

Case Report

Beyond the chair: Comprehensive care under general anesthesia in pediatric dentistry

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Abstract

Background: Uncooperative behavior and severe dental anxiety in young children frequently preclude the delivery of routine dental care, necessitating alternative management strategies. General anesthesia (GA) is an established option for such patients; however, its selection remains largely subjective in the absence of a standardized clinical decision-making tool.

Case Presentation: A 5-year-old child with no significant medical history presented to the Department of Pediatric Dentistry, PDM Dental College and Research Institute, Bahadurgarh, with extensive multi-surface dental caries and a documented history of failed treatment attempts due to severe anxiety and uncooperative behavior. The patient was evaluated using the Pediatric Dental GA Suitability Scoring System (PD-GASS), a novel structured scoring instrument incorporating six weighted clinical criteria: age, behavioral cooperation, treatment complexity, prior dental experience, parental preference, and special needs status. The patient scored 15, exceeding the GA indication threshold of ≥ 11 . Comprehensive dental rehabilitation—including multiple extractions and restorations was successfully completed in a single session under GA, with no intraoperative or postoperative complications. Follow-up visits confirmed uneventful healing and a markedly improved attitude toward dental care.

Conclusion: This case illustrates the clinical utility of the PD-GASS scoring system as an objective, reproducible framework for GA case selection in pediatric dentistry. The successful outcome underscores the value of standardized assessment tools in guiding ethical and evidence-based treatment decisions for anxious and uncooperative pediatric patients. Prospective validation of PD-GASS across diverse clinical settings is recommended.

Keywords: General anesthesia, Pediatric dentistry, Dental treatment, PD-GASS, Clinical decision making, Pediatric oral surgery, Behavior management.

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1. Introduction

The management of fear of dentists and uncooperative behavior in pediatric dentistry is still one of the greatest challenges in the field.¹ Pediatric dental treatments can be very traumatic to children, especially if they have had prior bad experiences at the dentist. If the child does not get over their fear of going to the dentist, they will likely avoid going to the dentist for all of their future dental work, therefore limiting their access to proper dental care.² There are many common non-pharmacologic methods used in everyday dental practice to help make the child less anxious and cooperative. These include using the "tell/show/do" method and other distractions.³ Although, there are some patients who do not respond well to these behavioral techniques; especially those with extreme fear of dentists, or have serious medical problems.⁴

When the dentist can't rely on the child to cooperate, or understand what he/she is doing (for example: very young children), or the child needs to have several dental treatments done at once, general anesthesia (GA) may be considered.⁵ Using GA allows the dentist to perform all of the needed dental treatments at once and eliminates the child's fear of the procedure and his/her refusal to allow the treatments to occur. Using GA provides the dentist with the ability to do a full range of dental treatments on the child while they are asleep and eliminates the child's fear of the procedure and refusal to participate.⁶ This process provides the child with the opportunity to obtain all of the necessary dental care in one session and reduces the number of times the child must come into the office and potentially suffer from emotional trauma.

General anesthesia in pediatric dentistry, therefore, helps resolve the problem of fear of the dentist while allowing the child to obtain the care they need without suffering from pain or discomfort. GA also helps in treating cases that require multiple treatments to be done at the same time, and it is often impossible to accomplish this in a single visit with local anesthesia and/or behavioral management.⁷ A number of studies have investigated the use of GA in pediatric dentistry. For example, Berat PJ et al., designed a study to develop a system to determine which treatment options are best suited for each pediatric dental case. They specifically evaluated the use of GA in various clinical situations. However, the authors of the study left out some important criteria that should be included in some clinical settings.⁸

This case reports' ultimate goal is to provide a thorough explanation of when and how GA can be used in pediatric dentistry, to ensure that the treatment is successful and tailored to the individual needs of our patient population. Additionally, this paper attempts to fill the gaps that exist in the current body of literature by including additional relevant criteria that are critical for our specific clinical setting, and to further enhance the quality of care that we provide to children in our institution.

2. Case Presentation

2.1. Patient information

A 5-year-old child presented to the pediatric dental clinic with severe dental anxiety and multiple untreated dental caries. The child had a history of previous failed attempts at receiving dental care due to uncontrollable fear and uncooperative behavior during routine dental procedures. The patient's parents were highly concerned about the child's dental health but expressed a strong preference for General Anesthesia (GA) due to previous

traumatic experiences with dental treatments. The child was diagnosed with extensive dental decay that required multiple extractions and restorations.

2.2. Medical history

1. Age: 5 years
2. Medical Conditions: No significant medical history.
3. Developmental History: Normal, with no developmental delays observed.
4. Behavioral Issues: The child exhibited severe anxiety, refusal to accept treatment, and became highly agitated during previous dental visits.

2.3. Dental history

1. **Previous dental visits:** The child had undergone a few dental appointments but became extremely agitated and uncooperative during procedures. The attempts to complete treatments were unsuccessful, leaving the dental issues untreated.
2. **Current dental status:** Extensive caries present in multiple teeth, requiring extractions and restorative procedures.

2.4. Assessment criteria

The patient was assessed using the Pediatric Dental GA Suitability Scoring System (PD-GASS). Below is the detailed scoring based on the patient's specific case:

Criteria	Description	Score
Age	3-6 years (child is 5 years old)	2
Behavioral Cooperation	Completely uncooperative and highly anxious	3
Dental Treatment Complexity	Extensive treatment required (multiple extractions and restorations)	3
Previous Dental Experience	Refused all previous attempts	3
Parental Preference	Fully insists on GA due to past trauma	3
Special Needs	No special needs	1
Total Score		15

2.5. Interpretation

The patient has a total score of 15 and this means that the patient is signaled to use GA based on the PD-GASS scoring system. Since the child showed high anxiety levels, uncooperative behavior, had a high level of treatment requirement and the parent insisted on GA, it was agreed that GA was the best option to adopt to make sure that the required dental procedures are completed successfully.

