Orthodontics Treatment Strategy and Management in a Child with Attention Deficit Hyperactivity Disorder

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ABSTRACT

This is a case of an 8-year-old male patient diagnosed with class 1 angle malocclusion, 9 mm overjet and 4.5 mm overbite, with thumb-sucking habit. The patient also has attention deficit hyperactivity disorder (ADHD). The goal of this study is to identify and determine appropriate orthodontics treatment management for patients with ADHD. Management behavior using behavioral shaping and tell-show-do technique during orthodontic treatment in patients with special needs contributes to how well the patient will cooperate with the dentists during treatment.

Key Words: ADHD, Orthodontic development, management ADHD

INTRODUCTION

Attention deficit hyperactivity disorder (ADHD), one of the most commonly diagnosed childhood behavioral disorders, is characterized by inappropriate inattention, impulsivity, and hyperactivity. These symptoms may persist into adulthood and result in lifelong impairment.[1] These individuals are in communities served by our institution and are dependent on services from dental and medical providers, including orthodontic treatment.[2]

CASE REPORT

This is a case report of an 8-year-old, male patient diagnosed with class 1 angle malocclusion, 9 mm overjet and 4.5 mm overbite, impacted tooth 45, with thumb-sucking habit. Figures 1-3 show the profile of the patient on his first visit. The patient is also diagnosed with attention deficit hyperactivity disorder (ADHD) two years ago by a psychologist. The patient receives counseling and therapy once a week.

In order to treat the malocclusion, the patient underwent a surgical procedure to fix tooth 45 using removable orthodontics using palatal cribs. After 18 months, the thumb sucking habit is corrected and proceeded to use fixed orthodontic treatment for permanent management (Figure 4).

The patient comes to the pediatric dentistry clinic and receives treatment for 1.5–2 hours. For the first hour of the treatment, the patient is still cooperative, but after 30-60 minutes the patient starts to show signs of discomfort like trolling, messing the dental care or diagnostic kit, trying to punch and push things, including the dental chair, and operator. We were able to manage the mood in order to finish the treatment on the first day, by doing interventions like playing or giving some space, distracting the patient

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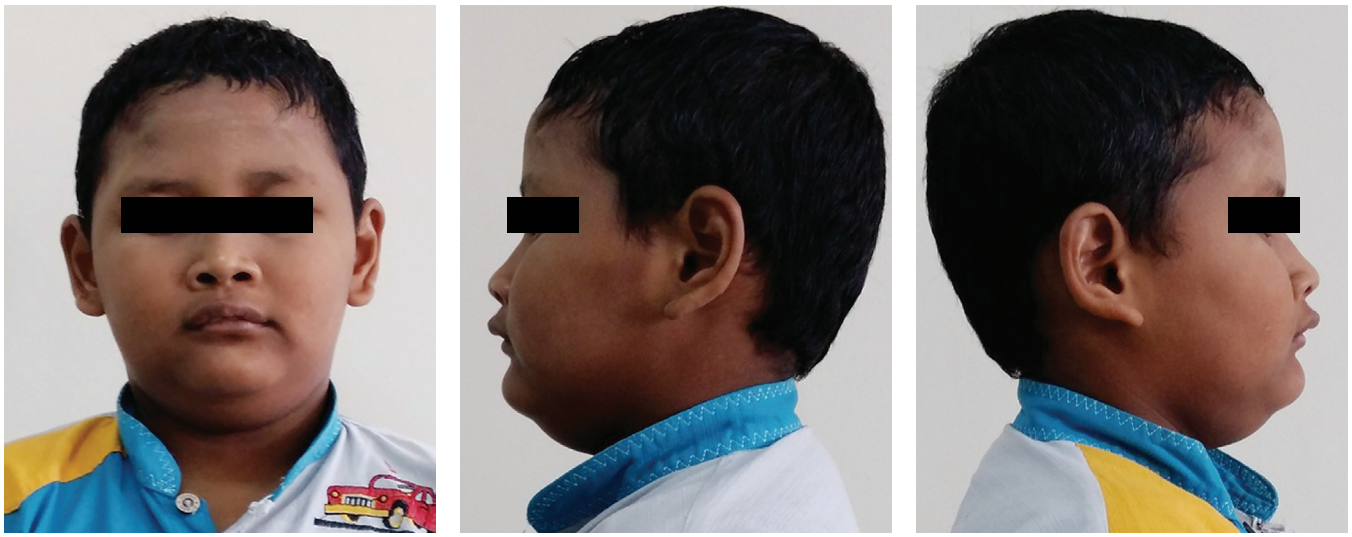

Figure 1. Extraoral profile of the patient.

