

MULTI MODEL BEHAVIOUR MANAGEMENT OF A CHILD WITH SPECIAL HEALTHCARE NEEDS: A CASE REPORT

Pedodontics

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ABSTRACT

Summary: This case report describes the comprehensive dental management of a 12-year-old male child diagnosed with Global Developmental Delay (GDD), who presented with multiple decayed and retained teeth, along with significant behavioral challenges. The child was extremely hyperactive, non-compliant, and unable to tolerate dental examination or procedures during his initial visit. A tailored, multimodal approach was implemented that prioritized desensitization, caregiver involvement, and gradual exposure. The patient was given a guided tour of the dental clinic, introduced to basic instruments like the molts mouth prop, and shown peer modeling to build familiarity. A video demonstrating a friendly dental visit was shared with his parents to reinforce visual pedagogy at home. In subsequent visits, the child became more receptive, accepted nitrous oxide-oxygen sedation, and cooperated for oral examination, radiographs, restorations, and extraction under local anesthesia. His favorite cartoon was played as audiovisual distraction, which helped reduce anxiety and increase chairside tolerance. Communication was maintained in a soft yet firm tone, and minimal parental restraint was used when necessary. Over time, the child also began tolerating non-invasive procedures without sedation. This case underscores the effectiveness of an individualized, patient-centered approach in managing dental treatment for children with special healthcare needs, minimizing the need for general anesthesia. Children with neurodevelopmental disorders such as Autism Spectrum Disorder (ASD), Attention Deficit Hyperactivity Disorder (ADHD), and Global Developmental Delay (GDD) often exhibit behavioral challenges that make dental treatment difficult, frequently leading to recommendations for general anesthesia. This case report describes the successful management of a 12-year-old male child diagnosed with GDD who demonstrated hyperactivity, poor compliance, and inability to tolerate routine dental examination during initial visits. A structured, individualized behavior management approach was implemented using gradual desensitization, visual pedagogy through video modeling, Tell-Show-Do, audiovisual distraction, and conscious sedation with nitrous oxide-oxygen. Parental presence was maintained, and communication was delivered in a soft but firm tone. A molts mouth prop was introduced to support oral desensitization and was well tolerated. Over successive visits, the child showed significant behavioral improvement, ultimately cooperating for oral examination, radiographs, extraction under local anesthesia, and future preventive care without the need for general anesthesia.

KEYWORDS

Global developmental delay, Behavior management, Nitrous oxide sedation, Visual pedagogy, Pediatric dentistry

INTRODUCTION

Significant challenges are encountered while delivering dental care to children with neurodevelopmental conditions such as Autism Spectrum Disorder, Attention Deficit Hyperactivity Disorder (ADHD) and Global Developmental Delay (GDD).⁽¹⁾ These heterogenous population of children often exhibit limited verbal communication, poor social reciprocity, hyperactivity, sensory sensitivities, and rigid routines, making traditional dental techniques inadequate or even traumatic.⁽²⁻⁴⁾ So, these children are frequently referred for treatment under general anesthesia, even for minor procedures.⁽⁵⁾ However, general anaesthesia has its own risks and limitations. A patient-centered, stepwise behavioral guidance paired with mild pharmacologic intervention can help deliver adequate treatment to this group of population. This case report demonstrates how multimodal management using desensitization, visual pedagogy, conscious sedation, and parental involvement facilitated successful dental care in children with special healthcare needs

Case Report

A 12-year-old male with a prior diagnosis of Global Developmental Delay (GDD) reported with multiple retained and carious primary teeth. He was exhibited hyperactive behavior and was uncooperative during the first visit, repeatedly running out of the operatory and refusing to sit on the dental chair. Forceful restraint was consciously avoided. Instead, the patient was gently guided through a friendly tour of the department along with his parents remained present throughout, and he was also shown other children receiving dental treatment calmly to model appropriate behavior. A brief oral examination was completed with effort, but radiographic procedures were not possible

due to the child's refusal. The child was introduced to the molts mouth prop ("butterfly prop") as a preparatory step to desensitize with the prop for further visits, which was accepted well. Infantilizing behavior was consciously avoided; instead, instructions were given using a soft yet firm tone to promote emotional maturity and trust.⁽⁶⁾

A short video demonstrating a dental visit dental visit was shared with the parents to show the child at home for familiarization to the dental clinic. At the second visit, the patient showed improvement, voluntarily sat on the chair while holding his favorite toy, and accepted the nasal mask for nitrous oxide sedation.

Audiovisual distraction using his preferred cartoon show was displayed on a screen in front of the chair helped reduce external restlessness. Under sedation, a thorough intraoral examination and radiographs were completed. On examination it was found that the patients had multiple retained tooth including 51 52 62 and 63 and caries with 64, 65, 54, 55, 74, 84, 85, 16, 26, 36, 46. On radiographic examination 26 and 36 had dental caries involving only enamel and dentin. 46 had only pit caries while 16, 84, 85, 74, 54, 55, 64, 65 had pulpal involvement. A treatment was planned where we decided to proceed from non invasive to invasive procedure gradually. Initially the air rotor was introduced to the patient and after he tolerated it well caries excavation was done with 26, 36 and 46 and the teeth were restored.(Figure The patient remained cooperative with mild parental assistance and allowed clinical contact with increasing comfort toward the dentist.