2.6. Treatment plan

The child was scheduled to undergo general Anesthesia so that several extractions and restorations could be performed in a single session avoiding the child to make numerous visits and to be as frightened and uncomfortable as possible.

Preoperative preparation: The patient was given a complete preoperative assessment to determine the preoperative suitability of GA, such as medical and dental history, and parental consultation.

Treatment under GA: The dental operation such as extractions and restorations was done successfully under GA and no complications were reported during the process.

Postsurgery care: the child was observed in the recovery room after the surgery till fully awake and stable. Provision of postoperative pain was also made and follow up appointments were made to check proper healing.

2.7. Outcome

The therapy was a success, and the child felt very little anxiety because of the procedure. There was a considerable change in the attitude of the child toward attending a dentist, which the parents stated became much better after treatment. The child could resume normal functioning without any form of discomfort or distress. Successful healing without complications was revealed through follow-up visits.



Figure 1: Preoperative image showing a pediatric patient with multiple dental caries. The patient is under General Anesthesia (GA), and the dental treatment is being initiated



Figure 2: Intraoperative image showing the pediatric patient under GA with the dental team performing the required restorative procedures. The use of a mouth prop and appropriate positioning is evident to facilitate treatment



Figure 3: Intraoperative image of the pediatric patient during a complex dental procedure under GA, highlighting the extent of treatment required, including extractions and restorations. The dentist uses a high-speed dental instrument for treatment

3. Discussion

In their article concerning the SCAN-Score, Berat et al. designed a scoring system to guide pediatric dentists in deciding when GA is to be implemented in uncooperative children.⁹ They integrated the age, behavior and the necessity to have the teeth taken care of into an orderly tool. On the one hand, like the PD-GASS system, our study takes into account the age and behavioral factors; on the other hand, it extends the criteria by considering the parental preferences, complexity of the treatment, and special needs which are especially important in our clinical environment.

In their systematic review on the effects of GA on the oral health of pediatric patients, Lopez-Velasco et al. propose that GA can be used to offer comprehensive treatment in a single session to children with severe anxiety or complicated teeth.¹⁰ Our paper concurs with this finding and also highlights GA as a solution to the issues of a child who has to undergo a lot of dental treatment within a session. Nonetheless, their review

lacked the well-organized decision-making process, which is the goal that the PD-GASS system seeks to target.

Chen et al. were interested in neurodevelopmental outcomes of children who receive GA during dental operations.¹¹ They discovered that GA is good in offering treatment but there are apprehensions of the possible long-term impacts on the cognitive and emotional growth of a child. This paper is a lesson to some extent, and it is advised that the use of GA should be prudent. This anxiety is shared by our paper, where we highlight the necessity of close selection of cases as is expressed in the PD-GASS scoring system.

One study by Huang et al. also examined the effects of dental care under GA on the quality of life of children.¹² They have noted that the oral health-related quality of life had improved in pediatric patients who received GA treatment. This is consistent with our research, which revealed that the application of GA does not only help to provide effective dental care but also causes the dental anxiety to be greatly minimized, which helped in increasing the attitude towards similar visits in the future.

In their SCAN-score, Berat et al. were trying to make the GA decision-making less subjective.¹³ This can be compared to our research because the PD-GASS system was created to reduce the subjective bias and enhance the uniformity of the decision-making process. The two studies emphasize the need to have a standardized system to help a clinician select the right cases to undergo GA because the treatment should be objective and not subjective.

Psychological and anesthetic needs of pediatric patients that underwent oral surgery were examined in the narrative review by Ranwa et al.¹⁴ They underlined the importance of psychological determinants in choosing to administer GA, and a child fear and anxiety could be a major determinant of the treatment outcomes. Understanding the emotional and psychological needs of children is also an important issue that was discussed by Ranwa et al. to ensure effective anesthetic management.

This observation has also been reflected in our research, whereby we considered behavioral and psychological variables, i.e. anxiety and cooperation under the PD-GASS scoring framework. Similar to Ranwa et al., we also would like to point out the fact that psychological needs should also be considered in order to influence the successful use of GA. Nevertheless, our research also develops this with more detailed and structured form which incorporates clinical, behavioral, and parental variables, which were not as thoroughly

addressed in the review by Ranwa et al. The fact that these criteria are included in our scoring system increases its usefulness in a real clinical environment, where the holistic approach is crucial in decision-making.

4. Conclusion

The case demonstrates the successful application of General Anesthesia in the field of pediatric dentistry to treat children with a significant level of dental anxiety, uncooperative individuals, and complicated dental requirements. The PD-GASS system was a well-organized and objective method of evaluating the suitability of GA, as the child was treated in a manner that was safe and ethical. The case highlights the significance of standardized assessment instrument such as PD-GASS to inform clinicians on making sound decisions whenever working with pediatric patients undergoing dental treatment who need GA.

Author Contributions

Enna Manocha: Conceptualization, patient management, data collection, literature review, manuscript drafting, and final approval of the manuscript.

Ankit Ahlawat: Study design, supervision, data interpretation, critical revision of the manuscript, corresponding author responsibilities, and final approval of the manuscript.

Mandeep Singh Viridi: Clinical support, literature review, manuscript editing, critical review of the manuscript, and final approval of the manuscript.

Declaration of Patient Consent

Patient consent was obtained, and anonymity has been ensured.

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Conflict of Interest

None.

Use of Artificial Intelligence (AI)

The authors declare that no artificial intelligence (AI) tools were used in the generation, analysis, interpretation, or writing of this manuscript.

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