



# Management of Refractory Tympanostomy Tube Otorrhea with Ear Wicks

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## Abstract

**OBJECTIVE:** To report our experience with ear wicks for the treatment of chronic tympanostomy tube otorrhea, failing to improve with oral and/or topical antibiotics.

**DESIGN:** retrospective chart review

**SETTING:** Tertiary care children's hospital

**METHODS:** Retrospective review of 7 children with tympanostomy tubes and recurrent otorrhea failing medical management in 2012 at a tertiary care center. We describe the outcomes of patients after wick placement and Ciprodex ear drops.

**RESULTS:** The average age of patients in this study is 32 months (21-48months). The average age of tympanostomy tube insertion was 17 months (8-32 months). All patients had Armstrong grommet tubes placed, three patients found to effusions during time of insertion. All children failed previous topical or oral antibiotic treatment. An ear wick was placed during the clinic visit and ciprodex drops were continued. Wicks were removed approximately after one week. Culture results showed 4 patients had Methicillin-resistant Staphylococcus aureus and 3 with Pseudomonas aeruginosa. After wick placement 7/7(100%) otorrhea resolved. One patient had recurrent otorrhea at further follow up visit.

**CONCLUSIONS:** Tympanostomy tube placement is one of the most common surgical procedures in children. Refractory otorrhea continues to be a complication that has a negative effect on patient quality of life and remains a challenge to treat. It can be difficult to adequately deliver topical therapy to young children. Placement of an ear wick improves topical delivery to the ear, and may eradicate otorrhea in patients who failed prior topical and oral antibiotics.

