Response—Clinical Viewpoint

Shared Decision Making and Office Insertion of Tympanostomy Tubes

Richard M. Rosenfeld, MD, MPH

No sponsorships or competing interests have been disclosed for this article.

Abstract
Office insertion of tympanostomy tubes in young children without anesthesia is facilitated through shared decision making with families, including a candid discussion about anticipated pain (which is usually brief and transient) and how their child might react to being restrained. This commentary elaborates on the rationale for office tube insertion as an alternative to general anesthesia, including a clinical decision aid and suggestions for optimizing outcomes.

Keywords
otitis media, tympanostomy tubes, general anesthesia, protective stabilization, pain management

Received February 7, 2016; accepted February 8, 2016.

Commentary
I was delighted to learn that my article on office insertion of tympanostomy tubes1 provoked a spirited letter and commentary regarding pain management. In this commentary, I respond to the issues raised and offer some additional needed perspective, beyond the limited word count permitted for the original Clinical Techniques and Technologies manuscript.

Response to Correspondence
In his letter, Dr Breinlich2 opines on children’s reactions to pain and anesthesia, based on his personal values and experience without any supporting literature. He brushes aside the ongoing debate about neurodevelopmental sequelae of general anesthesia in young children by noting that “there are no studies that actually prove negative consequences” and “it is very vague if there are any detrimental effects at all.” This opinion is not shared by the US Food and Drug Administration, International Anesthesia Research Society, or authors of systematic reviews that all suggest modestly elevated risks of adverse neurodevelopmental outcomes with general anesthesia in children 3 years or younger.3-6 While nothing is “proven,” and rarely ever is in medicine, there is persuasive evidence of some effects, the magnitude and significance of which are yet to be determined.

In contrast, the commentary by Friedrichsdorf and colleagues7 includes many references on pain in children. The literature cited, however, is based on circumcision, acute burns, open cardiac surgery, and opioid analgesics for inpatient adults. The generalizability to office tube insertion is limited, since there is likely transient, brief pain (when performing the myringotomy and inserting the tube) that is absent to minimal once the procedure concludes. The relevance of pain scales is also debatable, because they are based primarily on crying and facial expressions, which cannot necessarily discriminate pain from a child’s response to being restrained (eg, papoose board for protective stabilization).

Importance of Shared Decision Making
What is regrettably absent from this correspondence is the role of shared decision making with caregivers,8 which is facilitated by a decision aid to elicit values and promote understanding (Table 1). I began offering office insertion of tubes to children 18 months or younger in 2008 because of repeated requests by caregivers, who wanted to avoid subjecting their child to general anesthesia. This was a brief and logical extension of myringotomy, which has been performed for decades as an in-office procedure without anesthesia for refractory acute otitis media (AOM).9 Adding tube insertion only briefly increases procedure time, which currently averages about 5 minutes from start to finish in my office.

Requests for office tube insertion grow with increasing parental concern over the effect of anesthesia and sedation on child brain development.3 This concern is not universal, but when present, it must be respected along with other parental values and preferences regarding the issues in Table 1. Many parents are aware of, and seek to avoid, emergence agitation (delirium) after anesthesia, which can be severe enough to require physical restraint and narcotics to prevent self-injury.10 To the contrary, some parents are uncomfortable seeing their child cry when restrained on a papoose

1Department of Otolaryngology, SUNY Downstate Medical Center, Brooklyn, New York, USA

Corresponding Author:
Richard M. Rosenfeld, MD, MPH, Department of Otolaryngology, SUNY Downstate Medical Center, 450 Clarkson Ave, MSC #126, Brooklyn, NY 11203, USA.
Email: richrosenfeld@msn.com
board and therefore opt for general anesthesia despite the inconvenience, dietary restrictions, and emergence issues (Table 1).

Safe and Efficient Office Insertion of Tympanostomy Tubes

Safe and efficient tube insertion requires effective stabilization of the child’s head, which cannot be ensured through parental restraint alone. The papoose board is a protective stabilization device that restricts freedom of movement to decrease injury risk while allowing safe treatment. It is used in pediatric dentistry, especially for children with special needs, and creates deep-touch pressure that can modulate and reduce stress. Parents of children having dental procedures have primarily positive opinions about papoose boards, especially when coupled with a positive verbal presentation and explanation of why restraint is needed.

The degree of pain experienced by young children receiving tympanostomy tubes without anesthesia is uncertain, but it is likely brief and transient. The painful parts of the procedure—performing the myringotomy and inserting the tube—take only a few seconds (in experienced hands), and there is rarely significant or persistent postprocedural pain based on feedback from older children and adults. Although local anesthesia of the tympanic membrane has appeal, available options would either prolong the procedure (eg, topical solutions, creams, or iontophoresis) or apply caustic chemicals (eg, phenol) that induce local pain and can damage the adjacent tympanic membrane if the child’s head moves during application. One appealing alternative is to give oral acetaminophen, 30 mg/kg, 30 to 60 minutes before the procedure, because it offers comparable analgesia to topical lidocaine after tympanostomy tube insertion. Going forward, I will recommend acetaminophen premedication to families.

