

# Navigating the Complex Landscape: Challenges in Special Healthcare Dentistry- A Case Series

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## ABSTRACT

**Background:** Special care dentistry for children with special needs encompasses various conditions, including developmental, cognitive, and systemic disorders. Oral health care for children with special health-care needs (CSHCN) is frequently neglected, despite the significant global population with disabilities or special needs. Significant disparities in oral health among these children underscore the necessity for improvements in oral healthcare. To address these challenges, dental practitioners require specialized training, while policymakers must consider the unique needs of children with special health care requirements when formulating dental care provisions.

**Objective:** The consent form was obtained, and the procedure was thoroughly explained to the parents. This scoping review and Case Series explores the challenges dentists encounter in providing oral health care to CSHCN along with the treatment approaches taken by the author.

**Participant & settings:** Seven case reports have been documented in which patients with diverse needs were successfully treated after addressing and overcoming various challenges. The various conditions that we have treated in the case reports mentioned are Autism, Intellectual Disability, Treacher Collins Syndrome, Pierre Robin Syndrome etc.

**Result:** The children were successfully treated through the implementation of diverse approaches. These approaches were made possible through the extensive and thorough research conducted by our team, which ultimately led to a positive outcome.

**Conclusion:** Through this experience, we observed that these children with special Healthcare Needs are often neglected. The findings highlight the critical need to address the challenges faced by dentists in delivering oral health care to CSHCN.

**Keywords:** Special Healthcare needs children, Pediatric Dentistry, Special Healthcare Disability Classification, Challenges and Complexities, Oral Health

Abbreviations : SHCN (Special Healthcare Need Dentistry), ASD (Autism Spectrum Disorder)

## 1. Introduction

Children with special healthcare needs (CSHCN) are defined as those who experience physical, developmental, mental, sensory, behavioral, cognitive, or emotional impairments that require specialized

medical management, healthcare intervention, and/or the use of tailored services and programs (AAPD, 2012). These children face unique challenges in pediatric dentistry due to their complex medical conditions, developmental stages, and behavioral characteristics, which often necessitate specialized care<sup>1</sup>. Pediatric dentists play a vital role in managing these challenges by developing individualized treatment plans that accommodate the specific needs of each child, including considerations for medical history, sensory sensitivities, communication abilities, and behavioral traits<sup>2,3</sup>. Addressing these obstacles is essential to ensure that children with special healthcare needs receive the appropriate oral healthcare, contributing to improved overall health and well-being<sup>4,5</sup>.

Globally, the burden of disability in children is substantial. According to the Global Burden of Disease (GBD) study, approximately 291.3 million children under 20 years have disabilities, with significant proportions located in South Asia and Sub-Saharan Africa<sup>6,7</sup>. Children in these regions face the highest prevalence of disabilities, including developmental intellectual disabilities, which are most prevalent among children under five years of age<sup>8</sup>. In India alone, approximately 28.6 million children have special healthcare needs, accounting for 27.4% of the country's population aged 0–19 years. Despite advancements in dental care, children with special healthcare needs experience disproportionately poor oral health outcomes, such as higher rates of dental caries, gingivitis, dental trauma, and poor oral hygiene compared to their typically developing peers<sup>5,9</sup>. However, CSHCN are often given lower priority in dental care, mainly due to individual, healthcare, societal, and governmental barriers<sup>10,11</sup>.

This case series explores the specific challenges dental professionals face when providing care for children with special healthcare needs. Seven cases are presented to illustrate the unique difficulties encountered by pediatric dentists in managing these patients. Common challenges identified in the literature, such as lack of training, financial constraints, communication barriers, and time limitations, are evident in these cases<sup>12,13</sup>. The importance of a multidisciplinary approach to care is emphasized, with collaboration among pediatricians, specialists, and caregivers being essential for achieving optimal outcomes<sup>14,15</sup>. Behavior management strategies, sedation, and general anesthesia are sometimes necessary to ensure that dental treatments can be completed safely and comfortably<sup>16</sup>.

