Efficacy of Postoperative Follow-up Telephone Calls for Patients Who Underwent Adenotonsillectomy

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**Objective:** To evaluate the efficacy and cost-effectiveness of postoperative follow-up telephone calls among pediatric patients who underwent adenotonsillectomy.

**Design:** Prospective study with a follow-up questionnaire administered by telephone.

**Setting:** Tertiary-care children's hospital.

**Patients:** One hundred thirty-four children between the ages of 4 and 18 years who underwent adenotonsillectomy between December 1997 and June 1998 and did not have associated cardiac, pulmonary, bleeding, or syndromic disorders were included in this pilot study.

**Intervention:** Parents of these patients were given the opportunity to participate in our study, and it was emphasized that, at any time during the child's care, if the parent desired a follow-up visit or if the child experienced any symptoms that caused concern, the parent should contact the clinic for a follow-up appointment. A telephone call was placed 3 to 4 weeks postoperatively by an otolaryngology nurse, and a questionnaire was filled out using the parents' responses.

**Main Outcome Measures:** The incidence rates of voice change, velopharyngeal insufficiency, bleeding, constipation, dehydration, and pain were measured. Parent satisfaction, patient safety, and cost-benefit were also evaluated.

**Results:** Less than 5% of patients reported temporary velopharyngeal insufficiency, while 2% of patients required operative intervention for bleeding episodes and 1% required hospitalization. Voice change, reported by approximately 70% of all patients, was the most common complaint, but it resolved in all instances. Pain was reported to be most severe on postoperative day 1. Ninety-six percent of parents requested no further follow-up visit.

**Conclusions:** Our pilot study revealed that a follow-up telephone call is a safe and cost-effective method of postoperative management for pediatric patients who have undergone adenotonsillectomy and that this method of follow-up is also desirable to parents.


**DENOTONSILLECTOMY** is one of the oldest surgical procedures and is currently among the top 10 procedures performed in outpatient centers. The procedure, once performed in an inpatient setting and now performed predominantly in an outpatient setting, continues to command special consideration because of the risk of postoperative hemorrhage and the need for airway management. The surgical indications for adenotonsillectomy have also changed over the years; infection was once the predominant indication for obstructive sleep apnea (OSA), whereas obstructive sleep apnea secondary to adenotonsillar hypertrophy is the primary indication today.

In recent years, the changing health care environment has forced hospitals and third-party payers to cut costs and payments for these procedures. Keeping these changing health care trends in mind, our pilot study was designed to evaluate the efficacy of a postoperative follow-up telephone call for adenotonsillectomy vs the traditional 2- to 4-week postoperative office visit.

**RESULTS**

In our series, the most common operation was an adenotonsillectomy, which was performed in 110 patients (82%), followed by tonsillectomy in 15 (11%) and adenoidectomy in 9 (7%). The most common indications for surgery were OSA in...
PATIENTS AND METHODS

One hundred thirty-four patients who underwent tonsillectomy, adenoidectomy, or both between December 1997 and June 1998 at Children's Hospital, Boston, Mass, were identified from the practices of 7 pediatric otolaryngologists. The age range was 4 to 18 years. This population included otherwise healthy children who did not have any confounding cardiac, pulmonary, bleeding, or syndromic disorders that might enhance surgical or postoperative risks.

Both before and after informed consent for the study was obtained, parents were told that if at any time during the postoperative experience the patient experienced any symptoms or signs that caused concern or if the parent changed his or her mind the parent could call the clinic for a follow-up office visit. An otolaryngology nurse then placed a telephone call 3 to 4 weeks postoperatively. At this point, the parent was again given the option to return for an office visit if desired, and the questionnaire was filled out by the nurse with the parent’s responses.

For each of the 134 patients, the type of operation, indication, and date of surgery were recorded. The indications used in this study included recurrent tonsillitis, OSA, nasal obstruction, and nasopharyngeal mass. Obstructive symptoms were identified from subjective descriptions of sleeping patterns by the parents, including snoring, gasping, choking, and apneic episodes. Polysomnography was not required for a diagnosis of OSA.