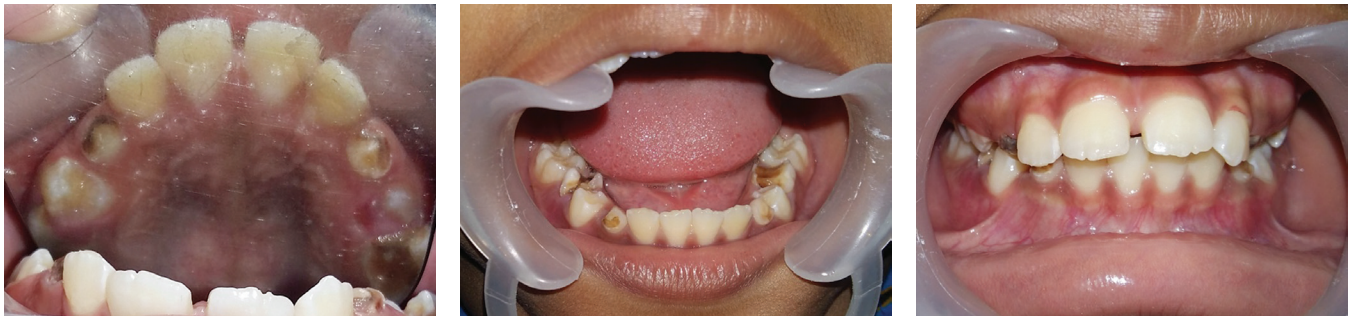

Figure 2. Intraoral profile of the patient.

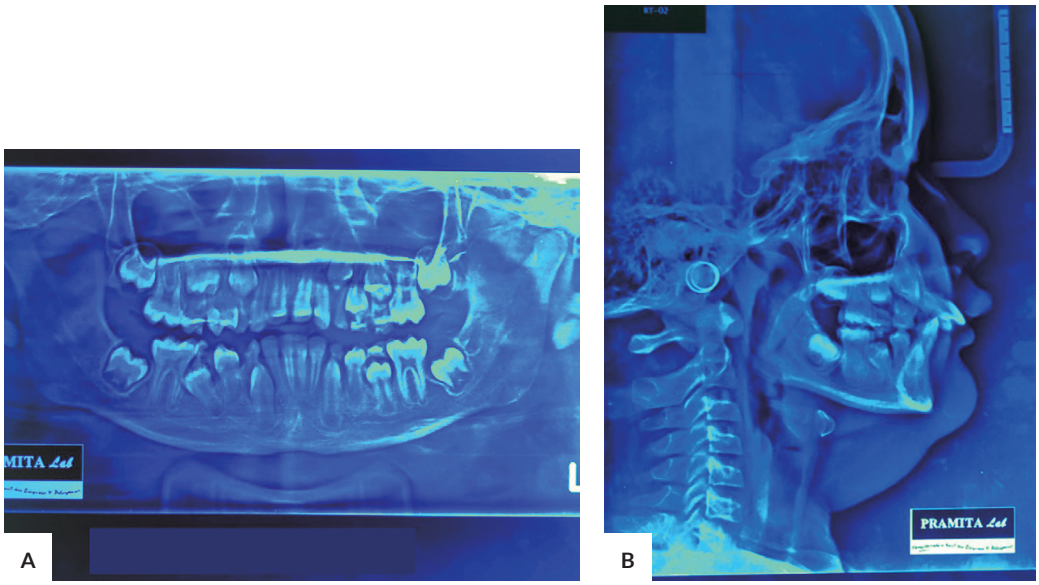

Figure 3. Radiographs **(A)** Panoramic, **(B)** Cephalometry.