Through the presentation of these seven cases, this study highlights the need for continued development in pediatric dental care for children with special healthcare needs. It underscores the importance of personalized care, specialized training, and a compassionate approach to ensure the best possible oral health outcomes for this vulnerable population. Furthermore, the case series aims to provide insights into the barriers that exist within current pediatric dental practices and to advocate for improvements in both clinical approaches and education to better equip dental professionals in addressing the unique needs of CSHCN.

## 2. Materials and Method

### Hospital Setting & Participants

A study was conducted at Santosh Dental College and Hospital, Ghaziabad, Uttar Pradesh, India a prestigious institution renowned for its excellence in dental education and research.

### Screening Of Patients

The patients who presented at the outpatient department (OPD) of Santosh Dental College, Ghaziabad, India were provided with treatment and the following have been included in the study.

### Data Collection

Data collection in the OPD of Santosh Dental College was conducted through a systematic screening of

patients. Each patient underwent a preliminary examination to assess their dental health status. Relevant clinical data were recorded, including medical history, diagnosis, and treatment plans. The treatment was then administered as per the diagnosis, and findings were documented for analysis. This structured approach ensured accurate and comprehensive data collection for the study.

### 3. Results

This study presented a series of 7 cases involving pediatric patients with various neurodevelopmental and craniofacial disorders, each presenting unique challenges in the field of pediatric dentistry. The cases explored the difficulties faced by both the clinical team and the families, as well as the impact of these conditions on the treatment planning and execution of dental care. The following summarizes the key results observed in each case:

#### Case 1: Autism Spectrum Disorder

A 3-year-old boy diagnosed with Autism Spectrum Disorder presented with pain in the mandibular posterior region. Due to the child's high distress levels, inability to follow instructions, and sensitivity to noises, dental treatment was performed under general anesthesia. Figure 1 illustrates the radiographic findings showing Chronic Irreversible Pulpitis involving teeth 74, 75, 84, and 85. This case highlighted the challenge of providing dental care to children with autism who cannot comply with instructions or remain calm during procedures.

#### Case 2: Autism Spectrum Disorder

A 4-year-old girl with Autism Spectrum Disorder was similarly unable to sit in the dental chair and was highly distressed by surrounding noises. General anesthesia was used to perform the necessary dental procedures. Figure 2 presents the radiographs of the affected mandibular right and left posterior regions. The results reinforce the difficulty of managing children with ASD in a dental setting, requiring sedation or general anesthesia for effective treatment.

#### Case 3(A & B): Treacher Collins Syndrome

Two patients with Treacher Collins Syndrome were evaluated, revealing contrasting treatment scenarios. Case A, where parental reluctance contributed to limited cooperation, contrasted with Case B, in which the patient was more compliant. Figure 3 shows the radiographs of Case B, where GIC restoration was done for teeth 74 and 75. In both cases, challenges related to the patient's physical and systemic conditions (e.g., low salivary flow, risk of caries) were addressed through preventive measures like enhanced oral hygiene protocols. Despite the challenges, dental care was successfully provided in Case B, while Case A's treatment was limited due to parental decisions.

#### Case 4: Intellectual Disability

An 8-year-old male with intellectual disabilities presented with tooth mobility. While the patient was able to sit in the dental chair, he was unable to follow instructions, requiring the involvement of four people for physical restraint during treatment. **Figure 4** shows the affected tooth with mobility. The case revealed the difficulty of managing communication barriers and lack of cooperation, which required slow-paced interventions and careful parental guidance.

#### Case 5: Pierre Robin Syndrome

A 13-year-old boy with Pierre Robin Syndrome presented with chronic irreversible pulpitis in tooth 36, accompanied by a constricted arch and cleft palate. The patient experienced restricted mouth opening and discomfort related to temporomandibular joint (TMJ) derangement during treatment. **Figure 5** shows the radiographic findings of the constricted arches. Although the infection was eventually managed, a crown

could not be delivered due to the planned orthodontic treatment and the presence of deciduous second molars. This case underscored the complexity of managing patients with craniofacial anomalies and the need for a multidisciplinary approach to treatment.

#### **Case 6: Syndactyly**

A child with syndactyly presented with numerous dental cavities and a high plaque index. **Figure 6** shows the extensive caries and high plaque accumulation. Due to a lack of sufficient information from the parents and the treating pediatric dentist, follow-up care was not adequately addressed. The case highlighted the vulnerability of children with syndactyly to early childhood caries and other oral health issues, emphasizing the importance of comprehensive care and proper follow-up for children with physical disabilities.

