

Comprehensive Oral Treatment of a Child Patient Under Outpatient General Anesthesia

Shah R, Upadhyay S, Dallakoti P, Mishra S, Raut D

Department of Pediatric and Preventive Dentistry,
Dhulikhel Hospital, Kathmandu University Hospital,
Kathmandu University School of Medical Sciences,
Dhulikhel, Kavre, Nepal.

Corresponding Author

Radha Shah

Department of Pediatric and Preventive Dentistry,
Dhulikhel Hospital, Kathmandu University Hospital,
Kathmandu University School of Medical Sciences,
Dhulikhel, Kavre, Nepal.

E-mail: dr.radhashah025@gmail.com

Citation

Shah R, Upadhyay S, Dallakoti P, Mishra S, Raut D. Comprehensive Oral Treatment Of a Child Patient Under Outpatient General Anesthesia. *Kathmandu Univ Med J.* 2026; 95(2): 270-2.

ABSTRACT

Outpatient general anesthesia (OGA) induces controlled, reversible unconsciousness with loss of reflexes, enabling procedures and same-day discharge without overnight hospitalization. It facilitates comprehensive oral treatment in a single session when other treatment modalities fail. It is associated with high parental satisfaction, reduced treatment burden, and favorable treatment outcomes. Comprehensive oral treatment in anxious pediatric patients with gag reflex can be challenging. This case report describes the management of a 5-year-old child requiring multiple restorations, pulpectomies, and preventive intervention treated under outpatient general anesthesia. Preoperative assessment, anesthetic planning, and coordination with anesthetic team ensured patient safety throughout the procedure. The comprehensive approach enhanced completion of all necessary treatments in one session, enhancing patient comfort. Postoperative follow-up showed satisfactory healing, improved oral hygiene, and positive behavioral response by the patient. This report highlights the efficacy, safety, and practicality of outpatient general anesthesia in facilitating comprehensive oral treatment in anxious child with gag reflex.

KEY WORDS

Comprehensive oral treatment, Gag reflex, Out patient general anesthesia

INTRODUCTION

Outpatient general anesthesia (OGA) refers to administration of anesthesia for diagnostic or surgical procedures in which the patient is admitted, anesthetized, treated, and discharged on the same day, without the need for overnight hospital stay.¹ The prevalence of pediatric dental patients treated under GA ranged from ~1.5% to ~6%.² OGA is indicated in ASA I-II individuals with complaints like severe gag reflex, anxious patient requiring comprehensive oral treatment in single visit.³ Such cases are prevalent clinical challenge in dentistry, as it is tiresome for both child, parents and dentist.⁴ The dental procedures like pulpectomy and stainless steel crowns though done routinely in dental outpatient setting can result into mishaps in case of anxious, uncooperative patient. So to provide effective treatment minimizing physical distress, psychological trauma to both operator and patient OGA can be opted.⁵

This case report highlights the importance of preoperative assessment, anesthetic planning, and multidisciplinary coordination to ensure patient safety during comprehensive oral treatment under OGA.

CASE REPORT

A 5-year-old female patient, presented to the Department of Pediatric and Preventive Dentistry, Kathmandu University School of Medical Sciences, Dhulikhel Hospital, with the chief complaint of decayed teeth in left lower back region of mouth since 4 months. The child was uncooperative with Frankl behaviour rating 2. Intraoral examination revealed multiple carious teeth wrt 54,75,84,85 (Fig. 1a, b, c) with pulp involvement wrt 75,85 confirmed with Intraoral periapical radiographs (Fig. 1d, e, f). The treatment was started with topical fluoride application followed by restoration wrt 55,74 under Nitrous oxide–oxygen sedation but her gag reflex caused problem in subsequent visits. So the remaining treatments like GIC restorations, Stainless steel crown by Halls technique, pulpectomy wrt 75, 85 followed by stainless steel crown was planned under OGA.