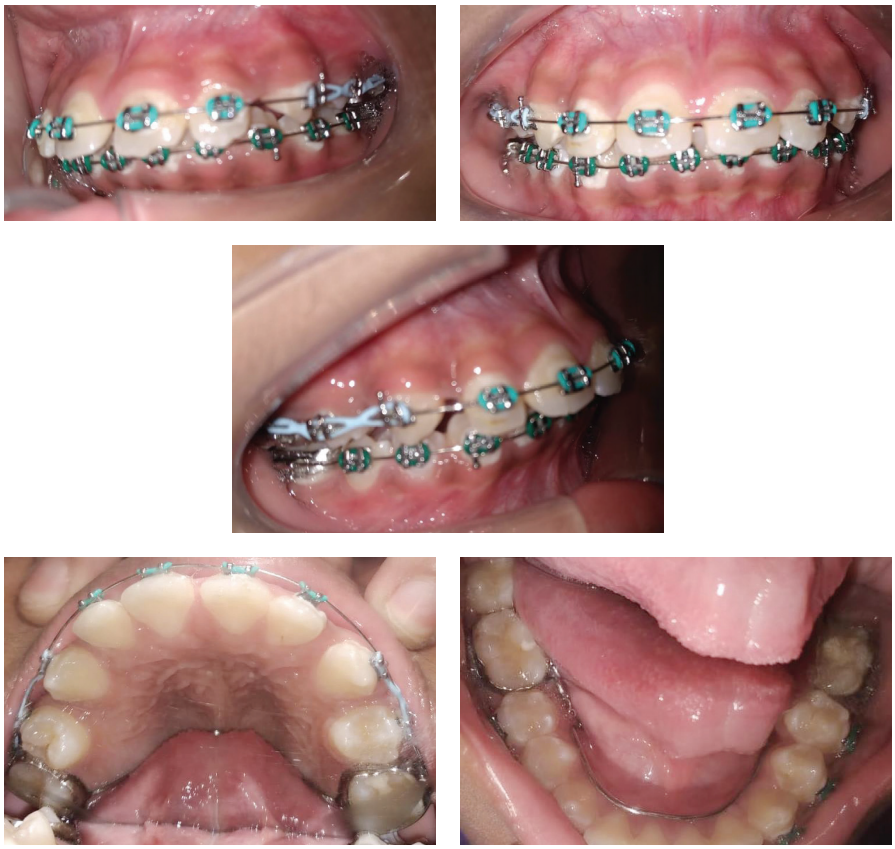

Figure 4. Intraoral (still in progress).

for a while by carrying him around and showing him things. Afterwhich he will calm down and sit in the dental chair and be cooperative again. After the first session and continuous interventions, the ADHD symptoms seem to get better evidenced by the patient being more cooperative, quiet and the parents expressed more understanding about the treatment.

DISCUSSION

The ADHD characteristics are divided into three types; inattention, hyperactivity, and impulsivity. These symptoms appear in the child's early life but because many children without ADHD may also have these symptoms, but at a low level, or the symptoms may be caused by another disorder, children should receive a thorough examination and appropriate diagnosis by a well qualified professional for an accurate and correct diagnosis and management plan. Symptoms of ADHD will appear over the course of many months, it is very often to find the symptoms of impulsiveness and hyperactivity preceding those of inattention that may not appear for a year or more. Symptoms can appear in different characteristics and depends on the situation that can pose for the child's self-control. When hyperactivity, distractibility, difficult concentration, or impulsivity begins to affect performance in school, social relationships, or behavior at home, it can be suspected as characteristics of a child with ADHD.[3]

Symptoms of ADHD are divided into three groups: difficult to focus (inattentiveness), being extremely active (hyperactivity), and cannot control their behavior (impulsivity). Some children with ADHD have mainly inattentive symptoms; some have mainly hyperactive and impulsive symptoms. Others have a combination of different symptom types. Those with mostly inattentive symptoms are sometimes said to have attention deficit disorder (ADD). They tend to be less disruptive and are more likely not to be diagnosed with ADHD.[4, 5]

Inattentive Symptoms

Fails to give close attention to details or makes careless mistakes in schoolwork, has difficulty keeping attention during tasks or play, does not seem to listen when spoken to directly, does not follow through on instructions and fails to finish schoolwork or chores and tasks, has problems organizing tasks and activities, avoids or dislikes tasks that require sustained mental effort (such as schoolwork), often loses toys, assignments, pencils, books, or tools needed for tasks or activities, is easily distracted, and it is often forgetful in daily activities.[5]

Hyperactivity Symptoms

Those children fidgets with hands or feet or squirms in seat, leaves seat when remaining seated is expected, runs about or climbs in inappropriate situations, has problems playing or working quietly, is often "on the go, " acts as if "driven by a motor", talks excessively.[5]

Impulsivity Symptoms

Blurts out answers before questions have been completed, has difficulty awaiting turn, interrupts or intrudes on others (butts into conversations or games).[5]