Good for Some, but Not for Everyone

Office insertion of tubes for young children is an alternative to general anesthesia that will appeal to some but clearly not all parents or clinicians. Based on my experience, the best outcomes will occur if the conditions in Table 2 are satisfied. Last, although tympanostomy tube insertion is often considered a “novice” procedure, relegated to junior otolaryngology residents, this is absolutely not the case when office insertion is chosen. Successful and safe office insertion depends highly on the skill, experience, and comfort of the surgeon, including his or her ability to interact

Table 1. Clinical Decision Aid for Tympanostomy Tubes.

<table>
<thead>
<tr>
<th>Question</th>
<th>General Anesthesia</th>
<th>Office Insertion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Which children are eligible?</td>
<td>Any age; usually cannot be done in a surgicenter if younger than 1 year</td>
<td>Most suitable for ages 6 to 18 months</td>
</tr>
<tr>
<td>What are the risks?</td>
<td>Medication side effects; airway blockage or spasm; possible damage to developing brain</td>
<td>Small chance of not completing the procedure</td>
</tr>
<tr>
<td>How do I prepare my child?</td>
<td>No food or most liquids for 6 hours before; arrive 90 minutes in advance</td>
<td>No dietary restrictions; arrive at the time of the procedure</td>
</tr>
<tr>
<td>How long will the procedure take?</td>
<td>About 15 minutes, after which you join your child in the recovery room</td>
<td>About 5 to 6 minutes; you are with your child the entire time</td>
</tr>
<tr>
<td>Will my child cry?</td>
<td>Yes, briefly when going to sleep and after in the recovery room</td>
<td>Yes, during the procedure but usually not after</td>
</tr>
<tr>
<td>Does my child need to be restrained?</td>
<td>Maybe; many children become agitated when first given anesthesia and need to be restrained briefly until they are fully asleep</td>
<td>Yes; your child will be restrained using a cushioned board with Velcro straps that limit movement; an assistant will steady your child’s head</td>
</tr>
<tr>
<td>Is it painful?</td>
<td>There is no pain during the procedure; pain after is usually absent or minimal</td>
<td>There is brief pain when cutting the eardrum (about 1/20th of an inch) and when inserting the tubes; pain after is usually absent or minimal</td>
</tr>
<tr>
<td>When can I feed my child?</td>
<td>Once the anesthesia wears off, usually about 30 minutes</td>
<td>Immediately after the procedure</td>
</tr>
<tr>
<td>What is the recovery period?</td>
<td>Some children sleep, but many cry for about 30 minutes because of emergence agitation after anesthesia</td>
<td>Some cry, but most calm down quickly with a bottle, food, or pacifier</td>
</tr>
<tr>
<td>How soon can I leave after the procedure?</td>
<td>You can usually leave the hospital or surgicenter in 1 to 2 hours after the procedure</td>
<td>You can leave immediately after the procedure</td>
</tr>
</tbody>
</table>
with families and put them at ease. Office insertion works well in my practice, but the role in other practices and settings remains to be determined. I look forward to additional research on this important topic.

**Author Contributions**

Richard M. Rosenfeld, concept, drafting, final approval.

**Disclosures**

Competing interests: None.

Sponsorships: None.

Funding source: None.

**References**


**Table 2. Recommendations to Improve Outcomes for Office Insertion of Tympanostomy Tubes.**

| 1. Limit the procedure primarily to children aged 6 to 18 months |
| 2. Give parents a choice of general anesthesia or office insertion and help them make an informed decision using an appropriate decision aid (Table 1) |
| 3. Do not attempt the procedure unless you are highly experienced with tympanostomy tube insertion and are able to work rapidly and efficiently with the parent in the room |
| 4. Work with an assistant who can stabilize the child’s head securely and effectively |
| 5. Ascertain that parents understand the procedure, agree to remain in the room with their child, and are comfortable with the papoose board for protective stabilization |
| 6. Tell parents in advance that their child will likely cry and continue to cry while restrained and that the only parts of the procedure with brief pain are cutting the eardrum and inserting the tube |
| 7. Prepare all equipment and supplies in advance for easy access and use, including preloading tympanostomy tubes into the alligator forceps or delivery device, if applicable |
| 8. Speak with the family constantly during the procedure, giving reassurance, letting them know which parts might hurt, which do not, and why suction is used to remove effusion (if applicable) |
| 9. Ensure that the parents have food, drink, or a pacifier available to calm their child immediately after |