Postoperative bleeding was defined as any episode of blood noted on sheets or pillows, blood-tinted sputum or nasal discharge after coughing or sneezing, or frank bleeding from the oral or nasal cavity. Parents were told to bring in all patients with any of the above symptoms or signs.

Voice change was identified as any change from baseline. Episodes of snoring were examined in the study to assess whether a patient was still having any obstructive symptoms. Postoperative pain was defined as any pharyngeal or ear pain and was assessed on a subjective scale of 1 to 10, with 1 indicating “no pain” and 10 indicating “severe pain.”

88 patients (66%), recurrent adenotonsillitis in 36 (27%), nasal obstruction in 9 (7%), and nasopharyngeal mass in 1 (1%).

The questionnaire was completed by the mothers of 103 patients (77%), by the fathers of 10 (7%), and by 1 patient (1%), and was not recorded for 20 patients (15%).

Approximately 90% of patients had normalized their hydration status with subjective intake and output levels equal to preoperative levels (Figure 1). Ten patients (7%) provided no response to this question. Velopharyngeal insufficiency was present in 3 patients (2%). Of these 3, velopharyngeal insufficiency resolved on postoperative day (POD) 1 for one patient, and for the other two, it resolved completely by POD 14 and POD 25. Voice change was the most common postoperative complaint, occurring in 91 patients (68%). Snoring continued postoperatively in 9 patients (7%). The most common form of analgesia used in our series was acetaminophen with codeine (Tylenol with codeine; Ortho-McNeil Pharmaceuticals, Fort Washington, Pa). Analgesics were used for a mean of 5 days. Constipation occurred in 13 patients at any time postoperatively. One hundred nineteen patients (89%) had returned to regular activity at the time of the postoperative follow-up telephone call.

Postoperative bleeding was recorded in 23 patients (17%) (Figure 2). This included 5 patients for whom bleeding status was not recorded. We included these patients in this category so as not to artificially deflate the bleeding rate. Of those patients who reported bleeding, 6 (4%) were evaluated at Children’s Hospital (3 were seen and sent home, 2 required overnight observation, and 1 required operative intervention). Three patients (2%) were evaluated at outside institutions, 1 of whom was sent home; the other 2 required operative intervention. Of note, the parents of 9 patients reported bleeding episodes on the postoperative follow-up telephone call questionnaire but did not contact their physicians.

Pain was still present in 9 patients (7%) at the time of the postoperative follow-up telephone call (Figure 3). The mean pain score was 6 (range, 1-10). The worst day
for postoperative pain was POD 1, and pain decreased rapidly by POD 8.

Ninety-six percent of parents were satisfied with the postoperative follow-up telephone call and did not desire any further follow-up.

Comment

Adenotonsillectomy has become one of the most commonly performed outpatient surgical procedures.\(^2\,1^1\) Compared with all other surgical procedures, the percentage of adenotonsillectomies performed has decreased, from 35% in the 1930s to 0.3% in 1990.\(^1^2\) This drop has been attributed to the treatment of pharyngotonsillitis and otitis media with antibiotics and the use of pressure equalization tubes.\(^1^,1^3\)

Adenotonsillectomy has undergone a successful transition from an inpatient to an outpatient procedure.\(^2^,1^4,1^5\) Insurance companies have brought about this change in an effort to cut costs,\(^8\) and otolaryngologists must find ways to continue to practice safe and effective medicine within these new constraints.\(^1^2,1^6,1^7\) Our postoperative follow-up telephone call program provides such a method.

Two other telephone follow-up studies were identified in the literature.\(^1^8,1^9\) The first evaluated transportation, accommodations, and meals provided for 50 patients and their families who traveled long distances for surgery. The authors did not comment on specific complications. The authors of the second study contacted 52 patients and their parents on POD 1 and 2 weeks postoperatively. They asked about pain and hydration status and concluded that parents were able to handle mild dehydration symptoms and postoperative pain at home. However, the authors also found that 30% of these patients had consulted a health care provider during the postoperative period.

