

Paparella: Volume II: Otology and Neuro-Otology

Section 3: Diseases of the Ear:

Part 1: General Problems

Chapter 18: Outpatient Otologic Surgery

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Most otologic operations can be performed as outpatient procedures because they are generally simple, elective, and not life-threatening and do not require elaborate postoperative care. Besides costing the patient less, outpatient surgery is also more convenient for the patient, physician, and medical staff. If 6 to 10 per cent of all operations done in hospitals are followed by nosocomial infections, as some reports suggest (Ortona et al, 1987), and the number infected after outpatient operations is much less, there is another very good reason, in addition to cost and convenience, for outpatient otologic operations.

If outpatient otologic surgery is more convenient, less costly, and less hazardous for nosocomial infections, the only question is: Can most otologic operations be done as outpatients? The answer, from the experience of the Shea Clinic office-based outpatient Surgery Center during the last two years, is an overwhelming "Yes".

Historical Overview

To understand the modern outpatient surgery center, it is important to understand how it evolved. In 1928, when my tonsils and adenoids were removed at age 4, with open-drip ether anesthesia and the Sluder tonsillotome, I was taken home that evening, as was the custom at that time. In 1948, when I was a resident at the Massachusetts Eye and Ear Infirmary in Boston, most of the patients for tonsil and adenoid removal lived only a few miles from the hospital and went home in the late afternoon after surgery in the early morning. Open-drip ether anesthesia and the tonsil snare removal technique were used. This was before the development of legal problems in medicine and hospitalization insurance, both of which increased the economic incentive for patients to remain in the hospital the night of minor ear, nose, and throat operations.

With the widespread, nearly universal penetration of hospitalization insurance, most containing the requirement for overnight stay in the hospital as a condition of payment for surgical procedures, the pendulum swung toward hospitalization for all ear, nose, and throat operations, no matter how simple and free from the need for elaborate postoperative care. Only in the early 1970s, with the great increase in the cost of hospitalization, along with everything else, was any effort made to move those operations to the outpatient centers.

In 1969, Wally Reed, MD, and John L. Ford, MD, both anesthesiologists, set up the first free-standing outpatient surgery center, across the street from the Good Samaritan Hospital in Phoenix, Arizona, and began the long fight to make outpatient surgery acceptable. Gradually, Reed and Ford were able to demonstrate that outpatient surgery was both safe and effective for many operations, aided by the new anesthetic, narcotic, and stimulant drugs that

were developed at the time.

The first office-based surgery center for ear, nose, and throat operations was the Bailey Clinic of Little Rock, Arkansas, which demonstrated that most such operations could be done as outpatient procedures. Building on their experience, in 1986 the Shea Clinic opened a two-operating room, office-based surgery center, in a new building created exclusively for otologic surgery. In the four years since its opening, we have performed more than 1500 otologic operations each year, all outpatient, with no serious problems. The building has a covered walkway connecting the outpatient surgery center to a suite-type hotel next to it, where our patients can stay before and after operation. We have a requirement that if the patient has endotracheal anesthesia, then he or she *must* remain in the connected suite-type hotel the night of surgery. Other patients, with intravenous sedation, are allowed to return home or to any nearby motel following surgery.

All patients are required to return to the outpatient surgery center the day *after* surgery to meet with the doctor and nurse, have bandages changed, ask questions, receive instructions, and so forth. In addition, each patient is called on the second and seventh postoperative days, and a series of questions are asked, with the results recorded on a special postoperative telephone inquiry form.

Types of Outpatient Surgery Centers

There three types of outpatient surgery centers:

1. Hospital-based.
2. Free-standing.
3. Office-based.

Otologic operations can be done in all three settings, with few limitations, as mentioned above. I am aware of at least one hospital that would not allow a subarachnoid endolymphatic shunt to be done as an outpatient procedure because it penetrated the subarachnoid space. If properly done, with good sealing of the cerebrospinal fluid leak, even a subarachnoid endolymphatic shunt can be done as an outpatient procedure if there is proper follow-up on the first, second and seventh postoperative days.

Types of Outpatient Surgery

Operations performed as outpatient procedures include:

Stapedectomy
Tympanoplasty
Tympanomastoidectomy
Myringotomy with ventilation tubes
Endolymphatic shunt, subarachnoid and mastoid
Congenital atresia repair
Facial nerve decompression

Cochlear implant.

Operations *not* performed as outpatient procedures include:

Acoustic neuroma removal
Glomus tumor removal
Skull base surgery
Middle fossa exploration.

Anesthesia Techniques

We use two forms of anesthesia:

1. Intravenous sedation with nasal tube.
2. General anesthesia with endotracheal tube.

Intravenous Sedation with Nasal Tube

The patient is brought to the operating room with no premedication. Anesthesia is induced with midazolam (Versed), 2.5 to 10 mg, and alfentanil (Alfenta), 300 to 500 microg intravenously. When the patient is sufficiently sedated, a nasal airway is inserted, and an oxygen mask is placed over the nose and mouth. A tube from the DataScope end-tidal carbon dioxide monitor is connected to the oxygen mask. The DataScope monitors the patient's respiratory rate, inspired oxygen concentration, and exhaled carbon dioxide tension. Enflurane (Ethrane) 1 per cent is added to the oxygen mixture. As the patient needs more sedation, small doses of midazolam (Versed) and alfentanil (Alfenta) are added. The surgeon injects 2 per cent xylocaine and 1:100.000 adrenalin into the operative site. At the conclusion of the operation, the anesthetic gases are discontinued, and the patient is given naloxone (Narcan), 2 to 4 mg, and 40 mg of doxapram (Dopram) intravenously.