#### **Case 7: Macrocephaly**

A patient suspected of having macrocephaly presented with chronic reversible pulpitis in tooth 75. Due to visual and middle ear abnormalities, the patient could not respond to instructions, and the guardian was unaware of the condition's symptoms. **Figure 7** shows the radiographic image of tooth 75. The challenges in maintaining stability during treatment were noted, as the child's long, slender head and widened frontal bone made it difficult to keep the child comfortable. The case highlighted the difficulty in providing treatment for patients with undiagnosed or suspected craniofacial abnormalities, along with the challenges of obtaining follow-up care due to the guardian's reluctance.

These cases illustrate the diverse challenges encountered when providing dental care to children with neurodevelopmental or craniofacial disorders. A common thread throughout these cases was the need for special management protocols, including general anesthesia, physical restraint, and tailored communication strategies. The cases also emphasized the necessity of collaboration with multidisciplinary teams, such as neurologists and orthodontists, to address the complex needs of these patients. Additionally, the reluctance of parents or guardians to accept certain treatment options or follow-up care presented significant barriers to successful long-term management. Therefore, it is crucial to improve parent and guardian education, ensure appropriate pre-treatment counseling, and develop specialized care pathways to support these children effectively.

## **4. Discussion**

The management of children with special healthcare needs (CSHCN) in pediatric dentistry presents unique challenges that require specialized, patient-centered approaches to ensure optimal oral health outcomes. These children often face a range of physical, developmental, intellectual, sensory, or emotional impairments that can hinder their ability to cooperate during dental visits and receive traditional dental care<sup>17</sup>. Given these challenges, it is essential for pediatric dentists to adapt their methods to meet the individualized needs of each child, ensuring both comfort and effective treatment. A critical element in the successful treatment of CSHCN is effective communication. The ability to adapt communication strategies is key to establishing trust and facilitating cooperation. As suggested by<sup>18</sup>, pediatric dentists must use tailored communication approaches such as visual aids, simplified language, or alternative communication tools to address the unique needs of each child. This flexibility allows dental professionals to connect with children who may have difficulty understanding or expressing themselves verbally. Additionally, the establishment of a trusting relationship with the child and their caregivers is vital in alleviating anxiety and ensuring the child feels comfortable in the dental setting. This rapport-building is crucial to overcoming the potential emotional barriers that CSHCN often experience during dental visits<sup>18</sup>.

Behavior management strategies are another fundamental aspect of pediatric dental care for CSHCN. Techniques such as positive reinforcement, desensitization, and distraction are effective in gradually helping children acclimate to the dental environment and procedures<sup>19</sup>. These strategies aim to reduce anxiety and behavioral resistance, allowing for more successful and less traumatic dental procedures. For children with sensory processing issues or heightened anxiety, these techniques can significantly improve their experience and enhance cooperation, which is often a critical barrier to effective dental treatment<sup>19</sup>. Collaboration with multidisciplinary teams, including pediatricians, psychologists, and special education professionals, is essential in the management of CSHCN. As emphasized by---- a holistic treatment approach that considers not only the dental needs but also the child's broader health and emotional well-being can lead to better treatment outcomes. This integrated care model ensures that all aspects of the child's condition are addressed, which is especially important in children with complex or multiple impairments.

A major challenge faced by pediatric dentists when treating CSHCN is the lack of specialized training. Research consistently identifies a gap in dental education, with many practitioners reporting insufficient preparation in managing patients with special healthcare needs<sup>20,21</sup>. This lack of specialized training not only undermines practitioners' competence but also erodes their confidence in treating these patients<sup>22,23</sup>. Alamri (2022) highlights that one of the key reasons for reluctance in treating CSHCN is the perceived lack of knowledge and skills required to effectively engage with this population. As such, it is imperative to enhance dental school curricula and offer continuing education programs to equip dental professionals with the skills and confidence necessary to treat CSHCN effectively<sup>20</sup>. This would help address the knowledge gap and increase the number of practitioners willing to treat this underserved population.