A partnership between the health care provider and the patient is vital in treatment and management of ADHD as well as collaboration with parents and often, teachers. To provide effective treatment, it is important to: set specific and appropriate goals, start medicine and/or talk therapy, follow-up monthly with the dentist to re-check the goals, results, and any side effects of medicines from the other health care provider. During these visits, information should be gathered from the patient and if relevant, parents and teachers.[5]

The health care provider will likely confirm the person has ADHD, to check the medical conditions that can cause similar symptoms, make sure the treatment plan is being followed, medicine combined with behavioral treatment often works best. There are several different ADHD medicines that may be used alone or in combination. The health care provider will decide which medicine is right based on the person's symptoms and needs; psychostimulants are the most commonly used ADHD medicines. Although these drugs are called stimulants, they actually have a calming effect on children with ADHD, follow the health care provider's instructions on how to take ADHD medicine, because some ADHD medicines have side effects. If the person has side effects, contact the health care provider right away. The dosage or medicine itself may need to be changed.[5]

In the case of our patient, we start the treatment at 12 pm and end it before 2 pm to make sure the interventions are done before his attention shifts and while he is still in a good mood during the treatment. Around 10 to 15 minutes before the treatment starts, we allow him to play and then we start with the procedures. When he starts to troll we stop the treatment for a while and let him play on his phone for about 10 minutes or go to the toilet. Most of the time, we also use the 'reward system' to manage his behavior and reach the goal of the treatment.

We did not use any restraint during the first day of treatment and his parents always accompanied him and helped the dental team. After his fourth visit, we asked the parents to wait outside for the patient to build trust between him and the dentist. Currently, the patient is more cooperative even without his parents to accompany him inside the room during the treatment.

Consistency, setting limits and clear instructions help in managing the child's behavior. For patients with ADHD, putting together a daily routine with clear expectations that include such things as bedtime, morning time, mealtime, simple chores, and TV is very important. Make eye contact when giving instructions, and set aside a few minutes to praise the child. Work with teachers and caregivers to identify problems early to decrease the impact of the condition.[5, 6]

During orthodontic treatment, we required a routine checkup to monitor the progress once a month. When treating patients, similar to any other child, developmentally-appropriate communication is critical. Often, information provided by a parent or caregiver prior to the patient's visit can assist greatly in preparation for the appointment. An attempt should be made to communicate directly with the patient and, when indicated, to supplement communication with gestures and augmentative methods of communication during the provision of dental care. At times, a parent, family member, or caretaker may need to be present to facilitate communication and/or provide information that the patient cannot.[7]

The presence or absence of the parent sometimes can be used to gain cooperation for treatment. There are different opinions for the parental presence / absence during a treatment procedure. Some prefer their presence as the parent may assist in behavior management. Some children behave well in the absence of their parents but maybe untrue if the child is very young as the child may prefer parental presence. The advantages of not allowing the parents in the operatory are: parents often repeat order, creating an annoyance for both dentist and child, the dentist is unable to use voice control in the presence of the parent because the parent may be offended, and the children attention is divided between parent and the dentist.[8]

When dealing with children, both time and the length of the appointment are important. Children cannot sit in one position for longer time and their threshold of tolerance is very low. Children should not be given appointment during their naptime or soon after emotional experience such as birth of a sibling or death of someone close. Cooperation can be difficult to secure and emotional difficulties are likely to be encountered .[8]

Dentist's skill and speed are needed during the treatment especially in children with special needs. The dentist should perform his duties with dexterity, in a preplanned manner or avoid wasting the attention span of an ADHD patient. A child can endure discomfort if they know it is soon going to end. [8]

CONCLUSION

There are not many differences with orthodontic treatment of children with and without ADHD. A partnership between children, parent or caregiver, and the

dentist are very important, to improve the outcomes of the prescribed treatment for the dental condition. In this case we decided to use behavioral shaping, reward system, and consistency in implementing the rules during the treatment, and with every step of the procedures, the child is exposed to the instruments being used to lessen the child's fear of the unknown, which is normal with children.[9, 10]

Patients with ADHD need more time to adapt to new environment and conditions, and also take more time for treatment to be done to them. Children diagnosed with ADHD have more anxiety and hardly able to focus. For effective treatment and management, dentists need to finish the tasks, procedures, and interventions faster than normal.

Patient Consent

The patient has agreed to the publication of photos and case, without mention of the patient's identity.

Statement of Authorship

All authors participated in data collection and analysis, and approved the final version submitted.

Author Disclosure

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