Rosenfeld and Green\(^1\) have noted that OSA is now the leading indication for adenotonsillectomy. Our study also found this to be true. However, this population of patients, because of the need for airway monitoring, can bring added complexity to postoperative management.\(^1^0,1^6\) At our institution, all patients with a significant history of airway obstruction or positive sleep study results are observed with a continuous oxygen saturation monitor for at least 24 hours postoperatively. Studies are ongoing as to the safest interval for the postoperative monitoring of these patients. Experience has shown that these patients are more likely to have postoperative complications.\(^9,1^1,1^7\) Since physicians are currently pressured to perform adenotonsillectomies in an outpatient setting, physicians cannot allow the care of this subset of patients with increased postoperative airway risks to be compromised.

The most common and surprising complaint from patients and their parents was voice change. This resolved in all patients within 3 weeks postoperatively. Complaints pointed primarily to a lack of preparation for this postoperative result. We now include mention of voice change in the routine preoperative discussion, thereby eliminating it as an unexpected result. Three patients also experienced temporary velopharyngeal insufficiency. We continue to include this as a possible result in our routine preoperative counseling as well.

Several interesting results about postoperative pain were noted. Surgical procedures were performed by several different otolaryngologists, and intraoperative steroid and antibiotic medications were given according to the preferences of the attending physician. These variables were not evaluated in our study. Pain was found to be the worst on POD 1, diminished rapidly by POD 7, and was gone in the majority of patients by POD 9. Thus, it is important to consider examining any patient with ongoing pain after POD 9.

Patients were also discharged receiving different pain medications based on attending physician preferences. Pain medications were used for a mean of 5 days. This finding may aid in the determination of prescription practices, helping physicians to avoid prescribing excessive amounts of pain medications and refills for narcotics. Dehydration status has been linked to excessive postoperative pain.\(^2^0\) We did not evaluate this possible connection in our study.

Finally, a surprising finding in our study was the high rate of postoperative bleeding (17% compared with reported rates of 0.5%-5% in the literature).\(^2,3\) One possible reason why our postoperative bleeding rate appears inflated is because of our small cohort of patients. We looked at only 134 patients who underwent adenotonsillectomy, while the annual rate at our institution is approximately 850. Our study is ongoing, however, and currently we have close to 300 participants.

The second possible reason involves our strict criteria for postoperative bleeding. Delayed postoperative hemorrhage is one of the most common and potentially most serious complications of adenotonsillectomy.\(^1^6,2^1\) All of our patients who have undergone adenotonsillectomy and their families, whether planning a postoperative office visit or telephone call follow-up, were told to call with any sign of nasal or pharyngeal bleeding. Only 2% of patients required operative intervention, while only 1% required overnight observation, findings similar to those reported in the literature.\(^2,3\) Our institutional policy for patients who experience posttonsillectomy hemorrhage is as follows: any patient with a clot in the fossae returns to the operating room, while patients who re-
port oral bleeding without obvious clot or active bleeding are admitted for 24-hour observation.

Another interesting finding from the postoperative hemorrhage data was that 9 patients who reported postoperative bleeding that spontaneously resolved did not seek medical assistance. This raises the question whether true bleeding rates are underreported.

One concern about eliminating the postoperative visit is that the physician, the patient, and the patient’s family will lose the sense of closure of the physician-patient relationship. In these days of busier lives of both physicians and their patients, we found with this pilot study that patients and their families were satisfied with the care they received and were actually happier not to have to come back for another visit. We must be aware, however, that this is a pilot study and, with the inclusion of more patients, satisfaction with this method of follow-up may not remain as high.

Several important conclusions can be drawn from this pilot study. Initial findings indicate that telephone follow-up is a safe method of postoperative evaluation. None of the 134 patients in our study experienced any serious or permanent postoperative sequelae. Moreover, patients and their parents appeared satisfied with this form of follow-up. Ninety-six percent of parents felt comfortable with the telephone follow-up and did not request a follow-up clinic visit. We also identified ways to alter preoperative counseling and prescription prescribing practices based on questionnaire data. Our telephone follow-up provided an opportunity for cost savings for both the patient and his or her parents. Patients spent less time away from school, and expenses resulting from missing work, travel, and parking were reduced for their parents. We found that the otolaryngologist is able to provide safe and effective follow-up by telephone, thereby allowing another patient requiring otolaryngologic care to use office time slots formerly used for follow-up visits. Our postoperative follow-up telephone call survey was a cost-effective way to manage the postoperative course of patients who underwent adenotonsillectomy without compromising patient safety or satisfaction.