Informed consent was taken from the parents for OGA and sent for base line investigations (CBC, BT, CT, PT/INR, RBS, Blood group). With reports patient was sent for pre anesthetic evaluation. After coordination with anesthetic



Figure 1a. Mesio-occlusal dental caries wrt 54

Figure 1b. Deep Dentinal caries approximating pulp wrt 75

Figure 1c. Deep dentinal caries approximating pulp wrt 85



Figure 1d. IOPAR wrt 54

Figure 1e. IOPAR wrt 74,75

Figure 1f. IOPAR wrt 84,85

team, OT was planned for early morning. Parents were instructed to keep the child NPO after midnight. Next day early morning patient was admitted and pre-anesthetic re-evaluation was done before GA. GA was secured through oral intubation. Single visit pulpectomy followed by stainless steel crown (SSC) (3M ESPE Unitek™ SSCs) was done wrt 75,85. Class I GIC (GC Fuji II) restoration was done wrt 64,65 and 38% Silver diamine fluoride (e-SDF™) application wrt 54,84 followed by SSC wrt 54. Full mouth 5% sodium fluoride varnish (V-Varnish® (Vericom)) application was done. After completion of the procedure, a post-operative photograph (Fig. 2a, b, c) was taken. Patient was kept in Post Anesthetic Care Unit (PACU) for the day. Nil Per Oral (NPO) was broken starting with liquid followed by soft diet and discharged on same evening following AAPD guidelines.⁶ Home care instructions were given to the patient parents, including oral hygiene measures and diet counseling. Recall check-up was scheduled after a period of 1 week, followed by recall check-up after every three months. Post operative Intraoral periapical radiographs were taken on 1 week recall visit (Fig. 2d,e,f) and patient was followed up after 1 month and the restorations were intact.

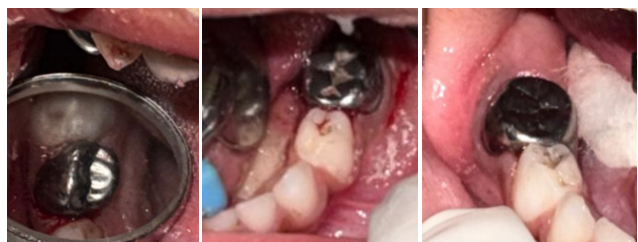


Figure 2a. Stainless steel crown wrt 54

Figure 2b. Pulpectomy followed by Stainless steel crown wrt 75

Figure 2c. Pulpectomy followed by Stainless steel crown wrt 85



Figure 2d. Halls crown wrt 54

Figure 2e. IOPAR wrt 75

Figure 2f. IOPAR wrt 85

DISCUSSION

Many patients and health systems now prefer outpatient surgery because of cost-effectiveness, efficiency, and patient preference for home recovery which helps reduce hospital burden and resource use. ASA I-II are generally suitable for outpatient surgery. General anaesthesia (GA) in outpatient dental surgery is used for uncooperative patients, severe anxiety, extensive surgical procedures, children patients with strong gag reflex preventing intraoral work.⁷ Despite its advantages, it requires adherence to strict protocols, trained personnel, and adequate facilities to minimize potential risks. Overall, it represents a valuable and safe adjunct in pediatric dental practice, enabling comprehensive oral treatment for children unable to manage using conventional behavior guidance techniques.⁸

