and 10 months and 81 (FIQ), 70 (VIQ), 97 (PIQ) at age 6 years and 10 months. These IQ scores implied that the boy had reached a normal range at age 4 years, although there was a discrepancy between VIQ and PIQ.

## Discussion

This boy was referred at age 22 months for possible autism. The consultations were conducted with him and his mother for one year, and then follow-up was continued for 5 years and 6 months. His autistic symptoms had gradually almost

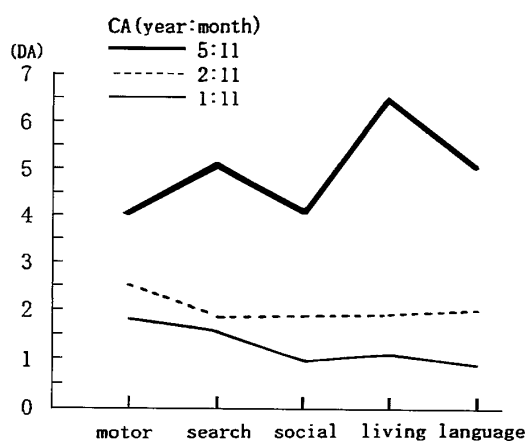


Fig. 2 DA of the Questionnaire for Psychological Development in Infants

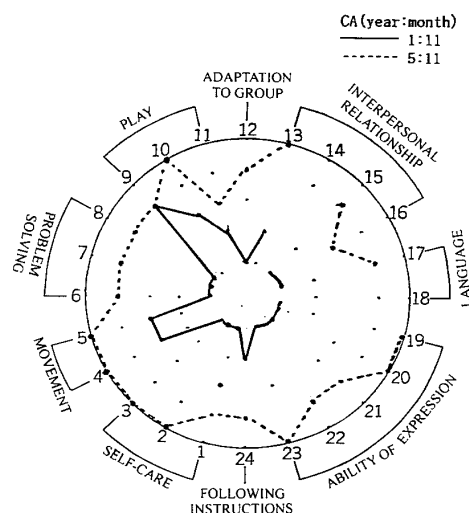


Fig. 3 T-CLAC

disappeared by age 4. Some of the literature has reported cases in which autistic symptoms have disappeared in infancy (e.g. Perry et al., 1995; Sonoyama et al., 1994; Yamane, 2000). These reports suggest that, in rare instances, some cases suspected to be autism in toddlers turn out not be autism. The boy in this study would be one such rare case.

This case suggests several concerns about early screening and intervention for children with autism. Several screening instruments for autism in early infancy have been developed, such as CHAT (Baron-Cohen et al., 1992), CARS (the Childhood Autism Rating Scale; Schopler, Reichler, & Renner, 1988), ADI (the Autism Diagnostic Interview; Le Couteur, Rutter, Load, Rios, Robertson, Holdgrafer, & McLennan, 1989), and ADOS (the Autism Diagnostic Observational Schedule; Lord, Rutter, Goode, Heemsbergen, Jordan, Mawhood, & Schopler, 1989). These screening instruments are very useful, but these are not perfect for detecting autism in children. For example, Baird, Charman, Baron-Cohen, Cox, Swettenham, Wheelwright, and Drew (2000) reported that of 12 children who met the threshold for high risk for autism by the CHAT at age 19 months, two children did not receive an

autism diagnosis at 42 months: one child had a severe expressive and receptive language disorder and the other was developmentally typical. Lord (1995) also reported that of 8 children who were classified as autistic by clinical judgment and met the ICD-10 criteria for autism, based on the ADI at age 2 years, one child was developmentally typical at age 3 years. These results and the process of development of the boy described in this study suggest that autism specialists should take note that a few children suspected as autistic in early infancy may develop typically in later infancy.

The reasons why the autistic symptoms of the boy in this study disappeared remain unclear. Did the consultant cure him of his autism through yearlong consultations? The answer might be "No". He would not have been autistic at age 22 months when the consultant first met him, although his development in early infancy would have been extremely unbalanced. At the end of the study the boy was developing almost typically, but with small problems. He attends a small-group teaching session 1 hour a week at the elementary school because of difficulties in solving Japanese tasks and poor skills in interacting with his peers. In addition, there was a discrepancy between the VIQ and PIQ of WISC-III.

## Five-year follow-up case study of a boy referred for suspected autism

The boy would be diagnosed in future as having LD. The boy had received a large amount of support from specialists after his 1-year and 6-month infant health checkup. Although his early diagnosis of autism would not have been correct, he was able to receive early intervention. Early screening for autism and other developmental problems, and early intervention, should facilitate earlier educational planning, provision for family support and education, and management of family stress and anguish.

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## 自閉症を疑われて 22 か月時に来談した男児に関する 5年間のフォローアップ研究

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自閉症やその他の発達上の問題をもつ子どもたちの早期スクリーニングは、早期からの介入を可能にし、それによって早期からの指導計画作成や家族支援の提供につながることを期待される。しかし、幼児期早期に自閉症を疑われたりその診断を受けた子どもたちの中には、小学校就学前までに自閉症の症状が消失し、その後、定型的な発達を示したり、あるいは他の診断を受けたりする子どもも少数ではあるが見られる。本研究では、1歳10か月時に自閉症を疑われて来談した男児1名について報告する。来談後1年間は本児と母親に対する相談を行い、その後、7歳4か月までフォローアップを行った。その結果、本児の自閉症状は4歳までに消失し、小学校の通常学級に就学し、そこで若干の特別な支援を受けることとなった。本児が示した症状、発達の経過、相談活動とフォローアップについて考察する。

キー・ワード：自閉症の疑い フォローアップ 診断