CONCLUSIONS

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REFERENCES

Editorial Footnote

The article by Rosbe et al presents us with a novel and challenging concept: using a telephone interview instead of an office visit for the traditional postoperative follow-up for simple surgical procedures, such as adenotonsillectomy. There is a contemporary logic to this idea, yet I suspect that it will be troubling for many surgeons. The goal of this commentary is to explore the soundness of this proposal and to gain some insight as to why the surgical community may resist its implementation.

In their introduction, the authors state that “In recent years, the changing health-care environment has forced hospitals and third-party payers to cut costs and payments for these procedures.” It is these cost-cutting measures that prompted their study. However, in most circumstances, there is no service charge for the initial postoperative visit, since the cost of the follow-up evaluation is included in the operative fee. In reality, eliminating the one-time postoperative visit actually provides cost savings not to hospitals or to third-party payers, but to the surgeons who did the procedure. The tradition of our training and the values of our medical culture do not predispose us to view the physician-patient relationship simply as an economic unit; hence, we accept the additional care necessary for routine postoperative visits without expecting any compensation. The study results suggest that a postoperative telephone interview effectively and efficiently brings closure to the follow-up care for routine, complication-free adenotonsillectomy. The question that we each have to answer for ourselves is whether this approach, which benefits us, is worth considering.

When these findings were presented at the 14th Annual Meeting of the American Society of Pediatric Otolaryngology in April 1999 at Palm Desert, Calif, the audience response, as reflected by the comments and questions, was generally negative. The primary concern expressed was that a postoperative complication may go unrecognized and cause later harm to the patient. While this was not a problem found among the patients in the study of Rosbe et al, the limited size of this group of patients does not exclude such a possibility, especially for procedures as commonly performed as tonsillectomy and adenoidectomy.

This was not the only objection, however. In trying to understand why our colleagues found this new cost-cutting measure disturbing, it is important to recognize the extent to which our patterns of practice are tradition-based and value-weighted. The resistance was in part a result of the simple fact that we have always seen our patients after surgery; this is how our mentors practiced medicine and taught us to practice medicine. Generally, the follow-up visit is an opportunity not just to check how well the surgery has gone, but also to formally complete the physician-patient relationship in a very human and personal way. The routine postoperative follow-up on a case that has gone smoothly provides us with a moment of pleasure that is spiritually uplifting and that gives us psychological ballast for the burden of responsibility, especially during times when we experience problems in the care of our patients.

It is only when we set our professional concerns aside and look at the issue from the perspective of patients and their families that the idea of a postoperative telephone follow-up begins to have some merit. Rosbe et al found that “with this pilot study . . . patients and their families were . . . actually happier not to have to come back for another visit.” The authors warn us that this is only a pilot study and that the level of satisfaction with this method of follow-up may not remain as high with a larger sample of patients. Nevertheless, the observation may be valid and reflect more broadly held cultural values that are influenced by family schedules, the demands of school and work, and consumerism.

Without a compelling reason, most of us would resist taking a car back to our mechanic after a routine repair just to have him make sure that the repair is in good order. Surgery and auto repair are not entirely analogous, but I suspect that our patients and their families would be more willing to acknowledge the similarities than physicians. Many of those we care for welcome the reassurance that the postoperative visit can provide, and for them, this should be available. However, for others, the necessity of a routine postoperative follow-up visit, after there have been no problems or complications and the recovery has been smooth and uneventful, can appear to be more ritualistic than functional. This is not a frivolous point of view, and while we may disagree with the values it is based on, it should not be dismissed without contemplation.

The suggestion of Rosbe et al to do a telephone interview to follow up uncomplicated routine surgery is neither right nor wrong as an abstract concept; rather, it is a method that can succeed or fail. Depending on the type of surgery, the reliability and the expectations of the patients and their families, and our own level of professional experience, this form of follow-up may prove to be a practical option. However, implementing it safely will require us to practice sound clinical judgment with a strong emphasis on patient education, accessibility, and communication. It will be up to us as surgeons to accurately assess with which of our patients we are willing to share the responsibility of follow-up.

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