The gag reflex is a protective mechanism activated when the soft palate, throat, or mouth is stimulated, helping prevent choking or aspiration. Despite its protective role, it can disrupt various dental procedures. Heightened gag reflex sensitivity may result from anatomical variations, neurological disorders (such as Parkinson's disease or multiple sclerosis), psychological factors (including anxiety or fear), or medical conditions like gastroesophageal reflux, respiratory infections, or postoperative complications.⁸ There are two categories under which gagging reflex takes place, one in which neural pathway is involved and another is psychological reason. Gag reflex in children is mostly due to psychological reason.⁹ Treatment options for gag reflex are behavioral and psychological method (distraction, desensitization and relaxation techniques) clinical and operative modifications (Upright or semi-supine patient positioning, use of rubber dam and high-volume suction, avoidance of unnecessary stimulation of soft palate and posterior tongue) local and physical measures (Topical anesthetics, Acupressure/acupuncture (P6 point stimulation), pharmacological management (Antiemetics, Anxiolytics, Nasal decongestants), sedation (Nitrous oxide-oxygen inhalation sedation, Oral or IV conscious sedation, and general anesthesia in severe cases (often as day-care surgery)).¹⁰

Behaviour modification with nitrous oxide sedation can be feasible in dental setting. But in conditions where uncooperative patient does not accept nasal hood, hyperactive, has severe gag reflex, limited compliance with multiple dental visits sedation becomes problem. In such condition OGA comes into play.¹¹

In the present case, the reason for gag reflex was mostly psychological (anxiety) so before introducing OGA, behaviour modification along with Nitrous oxide-oxygen inhalation sedation was tried but satisfactory results were not obtained due to severe gag reflex and uncooperative behaviour of child. So after meticulous examination and consultation with anesthetic team OGA was opted.

Outpatient general anesthesia is a safe, efficient, and cost-effective modality when patients are carefully selected, anesthesia is meticulously planned, and standardized recovery and discharge criteria are followed. In pediatric dentistry it plays a vital role in delivering comprehensive treatment with minimal distress. By integrating diagnosis,

prevention, treatment, and maintenance, it ensures optimal oral function, esthetics, parental satisfaction, and quality dental care. Outpatient general anesthesia can be a viable treatment option for comprehensive oral treatment in anxious pediatric patient with severe gag reflex.

REFERENCES

1. Dhayagude S. Paediatric Patient for Day Care Surgery. In *Anesthesia in Day Care Surgery* 2019 Jan 5 (pp. 27-34). Singapore: Springer Singapore. doi:10.1007/978-981-13-0959-5_5.
2. Shayegan A, Makanz VM, Abergel C. Dental treatment in children under general anesthesia: a 24-year retrospective study. *Int J Clin Pediatr Dent.* 2025;18(9):1134–9. <https://doi.org/10.5005/jp-journals-10005-3263>
3. Jagtap A, Jagtap V. Anaesthesia for Dental Procedures in Day Care. In *Anesthesia in Day Care Surgery* 2019 Jan 5 (pp. 91-100). Singapore: Springer Singapore. https://doi.org/10.1007/978-981-13-0959-5_14
4. Saita N, Fukuda K, Koukita Y, Ichinohe T, Yamashita S. Relationship between gagging severity and its management in dentistry. *J Oral Rehabil.* 2013;40(2):106–11. doi:10.1111/joor.12014.
5. Pinkham JR, Casamassimo PS, Fields HW, Mc Tighe DJ, Nowak A. Pediatric dentistry: infancy through adolescence. *Evaluation.* 2005;20(20):20.
6. American Academy of Pediatric Dentistry. Guideline on comprehensive dental care. *Pediatr Dent.* 2022;44(6):289–95
7. Coté CJ, Wilson S; American Academy of Pediatrics; American Academy of Pediatric Dentistry. Guidelines for monitoring and management of pediatric patients before, during, and after sedation for diagnostic and therapeutic procedures. *Pediatr.* 2019;143(6):e20191000.
8. Wilson KE, Girdler NM, Welbury RR. *A Handbook of Paediatric Anaesthesia.* Oxford University Press; 2009
9. Newton AV. Gagging in dental patients: a review. *J Dent.* 1984;12(4):357–65
10. McCord JF, Grant AA. Treatment options for the gagging patient. *Br Dent J.* 2000;188(7):362–6
11. Malamed SF. *Sedation: a guide to patient management.* 6th ed. St. Louis: Mosby; 2017.