CASE REPORT

Dental Treatment of Autistic Patients: Literature Review and Report of a Case

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Autism is a severe form of a group of disorders termed pervasive developmental disorders (PDD) and is characterized by impairments in social relatedness and communication skills and by unusual activities and interests such as rituals, stereotypes, and poor play skills. The overall prevalence of PDD is about 22 per 10,000 births. In most studies, the boy to girl ratio is 3:1 to 4:1. Due to their impairment in socialization and communication, dental treatment and dental habit become a challenge to caregivers as well as dentists. This article will review the general aspects of autism and discuss dental treatment for autistic patients. ***(Taiwan J Pediatr Dent 5(1): 19-25, 2005)***

Key words: Pervasive Developmental Disorders, Autism, Socialization Impairment, Communication Impairment, Ritual/Stereotyped Behavior

INTRODUCTION

Autism is a severe form of a group of disorders termed pervasive developmental disorders (PDD) and was first described by Kanner in 1943. It is characterized by impairments in social relation and communication skills and by unusual activities and interests such as rituals, stereotypes, and poor play skills. It's a brain-based neurological disorder of multi-origin and may co-exist with mental retardation, Attention Deficit Hyperactivity Disorder (ADHD), and epilepsy. It arises in early life and originates in the child's own biology. They don't like to seek to be held when in infancy. They ignore or shut out any social approaches when growing up, treat people as objects, and make minimal eye contact. Their language is also impaired, it will be parrot-like repetitive phrases or uttering words of heard and literalness usage.

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The other behavior abnormalities include having a desire for the sameness and resisting changes. Obsessive rituals and strict adherence to routines are common. The common form of play they do is to line objects up in rows. Older children may be intensely preoccupied with train schedules, calendars, or numerical relationship. They become easily upset if anything interrupts these rituals and preoccupations. ADHD is common in children with autism. The overall prevalence of PDD is about 22 per 10,000 births. In most studies, the ratio of boy to girl is 3:1 to 4:1. The biological basis of PDD is a combination of genetic and developmental factors. [1]

ORAL HEALTH STATUS AND DENTAL NEEDS FOR PDD PATIENTS

Previous studies found that autistic patients have higher frequency and more severe of periodontal disease than caries. [2,3] The most common dental needs are scaling, surgical periodontal procedures, oral hygiene and nutritional instruction. They need more preventive dental care.

Characteristics of autistic patients

The main challenge of the dental team may be the reduced ability of autistic patients to communicate. During the 1st year of life, the oral cavity is a most important organ, through which normal children explore the world. Autistic patients lack using the oral cavity in this way. Tooth brushing is also difficult to introduce. Furthermore, their stereotyped behavior and resistance to change make dental habit and dental treatment a real issue. Once they establish their eating and hygiene habits in early childhood, it's difficult for them to change. Other problems include uneven intellectual development, peculiar repetitive body movements, hyperactivity, and limited attention span and low frustration threshold. They are of high tactile and auditory sensitivity, and may have exaggerated reaction to light and odor. [4]

From all of the abovementioned, early detection of autistic characteristics, followed by early establishment of good dental habits, is therefore very essential. Clinical management considerations include a "healthy dose of patience" as well as pharmacological and communicative management techniques. It is important to gather as much information as possible when taking the health history. Carefully listening to the parents/caretakers is a key element in gaining their trust. [4]

Conventional behavior management

Communicative behavior management used for non-autistic patients such as TDS and positive/negative reinforcement is also needed for autistic individuals. A higher rate of flexibility is required to comply with quickly changing patient needs. Positive reinforcers are immediate verbal praise after each accomplished step. Oral commands should be clear, short, and use simple sentences. Hand-over -mouth and voice control are not appropriate for them. All lateral movements toward the patient are potential distractions and should be avoided. Moreover, beneficial relaxing effects of deep touch pressure for autistic disorder and ADHD such as using restrainers has been described. Applying a more or less firm wrap, pressure and /or touch on emotional disturbed or oversensitive persons can have a positive

calming and comforting effect.[4]