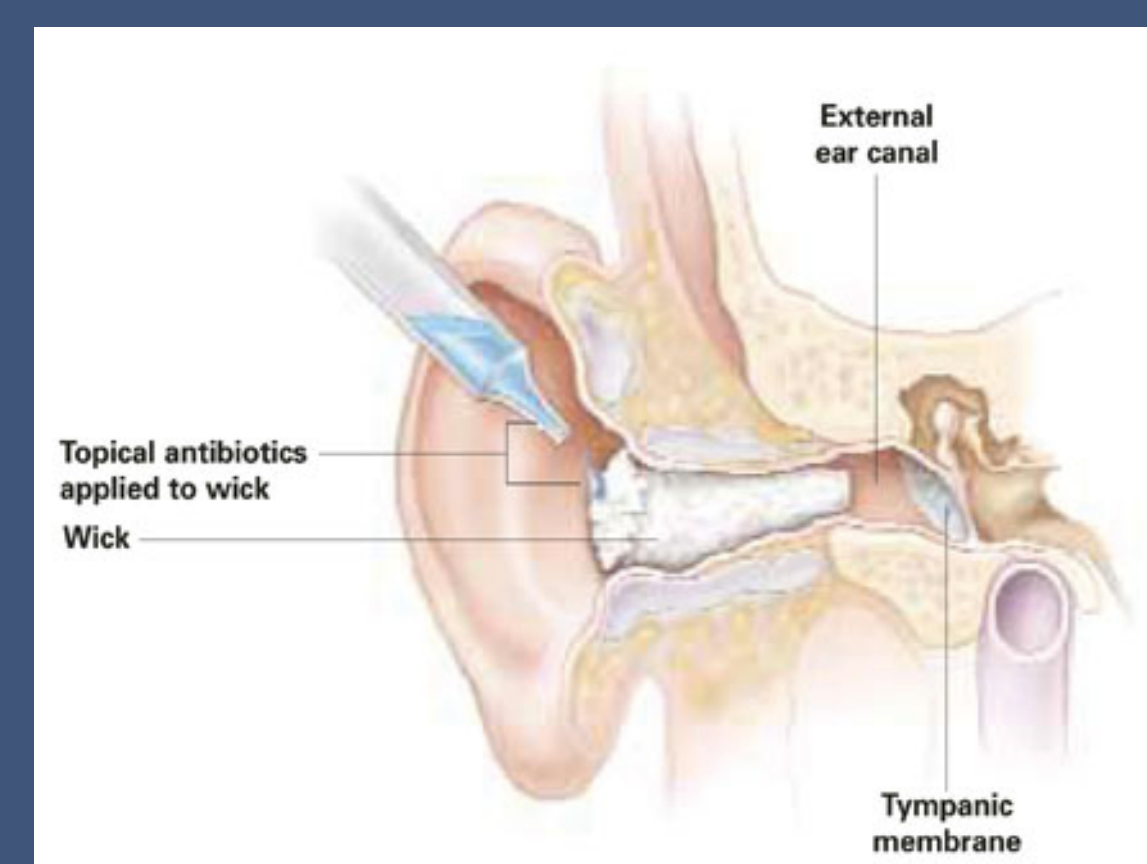
## Introduction

Tympanostomy tube placement is one of the most common surgical procedures performed in children. The literature reports are varying rate of post-operative tympanostomy tube otorrhea, ranging from 1.7-74%. This complication has a negative effect on the quality of the patients hearing post-op and results in a significant amount of health care cost. Although the use of ototopical medications has helped to improve otorrhea, there is a subset of patients it does not help. There is not much discussion in the literature regarding effective management of otorrhea with wick placement prior to delivery of ototopic medication.



## Materials and Methods

Inclusion criteria: patients <18 years old, tympanostomy tube placement, otorrhea while tubes in place, otorrhea refractory to topical drops and oral antibiotics. There were 7 patients that met this criteria from 2011-2012. At the initial consultation visit, the ear was thoroughly cleaned, ear wicks were placed in the draining ear, and patients were immediately started on ciprodex otic drops. Cultures were also obtained at this time. Patients had scheduled follow up visits in 1 week to remove the wick and re-examine the ear; and further follow-up was set at 1-3 months.



## Results

From 2011 to 2012 we had 7 total patients who underwent wick placement for chronic tube otorrhea. The average age was 30 months, ranging from 21 to 48 months. Five of the patients were males and 2 were female. All patients had placement of tympanostomy tubes for recurrent acute otitis media. All patients underwent placement of Armstrong grommet tympanostomy tubes. Three patients had effusions at the time of tube placement. The average age of tube placement was 17 months, ranging from 8 to 32 months. Only 2 patients had prior tube placements. The average length of otorrhea prior to ear wick placement was 3.6 weeks. Otorrhea was on the left in 3 patients, right 2 patients and bilateral and 2 patients. The culture results were positive for Methicillin resistant Staphylococcus Aureus in 4 patients, and Pseudomonas in 3 patients. 100% of the patients had resolution of otorrhea at the 1

week follow up visit when the wick was removed (Table 1). At the 1 month follow up visit, one patient had another episode of otorrhea, which was again managed with ear wick placement.

Table 1

ID #	Age(mo)	Gender	Laterality	Length Otorrhea	Prior Treatment	Culture	1 week follow up
1	24	F	left	3 wks	otic drops, PO abx	MRSA	no otorrhea
2	48	F	right	3 wks	floxin, bactrim	MRSA	no otorrhea
3	36	M	left	2wks	ciprodex, bactrim	MRSA	no otorrhea
4	36	M	right	3wks	omnicef, azithromycin, rocephin, floxin, bactrim	pseudomonas aeruginosa	no otorrhea
5	24	M	left	3 wks	floxin, ciprodex	pseudomonas aeruginosa	no otorrhea
6	21	M	bilateral	8 wks	floxin, ciprodex, bactrim	pseudomonas aeruginosa	no otorrhea
7	24	M	bilateral	3 wks	floxin, ciprodex, PO steroid	MRSA	no otorrhea

## Discussion

Otorrhea is the most common complication associated with placement of tympanostomy tubes. Typically isolated episodes of otorrhea are managed medically with topical or oral antibiotics. In rare, instances, patients may require the need for IV antibiotics or removal of tubes due to chronic otorrhea. The most common pathogens associated with this are Staphylococcus aureus, Streptococcus pneumoniae, Streptococcus pyogenes, Pseudomonas aeruginosa, Haemophilus influenza, Moraxella catarrhalis. Over the last decade, there has been increasing antibiotic resistance, with the development of MRSA.(1) Most patients do improve with antibiotics alone, however in some patients otorrhea is persistent and difficult to eradicate. In these patients they sometimes have to undergo more aggressive management with IV antibiotics or surgical removal of tympanostomy tubes. Additionally, it affects the quality of life for patients and can become very costly.

## Conclusion

- In our review, in 100% of the patients, otorrhea resolved using ear wick placement and ciprodex otic drops in 1 week.
- Wicks are an effective means to deliver ototopic medications in children and may resolve refractory tube otorrhea, even when treating resistant organisms.
- Further investigation with a larger cohort will be needed to confirm our findings.

## References

References available via contacting the author