



Pediatric Plastic Surgery: A Comprehensive Approach to In-Office Procedures Under Local Anesthesia

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Received: July 07 2025

Accepted: July 24, 2025

Published Online: July 31, 2025

Journal: Annals of Pediatrics

Publisher: MedDocs Publishers LLC

Online edition: <http://meddocsonline.org/>

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Keywords: Pediatric office procedures; Pediatric plastic surgery; Pediatric surgery.

Abstract

Many plastic surgery procedures can be safely performed in an office setting under local anesthesia, including in pediatric patients as young as a few days old. While these procedures can also be performed in outpatient surgical centers under general anesthesia, the choice of procedural setting depends on factors including patient preference, surgeon preference, and actual or perceived necessity. Surgeon or parent apprehension can increase perceived necessity to perform pediatric procedures in the operating room, but in reality, many children can safely undergo office procedures with local anesthesia. Each age group requires special considerations to ensure a smooth office procedure. While not all patients are candidates for office-based procedures, expanding this option allows for decreased anesthesia-related risks, shorter wait times, greater scheduling flexibility, and increased satisfaction. In this article we discuss our approach to providing safe and effective office-based procedures under local anesthesia for pediatric patients across all age groups.

Introduction

Pediatric plastic surgery often surgically addresses congenital and acquired anomalies. Procedures are increasingly being performed in office settings using local anesthesia, a method associated with decreased anesthesia-related risks, lower costs, improved access, and enhanced patient comfort. Early treatment can also reduce psychosocial distress for young children.

Many low-risk, minimally invasive procedures are well-suited for office-based settings including excision of nevi, branchial vestiges, accessory digits without bone involvement, keloid excisions, scar revisions, and otoplasties. Performing these procedures under local anesthesia avoids the risks and burdens of general anesthesia and facilitates quicker scheduling. Parents

can remain with the child during the procedure, reducing stress for both the patient and the parent.

Preoperative visits

The preoperative visit is essential to determine candidacy for in-office procedures under local anesthesia (IOLA). Eligible procedures typically involve the skin only and do not approach anesthetic dose limits. Surgeon and parent collaboration is key. Parents can provide critical insight into a child's temperament and ability to tolerate being awake for the procedure.

Rapport with both the parent and child is crucial. Newborn and infant visits focus on reducing parental anxiety. For toddlers and older children, building trust with the patient is important, as fear can negatively affect procedure tolerance. If a child is



Cite this article: Bastidas N, Bao E, Barone S, Palacios JF, Rivera R. Pediatric Plastic Surgery: A Comprehensive Approach to In-Office Procedures Under Local Anesthesia. *Ann Pediatr.* 2025; 8(2): 1155.

deemed unsuitable for IOLA due to behavioral or procedural complexity, the procedure is scheduled in the operating room.

Intraoperative management

Success during IOLA depends on physician demeanor and maintaining rapport. Anesthetic used is 1% lidocaine with epinephrine and sodium bicarbonate, injected with a 25-gauge needle for comfort.

Parents are involved during procedures, distracting the child with singing, videos, or comforting words. Trained staff assist in stabilizing the patient. Procedures should be performed efficiently, with longer procedures requiring greater care in managing patient movement and anxiety.

Postoperative visits

Wounds are typically dressed with Mastisol and Steri-Strips or bacitracin, depending on location. Bathing is permitted after 24 hours [1]. A follow-up visit is scheduled for dressing change and wound evaluation. Parents are educated on wound care and encouraged to share updates.

Age group considerations

Newborns (0–2 months): Ideally fed just before the procedure to induce post-prandial sedation. Swaddling and sucrose-dipped pacifiers are used for comfort. Crying is generally due to restraint, not pain, which should be demonstrated to the parents.

Infants (2 months to 1 year): Feeding and pacifiers continue to be effective. Larger infants may require papoose boards. Parental presence is calming, and they should be advised that infants are less likely to sleep and more likely to cry.

Toddlers (1–4 years): Clear communication is key. Children are informed about the initial “pinch and burn” of the injection. Numbing creams or sprays may be used for anxious patients. Parents often hold the child during anesthesia administration. Rewards and stickers are helpful post-procedure. If there is suspicion that a child would not tolerate the procedure, it should be stopped and rescheduled for the operating room.

Children (4–12 years): Behavior can vary widely. Parents play a major role in comforting their child. Distraction techniques such as music or videos are used. If necessary, the child may be stabilized by staff. Communication reassures the child that the injection is the most uncomfortable part. Most children tolerate the procedure well after anesthesia is administered.

Adolescents (12–18 years): Typically undergo longer cosmetic procedures and are highly motivated. They understand instructions and tolerate injections well. They can communicate discomfort, allowing for additional anesthesia if needed.

Discussion

Factors influencing IOLA candidacy include procedure type, patient age, behavior, and family preferences. Newborns and infants are often easiest to manage. Toddlers may become calm after realizing the procedure is painless. Children vary widely, while adolescents are generally cooperative.

IOLA has numerous benefits for both the patient and the physician. IOLA reduces cost primarily by avoiding general anesthesia. Graff et al. reports lower costs and faster recovery with

local anesthesia [2]. Patient satisfaction for procedures like otoplasty is comparable between general and local anesthesia [3]. Complication rates remain low (<1% in our experience) and are comparable to procedures performed in the operating room. Local anesthesia reduces recovery time, eliminates post-operative nausea, and improves efficiency [2].

Psychosocial benefits are also substantial. Parental presence reduces child anxiety and fosters trust. It also mitigates parental anxiety and helps prevent same-day cancellations due to non-compliance [4-6]. A study on in-office hemangioma removal reports low pre-procedure anxiety and high satisfaction [7].

While some cases may necessitate operating room procedures due to patient behavior, size of defect, or location near sensitive areas (e.g. eyes, neck), most pediatric skin-based procedures can be safely and effectively performed in the office with proper patient selection and preparation.

Conclusion

Office-based pediatric plastic surgery using local anesthesia is a safe, effective, and cost-efficient alternative to operating room procedures for many skin-level interventions. By tailoring the approach to the child’s age and behavior, surgeons can provide high-quality care while reducing costs, risks, and logistical burdens on families.

Author declarations

Conflict of interest disclosure

The authors have no conflicts of interest relevant to this article to disclose.

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