Pharmacological behavior management

Several authors described the use of pharmacological agents including nitrous oxide, diazepam, hydroxyzine, chloral hydrate and promethazine.[5-8] Treatment under general anesthesia in the operating room was necessary in 37% of all patients when comprehensive care is required or difficult procedures need to be carried out.[9]

Desensitization

Conditioning and reinforcement process before the treatment can be applied. In order to establish a routine, dividing dental procedures into smaller steps is suggested. Careful and gentle repetition is necessary before every procedure. Combination of desensitization with nitrous oxide sedation is also beneficial and effective.[8]

Visual pedagogy

According to the communication basis of autistic patients, they react more favorable to structured situations than to unstructured. Use of visual pedagogies (communicate via pictures than via words) is a way of communication and introducing dentistry to children with autism.[10,11] Symbolizing dental procedures and augmentative communication may help their gradual understanding of each step in dental treatment.[12-15]

CASE REPORT

Patient History

The patient is a 7Y8M old girl. She was brought to the clinic by her mother due to her toothache over #84 and #85 areas. The medical history includes asthma and autism. In language development, she could understand but her speech was only parrot-like speech (repetitive without knowing the meaning). There was no known of drug allergy.

During the oral exam, she was defiant and resisted sitting on the chair at first. After communication with tender loving care, she finally sat on the dental chair but refused to lie down. Due to her inability to cooperate, oral exam could only be done by telling her to open her mouth and inserting the mouth mirror for a quick glance. Dental caries over # 84 and #85 were noted. In addition, other diffused caries all over the oral cavity were also found. Because of her autistic nature and in order to relieve her toothache as soon as possible, full mouth dental treatment under general anesthesia was arranged. Blood test and chest x-ray were performed before general anesthesia.

Diagnosis

After full mouth oral radiographs were taken, a severely destructed crown with furcation lesion was noticed over #54. Thus, it was concluded the toothache might have come from this tooth. The other findings included caries over #16, #55, #64, #65, #26, #74, #75, #36, #84, #85, and #46. A deep carious lesion over #46 with incomplete root formation was also noted. (Fig 1-3)

Treatment plan (Fig 4-5)

(1) Operative restoration with composite resin: #16, #65, #26, 74, #75, #36, and #85.
(2) Pulpectomy and SSC: #55, #64, #84
(3) Apexogenesis and SSC: #46

(4) Extraction & band-loop space maintainer: #54

DISCUSSION

Autism is characterized by the impairment of communication, socialization and ritual/ stereotyped behavior. In this case, the patient is a girl, which is a rare occurrence in autism. Dental treatment for autistic patient has been a challenge to dentists due to their impaired communicating ability. At the first appointment, the patient could not cooperate at all. There was no eye contact when taking photos; (Fig 6) nor did she speak at all. However, during the follow-up appointment after dental treatment at the operating room, she was more cooperative. She was more familiar with the dental environment and was able to follow simple oral commands. Oral hygiene instruction was given to her mother in order to establish a routine for good dental care. Brushing, flossing, and periodic dental check-ups were strongly advised.

SUMMARY

Autism and the other PDD are organically determined disorders that generally present in infancy or early childhood period. They are characterized by the abnormalities in communications, social interaction and activities, and interests. Multidisciplinary treatment and early intervention is imperative to have a better outcome. Regarding dental treatment, establishing communication between the dentist and the autistic patient, either by tell-show-do, or by visual/nonverbal communication, is the most dominant factor in leading to successful treatment.