In our case series, we encountered various challenges while treating patients with specific conditions, highlighting the complex nature of care for CSHCN. One such case involved a patient diagnosed with Pierre Robin syndrome, who exhibited difficulty in mouth opening and audible clicking in the temporomandibular joint during mouth movements<sup>24</sup>. Pierre Robin syndrome, characterized by an underdeveloped mandible and upper airway obstruction, posed significant challenges during treatment, including limited visibility and the patient's apprehension due to previous surgeries. By increasing the number of visits and extending treatment duration, we were able to help the patient feel more at ease, which contributed to a more successful dental experience. This approach underscores the importance of patience and gradual acclimatization, which are essential when treating children with complex medical histories. Similarly, Treacher-Collins syndrome presents unique challenges. Children with this genetic condition often have underdeveloped facial bones, which can complicate dental treatment.<sup>25</sup> In one case, parental reluctance stemming from a lack of awareness of the condition impacted the child's cooperation. This reinforces the need for not only providing dental care but also educating parents and caregivers about the condition to improve understanding and cooperation. As pediatric dentists, we must assist parents in managing their child's condition, ensuring they are better equipped to support their child's dental and overall health.

In cases involving autism, where children exhibited significant resistance to treatment, the use of general anesthesia proved to be an effective solution. Both children underwent successful full-mouth rehabilitation under general anesthesia, allowing for comprehensive treatment in a safe and controlled environment. This approach reflects the findings of Carpiano et al<sup>26</sup>, who highlighted that behavior management strategies, including sedation or general anesthesia, are sometimes necessary to ensure the safety and success of dental procedures for children with severe behavioral challenges.

For conditions such as macrocephaly and syndactyly, timely intervention and parental awareness are critical. Macrocephaly can be indicative of underlying neurological deficits, while syndactyly, a condition where the fingers or toes are fused, may lead to developmental delays if untreated.<sup>27</sup> In both of these cases, a lack of awareness resulted in delayed treatment. Early diagnosis, education, and proactive care are key to ensuring these children receive timely treatment, promoting better oral and overall health outcomes. Pediatric dentists can play a pivotal role in screening children during their developmental years, raising awareness, and educating parents on the importance of early intervention for these conditions.

## 5. Conclusion

In conclusion, managing children with special healthcare needs in pediatric dentistry requires a multifaceted, individualized approach that incorporates effective communication, behavior management, collaboration with multidisciplinary teams, and continuous education for dental professionals. The challenges identified in our case series, including limited mouth opening, parental reluctance, and behavioral resistance, emphasize the importance of a compassionate, patient-centered approach. By addressing these challenges and promoting ongoing education and awareness, pediatric dentists can improve the dental experiences and overall health of children with special healthcare needs.

## Legends of Figures :

1. Treatment Strategy for case 1(Autism Spectrum Disorder): A) Patient Profile, B)Pre-operative OPG, C)During the treatment in the OT , D)Post-operative OPG Where White color highlighted box states the Stainless Steel Crowns and Pulpectomies done in affected tooth, E) & F) Follow-up after 1 Year
2. Treatment Strategy for case 2(Autism Spectrum Disorder): A) Patient Profile, B) Pre-operative OPG, C)Post-operative OPG White color highlighted box states the Stainless Steel Crowns and Pulpectomies done in affected tooth
3. Treatment Strategy for case 3(Treacher Collin Syndrome): A) Patient Profile
4. Treatment Strategy for case 3(Treacher Collin Syndrome): A) Patient Profile, B) Pre-treatment Record ,C) GIC Restoration done wrt 74,75 tooth (Deciduous Molar)
5. Treatment Strategy for case 4(Intellectual Disability): A) During the Procedure ,B) Post Treatment ,C) Post Operative - Extracted teeth
6. Treatment Strategy for case 5(Pierre Robin Syndrome): A) Patient Profile ,B) Intra-oral Pictures depicting constricted maxillary arch ,C) Pre Operative OPG , D) RCT wrt 36
7. Case 6 (Syndactyly): A) Patient Profile
8. Figure 7. Treatment Strategy for case 7 (Macrocephaly): A) Patient Profile ,B) Intra-oral Pictures ,C) GIC Restoration wrt 75

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