In the next visit, 51 and 52 were extracted under local anesthesia. The

patient tolerated the procedure well and had no discomfort as long as under sedation..(Figure 1(a)).

At the third visit, the cooperated fully for an orthopantomogram (OPG) without sedation. The patient was further recalled for follow ups and has ongoing treatment. He now tolerates non-invasive procedures such as examination and prophylaxis, provided the treating team is consistent and parents are present. This case demonstrated progressive behavioral improvement through repetition, visual familiarization and behavioral modeling without the need for physical restraint.

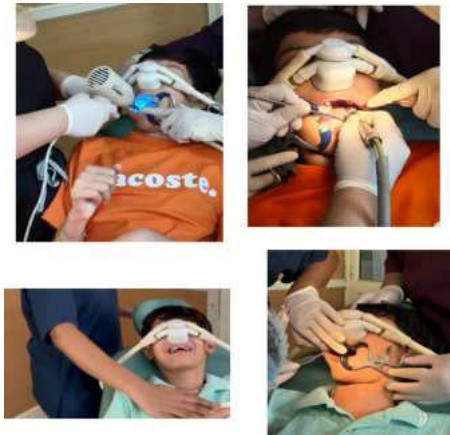


Figure 1: Right to left (a) patient accepting airrotor (b) patient undergoing restorative (c) Patient accepting sedation mask without restraint (d) LA administration and use of molts Prop

Table 1 : Timeline Of Visits

Visit	Intervention	Behavioral Strategy	Child's Response
Visit 1	Department tour, limited oral exam, analgesic prescribed	Desensitization, parental presence, introduction to molts prop, video modeling shared with parents	Restless and non-compliant; refused to sit on chair; allowed brief exam while standing
Visit 2	Full oral exam, radiographs, initial restorations	Nitrous oxide sedation, audiovisual distraction (favorite cartoon), soft-firm communication, parental support	Voluntarily sat on chair; accepted mask; cooperative under sedation with mild restraint
Visit 3	Extractions under LA	Continued sedation use, comfort toy, gentle restraint by parent	Tolerated LA well; calm under sedation; accepted invasive procedure

DISCUSSION

This case highlights the value of gradual desensitization, conscious sedation, tailored visual pedagogy, and caregiver-guided behavioral strategies in facilitating successful dental treatment in children with special healthcare needs. In this case, a stepwise, minimally invasive approach was employed, beginning with building familiarity with the clinic environment and dental team. Techniques such as Tell-Show-Do, modeling via peers, and the use of transitional comfort objects (toys) were employed to reduce anticipatory anxiety and increase perceived control. In this case, video modeling was effective in preparing children for the dental environment. In cases where screen stimulation triggers discomfort a flipbook with simplified illustrations can served as a suitable alternative⁽⁷⁻¹⁰⁾

Behavioral guidance was strengthened by consistent use euphemism where use of a molts mouth prop was presented as a “butterfly prop,” which allowed the child to experience oral instrumentation safely and predictably. Infantilization was avoided; instead, communication was delivered in a soft yet firm tone, promoting emotional regulation and mutual respect. The involvement of parents as behavioral anchors was central to this case, particularly in administering light physical restraint when required, such as during nitrous oxide sedation or local anesthesia. This aligns with previous literature emphasizing that structured parental presence reduces fear and increases procedural compliance in neurodivergent children^(5,6,11)

The use of nitrous oxide oxygen inhalation sedation was pivotal in bridging the gap between behavioral non-compliance and safe

procedural completion. Studies have demonstrated that nitrous oxide sedation is effective and safe in children with ASD, ADHD, GDD and other syndromes too when appropriately monitored and paired with behavioral strategies.⁽¹²⁻¹⁴⁾ In our cases, it enabled full oral examinations, radiographs, restorations, extractions, and even pulpectomies in a previously non-compliant child without resorting to general anesthesia. The successful use of audiovisual distraction during sedation, where the child's favorite show was played, illustrates the importance of multi-sensory engagement tailored to child's preferences. Minimal, non-threatening parental restraint, if consented and ethically applied, can support behavior without inducing trauma. Gradual exposure and consistency foster trust, as seen in this case. The success achieved through behavior guidance, video modeling, and conscious sedation underscores the importance of flexible and individualized management strategies.

CONCLUSION

This case highlights how structured behavior guidance, caregiver involvement, and sedation can enable successful dental treatment in children with GDD without general anesthesia.. A structured, child-centered approach helps avoid general anesthesia and promotes long-term cooperation in a clinical setting.

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