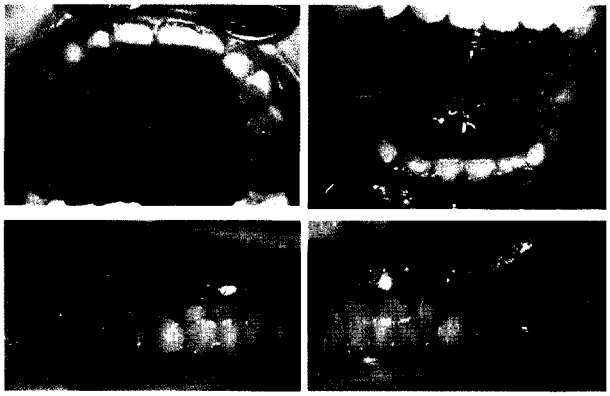

Fig 1. Pre-treatment intra-oral photographs

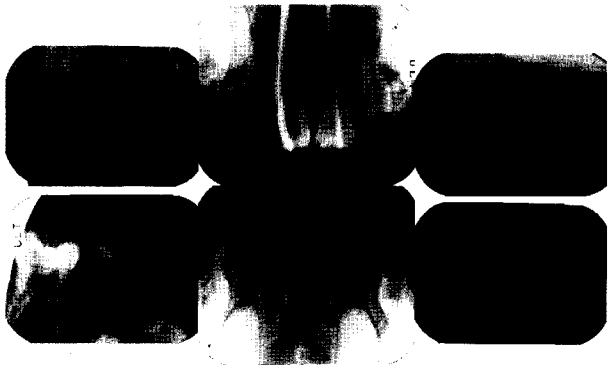

Fig 2. Pre-treatment intra-oral radiographs

Fig 3. Periapical radiograph shows a deep carious lesion with incomplete root formation of #46.

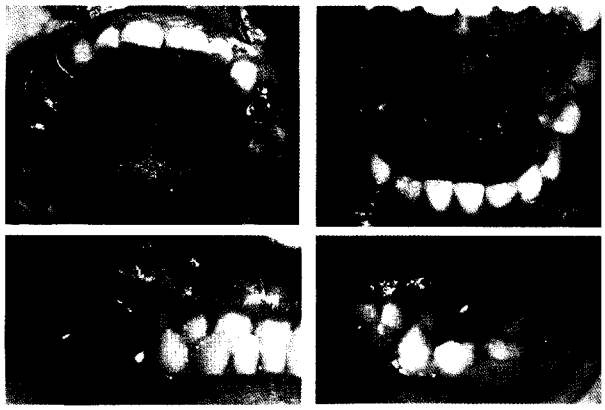

Fig 4. Post-treatment intra-oral photographs

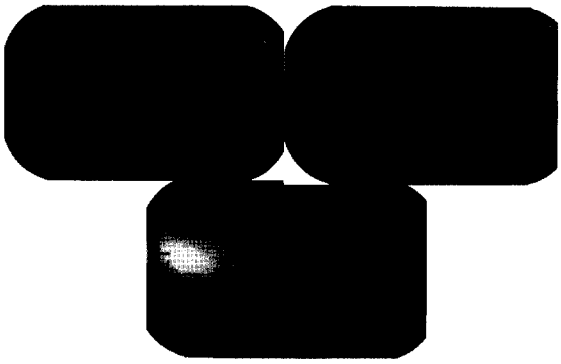

Fig 5. Post-treatment intra-oral radiographs

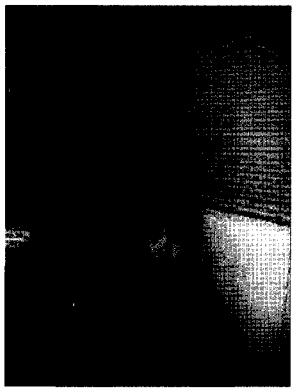

Fig 6. No eye contact of the patient when taking photographs of the patient and her mother

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病例報告

自閉症兒童之牙科治療－文獻回顧與病例報告

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自閉症是廣泛性發展異常中之一嚴重型態，其特徵為溝通能力不良、社交能力不良及既定的行為模式。其發生率約萬分之二十二，在大多數的研究中，男與女的比例為 3:1 到 4:1。由於其溝通以及社交能力的不良，使得牙科治療及維護口腔衛生習慣的工作對照護者及牙醫師成為很大的挑戰。本文將對自閉症作一文獻回顧及討論自閉兒的牙科治療。*(Taiwan J Pediatr Dent 5(1): 19-25, 2005)*

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