

Case Report

Child with Landau Kleffner Syndrome misdiagnosed as Autism: A case report

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Objectives: The aim of this single case study is to describe a child with Landau Kleffner Syndrome who misdiagnosed as a child with autism spectrum disorder. We also explore occupational therapy's role in correct process for diagnosis and treatment.

Method: Three times measurement with Autism Treatment Evaluation Checklist was performed to measure severity of symptoms and compare treatment outcomes.

Results: The outcome showed great improvements after pharmacotherapy.

Discussion: Results of this study indicated that correct diagnosis, early detection and early intervention in this disorder are essential to reach a proper treatment. Of course, therapeutic team work is crucial as well. Occupational and speech therapy interventions can also been recommended as a helpful treatment to improve social and sensory-motor and communicative skills. Parent's consultation should not be ignored to decrease parental stress.

Key words: Landau Kleffner Syndrome, Acquired Aphasia, Autism, Occupational Therapy, Differential diagnosis

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Introduction

Although Autism Spectrum Disorders (ASD) increases dramatically in recent years (1), recognizing autism differentiated disorders is important, especially when treatment strategies could be completely different. In this case report we describe a child with Landau-Kleffner syndrome who misdiagnosed as a child with autism, then the occupational therapy roles will be explored in the process of child's diagnosis and treatment.

Landau-Kleffner syndrome is a known, rare epileptic syndrome (2) that is marked by an acquired aphasia in children who have had normal language and motor development. Symptoms develop between 4 and 7 years of age (3) with the emergence of the typical triad of language regression, seizure emergence, and behaviors reactions (4). A male predominance exists, with an approximately 2:1 ratio (5). The disorder usually begins as an auditory verbal agnosia, then receptive aphasia occurs and a rapid reduction of oral expression appears. Initially spontaneous speak decreased and it tend to be

stereotyped and repetitive, with perseverations and paraphasias, but far less than adult. The child tends to talk around the subject rather than explain an idea (4). Several seizure types occur, including generalized tonic-clonic, partial, and myoclonic seizures. Atypical absence is sometimes the initial feature and may be associated with continuous spike and slow waves during slow-wave sleep (6). The speech problems do not correlate with the EEG abnormal bursts (4).

Behavioral problems are common (50-70%), especially at the onset of the disorder and include hyperactivity, attention deficits, aggressiveness, anger with tantrums, withdrawal, social deficits (4), irritability (7), impulsivity and oppositional behavior (8), all known to be reaction to a loss of communication skills, and does not relate to intelligence (4). The child may appear autistic or psychotic and this often leads to referral to a psychiatrist (9). Association between LKS and autism is an area of confusion (2).

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Sensory integration theory is a dynamic and ecological theory that refers to the process by which the brain organizes and interprets external stimuli such as touch, movement, body awareness, sight, sound, and gravity. It has been postulated that certain behavioral and emotional problems result from the malfunctioning of this process. Occupational therapists commonly use sensory integration theory in practice as a frame of reference that can be used to both assess and intervene with people who have sensory processing dysfunction that adversely affects function (10).

The ATEC is a one-page form designed to be completed by parents, teachers, or caretakers. It consists of 4 subtests: I. Speech/Language Communication (14 items); II. Sociability (20 items); III. Sensory/ Cognitive Awareness (18 items); and IV. Health/Physical/Behavior (25 items). The purpose of the ATEC is to measure change in an individual due to various interventions that is the difference between the initial (baseline) ATEC scores and later ATEC scores -The lower the scores, the better.

Case Report

The patient was a 69 months old boy that was referred from child psychiatrist to occupational therapy clinic diagnosed with concurrent autism and ADHD on May 2012. According to history obtained from parents, the child had reached developmental milestones in areas of language, motor, cognition and play normally until age of four years old; at this time he afflicted by a viral disease that caused 5 days hospitalization and after remission, signs of language deterioration emerged gradually. Results of metabolic examination and EEG in conscious state indicated no abnormality. Regards to clinical symptoms the child was diagnosed autism and took Respridone and Ritalin. He is the single child of the family and there is no cognition between parents. But child's cousin was diagnosed with ADHD before.

Before True Diagnosis

There were some behavioral problems at the beginning such as irritability, aggression and anxiety so that the child could not be able to communicate properly. It was last for 2 sessions using stress management techniques and play activities until the child to be calm down and ready for assessment. Clinical assessments showed serious problems, some of these abnormalities included: Both verbal and non verbal aspects of communication affected seriously,

the child had not proper eye contact with others but it seemed to be results of poor visual attention because he made rapid eye contact when need something, use repetitive and obscure speech with realistic speech content. He had sensory modulation disorder such as touch and auditory hyper sensitivity. He could not count in order and sing a kid's song while he could before. The child almost knew what his parent's say about him for example he knew if they decided to stay or leave. He was very agitated, aggressive, unhappy, irritable, and hyperactive and showed temper tantrum and serious social deficits. He always likes to see horrible and aggressive movies and behave with others like them. He had just one friend who shared his toys with him. Occupational therapy was done based on sensory integration techniques (twice a week and each session took 45 minutes), after 6 months Autism treatment evaluation scores was 113, while it was 116 point at first of arrival, indicated very high severity of autism symptoms and not significantly expected effects of OT. Monthly clinical re-evaluations also did not show any significant improvement but pointed that some core futures of autism disorder such as insistence on sameness and repetitive movements had never been seen in the child.

