

Dental Management of Children with Attention-deficit Hyperactivity Disorder: Two Case Reports

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Abstract

One of the most common neurobehavioral disorders of childhood is attention-deficit hyperactivity disorder (ADHD), which is characterized by motoric hyperactivity, impulsiveness, and attention deficit. Children with ADHD exhibit an inability to perform proper oral hygiene practices. Hence, these children show a higher prevalence of dental caries as they are unable to brush their teeth effectively. Due to their hyperactivity, they are more prone to sustained trauma and frequent dental injuries. Handling ADHD-affected children poses a challenge to the dental health team due to their cognitive deficits and inattentiveness. Management of these children requires various behavior modifications at all levels of prevention and treatment. Thus, dentist's attention and care must increase when dental treatment is performed with ADHD children since behavior control, oral hygiene problems, and trauma might be expected. This paper illustrates the successful dental management of two children with ADHD.

Keywords: Attention-deficit hyperactivity disorder, Behavior, Disorder, Psychiatric.

INTRODUCTION

One of the prevalent psychiatric conditions among youngsters is attention-deficit hyperactivity disorder (ADHD). Impulsivity, hyperactivity, and inattention are its defining traits. The most frequent neurobehavioral issue affecting children of school age is ADHD, which is also one of the most prevalent chronic disorders in children. It also has an impact on all aspects of a child's life, such as conduct, scholastic achievement, and relationships with family and classmates.^[1,2] There is a 7.8–9.5% global prevalence of this condition.^[3] Boys are five times more likely than females to have it.^[4,5]

Three kinds of ADHD are identified by the Diagnostic and Statistical Manual of Mental Disorders-IV (DSM): predominantly inattentive, primarily hyperactive/impulsive, and combined.^[6,7] In the DSM-5, inattentive (restrictive) is a fourth subtype that can be present if the conditions for inattention are satisfied but only two hyperactive or impulsive symptoms have remained during the previous 6 months.^[6,7] Studies show that ADHD is a complex neurological illness that results from the interplay of genetic, biochemical, environmental, and psychosocial risk factors, even though the precise etiology of the disorder is unknown. According to different studies, the illness might be brought on by anatomical and functional disturbance in the brain's frontal cortex and basal

ganglia.^[7] The dopamine transporter gene DAT, the b-receptor gene for thyroid growth hormone GRTH, and the dopamine receptor genes DRD4 and DRD5 are among the genes that are suspected. Additional variables that lead to ADHD include intrauterine development retardation and exposure to alcohol, tobacco, or lead during pregnancy. Prenatal mother anxiety, inadequate prenatal education, and excessive TV watching are examples of environmental factors.^[6,7]

Before receiving dental care, children with ADHD are more likely to experience extreme anxiety.^[7] The data indicate that children with ADHD who are taking Ritalin (methylphenidate hydrochloride), Dexedrine (dextroamphetamine), or both have a higher prevalence of severe and unusual caries patterns. In addition, these medications may cause dry mouth, which could exacerbate dental caries. They also have a higher chance of experiencing traumatic tooth injuries due to their hyperactivity, which may exacerbate their dental conditions.^[8] Regardless

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of age, children with ADHD can benefit from dental care combined with appropriate behavior management, though symptoms often last into adolescence and adulthood. The dental treatment of two children with ADHD was discussed in this article.

CASE REPORT-1

An 8-year-old girl child diagnosed with ADHD presented to the Department of Pediatric Dentistry with the chief complaint of decay in the mandibular right and left back tooth region of the jaw. The patient was diagnosed with ADHD when she was 6 years old and was on medications – Risdone (Risperidone) and Inspiral (Methylphenidate). Family history was insignificant. Birth history reveals full-term normal delivery with perinatal asphyxia and a history of neonatal intensive care unit admission for 15 days after birth secondary to seizures. She was on medication for seizures for 1 year after birth. She underwent surgery for a squint eye at the age of 2 years. At the age of 3 years, she had difficulty in writing at school following which she joined a school where especially abled children study. At the age of 6 years, she had undergone a neurological examination for hyperactivity, decreased concentration and memory, and poor school performance following which she was diagnosed with intellectual impairment with ADHD and was started with medications. The patient gives a history of improvement of the condition after taking medications.

Intraoral examination showed the presence of dental caries involving 54, 52, 62, 75, and 85, deep dentinal caries with 64, grossly decayed 74, and root stumps with 84 (Figures 1a and b). The presence of a geographic tongue was observed (Figure 1c). Radiographic examination (orthopantomogram) showed root stumps with 74, 84, deep dentinal caries with 64, and dental caries with 54, 52, 62, 75, and 85 (Figure 1d). Therefore, the treatment plan included oral prophylaxis, restorations concerning 54, 52, 62, 64, 75, and 85, and extraction of 74 and 84, followed by lingual arch space maintainer (Figures 2a and b). Geographic tongue is a self-limiting condition and the patient was asymptomatic. Hence, plenty of fluid intake, proper oral hygiene maintenance, and reassurance were given. The child was reasonably cooperative during most of the treatment but turned slightly hyperactive on a few appointments due to skipping her medication. Using appropriate non-pharmacological behavior management techniques, such as tell-show-do (TSD), contingency management positive/negative reinforcement, and breaks/time-outs, treatment was rendered successfully to the child patient. Follow-ups were scheduled as per the treatment needs.

