

Is Phenol Safe and Well Tolerated as Local Anesthesia in Awake Children for Tympanostomy Tube Placement?



AUTHOR BLOCK

Franklin Rimell, MD¹ . Shelagh Cofer, MD², Theodore Truitt, MD³, Grace Nimmons, MD⁴ , Jay Raisen, MD⁵ , Sandra Skovlund, MD⁴ , Derek J. Schmidt, MD⁶ , Nicole Tombers, RN²; ¹ Cedars Sinai Med. Ctr., Los Angeles, CA, ² Mayo Clinic, Rochester, MN, ³ St. Cloud ENT, St. Cloud, MN, MN, ⁴ Park Nicollet Med. Ctr., Minneapolis, MN, ⁵ Prairie Sinus Ear and Allergy Clinic, Bismark, ND, ⁶ Hlth. Partners, St. Paul, MN.



ABSTRACT

Introduction: Phenol is an effective local anesthetic of the tympanic membrane (TM) in adults for in-office myringotomy and tympanostomy (M+T) placement. It is well tolerated and provides rapid and precise anesthesia for efficient M+T. There are no studies of its use in awake young children for M+T.

METHODS

Awake children < 5 years were enrolled in 2 M+T studies using a one-pass delivery device: In-office with only Phenol and in- OR using moderate sedation and Phenol. Phenol was in a kit form of 90% Phenol with a supplied applicator or from a stock bottle of 89% Phenol with standard office instrument application. Thirty consecutive children that consented to video recordings had video recordings of their office procedure independently analyzed for tolerance of their M+T procedure with Phenol. In the in-office study, children were followed for 10 weeks and a retrospective chart review was conducted for additional follow-up data.. In the OR moderate sedation study, children were followed out to 2 years or tube extrusion, whichever came first.

RESULTS

246 children had Phenol placed on 476 ears in the 2 M+T studies. Mean age was 17 months, and mean follow-up was 16.5 months. For the in-office study, the median bilateral procedure time (including Phenol application) was 4:53. There was a single report of a perforation (1 ear) that required a patch myringoplasty (1/476, 0.2%). As a rate comparison, the literature cites a 2% incidence of perforation following M+T¹. There were no acute ear canal injuries, TM injuries, or other persistent perforations reported. Independent review of 30 in-office procedures by a panel of pediatric specialists found Phenol to be acceptably tolerated and all children were deemed free of discomfort within 3 minutes of procedure completion.

CONCLUSION

Transitioning young children from the OR to in-office for M+T is recently endorsed by the AAO. It has the advantage of markedly reducing time and cost for both parents and society as well as increasing safety by avoiding general anesthesia. Methods proposed for local anesthesia of the TM (e.g., tetracaine, Lidex, iontophoresis) have problems with high reliability or the time involved with their use. Phenol provides fast and efficient local anesthesia at a low cost but has been limited to adults per concern that an uncooperative child could result in over-application of phenol and / or cause long-term TM damage. We are providing initial data on the safety, effectiveness and efficiency of Phenol use in young children for M+T.

¹Overview of Tympanostomy Tube Placement, Postoperative Care, and Complications in Children. *UpToDate*, Wolters Kluwer, August 2019.