Diagnosis Process

Ideas that made us uncertain to the previous diagnosis for the child were as follows:

- Child's abilities did not improve within 6 months while we were sure about the therapeutic programs. So we thought there might be something wrong that prevent the child to develop his skills as we expected.
- The onset of the disease was in 4 years old not before 36 months.
- Some aspects of clinical observation included: many behavioral problems that seemed to be result of impairments in communication skills, lack of sameness and repetitive movements, having eye contact while visual attention was very poor.

These conditions made a big doubt about autism diagnosis for the child and differentiate diagnosis made up in our mind. It has been long discussed that clinical observation and the child's symptoms showed the diagnosis could be closer to LKS. For more scrutiny the child was referred to a child neurologist. After medical examination such as EEG in sleep state, LKS diagnosis was approved.

After True Diagnosis

Immediately after receiving LKS diagnosis, intensive pharmacotherapy began and sensory integration therapy classes has paused but occupational therapy sessions (once a week), continued to decrease some

pharmacotherapy side effects such as getting blubber, decreasing locomotion and psychomotor activity and also to parental consultation. After 4 months the child showed significant improvement and ATEC scores decreased to 47 points. Details show in table (1).

Table1. Child showed significant improvement and ATEC scores

	ATEC 1 2012/05/17	ATEC 2 2012/12/25	ATEC 3 2013/04/18
Sub scale I Speech/language/communication	12	12	8
Sub scale II Sociability	31	31	5
Sub scale III Sensory/Cognitive Awareness	29	27	6
Sub scale IV Health/Physical/Behavior	44	43	28
Total Score	116	113	47

At this time sensory integration therapy began again. The child learned better and had an active participation in occupational therapy sessions. In the child's treatment procedure, parents actually had been ignored, they felt sever anxiety so they were very doubtful about making any decision. Abruptly deteriorations in child verbal skills, child's serious behavioral problems and complicated medical process baffling them about their child and his future life. After consultations and giving enough information about the child disease and how we can overcome on these situations and what must parents do, they felt better and were very satisfied as compare before.

Discussion

Clinical presentation of LKS is very different from autism (2), but misdiagnosis maybe occur (7, 12). Although early and correct diagnosis in case of LKS is very crucial to receive a proper therapeutic program, but diagnosis process takes a long time in this condition. Therefore, the symptoms of the disease have enough time to affect almost all aspects of child development. Children are frequently referred initially to other specialists that leads to make a significant delay in establishing the correct diagnosis, result in sever behavioral problems (9). The similarities and differentiates between them are as follows: 1- Regression: in autism it may occur in a third of patients and affect all aspects of development (5) but LKS usually begins with language regression and may be more dramatic at the onset and affect auditory verbal areas (2). 2- The

age of the onset of the disease in autism is before 36 month (7) but LKS emerge in older children ranges 4 to 7-10 years old (3). 3- Abnormal EEG patterns may exist in 30 % of patients with autism (7) but typical abnormal EEG pattern is diagnostic in LKS (3). 4- Serious social skills deficit and behavioral problems present in both, it seems that in autism it's due to general developmental impairments, and in LKS it's result of inabilities in verbal and nonverbal communication skills (4).

Regards to complication in diagnostic process of autism and LKS, all therapists who worked in the field of autism including medical and rehabilitation team, must take attention to child symptoms, therefore, it causes early detection and early intervention also control the misdiagnosis process. In this case in addition to similarities and differentials of symptoms between autism and LKS, some clinical specific signs have been noted that include: eye contact of the child was very poor due to very low visual attention and it was not because of communicative impairments. Although the child had serious social deficit, he tried to make an interpersonal relationship when he need something. Based on our previous clinical experiences occupational therapy based on sensory integration techniques usually have great effects on children with autism but these techniques almost have no salient effects on this child until proper pharmacotherapy has prescribed. Comparing ATEC scores in 3 times as shown in table 1, indicates that 6 month occupational therapy before true diagnosis had no significant effects, but after intensive pharmacotherapy

improvement was sensible in all 4 ATEC subtests, although at the beginning pharmacotherapy had side effect including : the child's weights increases from 20kg to 27kg, or bed-wetting occurs some nights, consciousness states decreases and psychomotor activities declined, however some of these conditions got better by occupational therapy intervention and dosage management of medicine.

Conclusion

This case report showed while autism diagnosis is based on clinical futures, misdiagnosis might happen. Team work had an important role in this regard. Team work including child psychiatrist,

child neurologist and occupational and speech therapist decreases probable mistakes and result in true diagnosis and treatment. The most therapeutic improvements occurred after true diagnosis and pharmacotherapy that indicated the importance of precise diagnosis. Occupational therapist also could help to facilitate social skills and improving sensory-motor activities after pharmacotherapy period. Parent's consultation to know more about the LKS and teaching stress management techniques also done by occupational therapist, result in decreasing parental stress in this case.

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