CASE REPORT-2

A 12-year-old boy diagnosed with ADHD presented to the Department of Pediatric Dentistry with the chief complaint of forwardly placed upper front teeth. Family history revealed that the child was adopted when he was 6 months old. He has

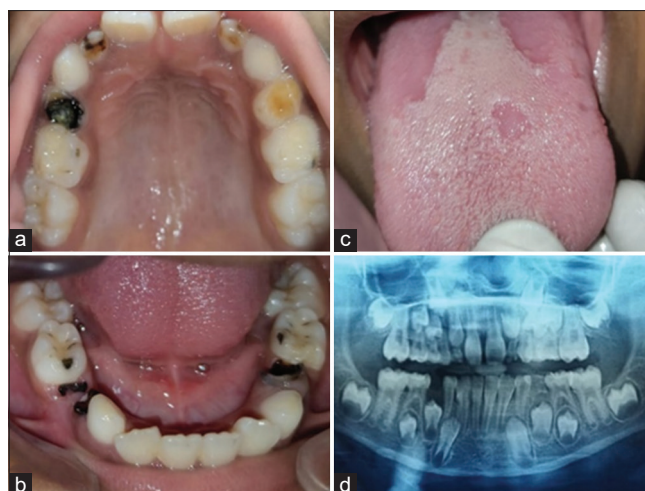


Figure 1: Case-1, pre-operative intraoral images showing (a) maxillary teeth, (b) mandibular teeth, (c) geographic tongue, (d) radiograph orthopantomogram showing multiple carious teeth

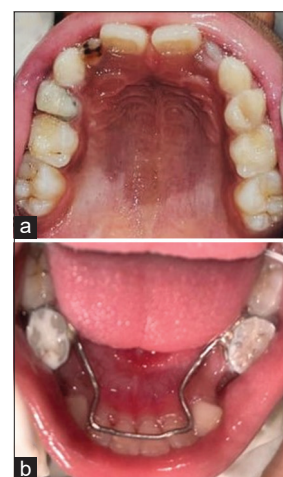


Figure 2: Case-1, post-operative intraoral images showing (a) maxillary arch with restorations 54, 64, erupting 12, and grade 2 mobility with 62, (b) Mandibular arch with restoration on 75, 85, and lingual arch space maintainer

had poor scholastic performance, difficulty in memorizing, anger outbursts, restlessness and gets distracted easily since early childhood following which he underwent psychological assessment and findings suggested below average level of current intellectual functioning (IQ = 71) and further indicated features of Attention-deficit and Hyperactivity Disorder of Combined type (DSM-IV). The patient was diagnosed with ADHD when he was 6 years old and was on medications – Risdone (Risperidone) and Inspiral (Methylphenidate). The child had improved his behavior after taking medications. He was currently on the medication of clonidine only. On intraoral clinical examination, oral hygiene was fair with minimal deposits of plaque and calculus. However, there was Elli's Class I fracture involving enamel and dentin with tooth 21 (Figure 3a), forwardly placed upper anterior teeth and bilateral Class II molar relation. Therefore, the treatment plan included oral prophylaxis, composite restoration of tooth 21



Figure 3: Case-2, intraoral images showing (a) Elli's Class II fractured tooth 21, (b) Composite restoration with 21, (c and d) Class II Division I malocclusion

(Figure 3b), and orthodontic correction for Class II malocclusion (Figure 3c and d). All the treatments were done by utilizing appropriate behavior management techniques. The child was referred to fixed orthodontic treatment and was followed up periodically.

DISCUSSION

Managing and treating children with ADHD pose a special challenge to the pedodontic team because of their difficulty in maintaining focus. When a child with ADHD consults the dentist, their anxiety levels rise, which may manifest as hyperactive behaviors.^[9] They can, however, receive satisfactory care if their treatment needs are carefully assessed and they are willing to cooperate. Both the youngsters in this case study had the traditional oral health problems previously documented in the literature.^[8] Nonetheless, we were able to treat them well using non-pharmacologic behavior management strategies because of their age and cooperation. Mere instances of non-compliant behavior were linked to non-adherence to the recommended treatment regimen. Therefore, before starting dental treatment, make sure the youngster has taken the medication. Furthermore, since they will be taking medicine, appointments should be set in the morning. In addition, the kids can remain in a dental chair longer, with less tiredness, and more attentiveness.^[10] According to research by Atmetlla *et al.*, children with ADHD may be harder to work with in the dental office because they have trouble building rapport, especially when it comes to teaching oral hygiene habits, as our first case demonstrated.^[11] Furthermore, as seen in our second case, they are more prone to experience traumatic tooth injuries due to their hyperactivity. In our two cases, the TSD methodology was used as the most successful behavior control strategy. According to Felicetti and Julliar,^[12] TSD decreased the children's strange behavior, encouraged cooperation, and diverted their focus from the dental treatments. At follow-up

appointments, regular plaque control measures were taken care of. These kids should be encouraged to participate in activities like sorting-colored blocks into a precise sequence to increase their attention span over time.^[13]

CONCLUSION

Pediatric dentists play a crucial role in the identification, treatment, and aftercare of young children with ADHD. These children also have a higher risk of acquiring dental caries, which could have far-reaching negative effects on their quality of life.

SOURCES OF SUPPORT

None.

CONFLICTS OF INTEREST

None.

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