General Anesthesia With Endotracheal Tube

The patient is given a sleep dose of thiopental (Pentothal) followed by the muscle relaxant atracurium (Tracrium), 1 to 3 per cent, for endotracheal intubation. Enflurane (Ethrane) is administered via the endotracheal tube, supplemented with incremental doses of alfentanil (Alfenta). Once again, local anesthesia is achieved with 2 per cent xylocaine and 1:100.000 adrenalin. If the procedure is shorter than 1 hour, the effect of the atracurium is reversed using atropine and edrophonium (Tensilon).

Monitoring Equipment

Monitoring equipment used includes the following:

1. DataScope 2100 blood pressure, electrocardiogram, and temperature monitor, which prints out the results to be added to the patient's record.

2. Nalcor pulse oximeter measures hemoglobin saturation and pulse rate, from a sensor on the patient's toe.

3. DataScope Accucap end-tidal carbon dioxide monitor measures inspired oxygen concentration, end-tidal carbon dioxide concentration and respiratory rate.

4. Precordial stethoscope.

Government Regulation

In the USA, the present attitude of the federal and most state governments toward outpatient surgery is indicative of the direction of acceptance of otologic surgery in the outpatient center. There are now 22 procedures that have been approved by Medicare for payment of a facility fee for outpatient otologic surgery, compared with only six as recently as 1 year ago. The Champus program, for care of dependents of military personnel and retirees, also has recently increased the number of procedures for which a facility fee will be paid for outpatient surgery. At first the private insurers, include Blue Cross / Blue Shield, were very resistant to paying for outpatient surgery, but recently they have begun to accept otologic outpatient surgery, and to pay the same or an even greater fee for outpatient than inpatient surgery plus a very reasonable facility fee.

Certification of Outpatient Surgery Centers

The process of certification of an outpatient surgery center can be simple or complex, depending on the type desired and the laws of the particular state. Hospitals can dedicate a portion of their existing surgery suite, or construct a separate new surgical suite, for outpatient surgery without too much difficulty, depending on state law. Getting Medicare approval is no problem if the Medicare building regulations are followed in the dedicated or newly constructed space.

Free-standing outpatient surgery centers must apply for a Certificate of Need in most states, although these requirements are now being dropped in some. Once the Certificate of Need is obtained, the Medicare approval is no problem, as long as the Medicare building regulations are followed during construction. Many of these free-standing outpatient surgery centers are located in medical centers, near existing hospitals and doctors' offices, to be of maximum convenience to surgeons and other medical staff.

The most useful outpatient center for otologic surgery is one that is office-based - that is, lodged within the offices of a group of otologic surgeons. Such office-based outpatient surgery centers are exempt, in most states, from the Certificate of Need requirements and can be licensed to operate by assuring the state licensing authority in writing that no one but the members of that group of surgeons, in that clinic, will operate in the outpatient surgery center. Obtaining Medicare approval, again, is no problem if Medicare building regulations are followed.

As part of the state and federal regulations that must be followed for licensure, a contract must be arranged with a nearby hospital for transfer of patients with complications, in addition to back-up laboratory and blood bank services and a proper service for disposal

of contaminated debris, liquids, and so forth from surgery.

At the Shea Clinic, we have made all such arrangements with a nearby general hospital but have used them very rarely. One patient was admitted by ambulance with a brain abscess; following surgery to drain the abscess, we transferred this patient to our referring hospital for further treatment. Another patient went into pulmonary collapse during a minor operation and was transferred to our referring hospital for observation and treatment. Both of these "complications" were taken care of very well with no further trouble. In two years, to our knowledge, no patient has had a true nosocomial infection after operation in the office-based surgery center of the Shea Clinic.

Cost Advantage of Outpatient Surgery

The direct cost advantage of outpatient surgery versus that of inpatient surgery is hard to measure because the real full cost of inpatient surgery is hard to measure. Counting the time lost from work, plus those who develop nosocomial infections, the real full cost of inpatient surgery versus outpatient surgery is certainly twice as much. Many insurance contracts are now paying more to the surgeon for doing the same operation as an outpatient rather than an inpatient procedure. The new General Motors hospitalization contract does not specify that the operation must be done as an inpatient procedure in order to pay the surgeon, as the old contract did.

Legal Considerations

To my knowledge, there have been no legal suits because a procedure was done on an outpatient instead of an inpatient basis. It is conceivable that one may occur in the future, because there is no telling what some people will sue about; however, it can be easily proved that all the procedures discussed above have been successfully done as outpatient procedures, and that it is certainly within the Standard of Care to do such as outpatient procedures.

Almost all otologic operations are suitable for outpatient surgery, except for operations that penetrate into the intracranial cavity, such as acoustic neuroma and vestibular nerve section. The experience of literally hundreds of otologic surgeons, in hospital-based, free-standing, and office-based outpatient surgery centers, is proof of the safety and effectiveness of otologic surgery in the outpatient center. Not only is the cost less, but outpatient surgery is also more convenient and is safer because of the freedom from nosocomial infections, which occur in 6 to 10 per cent of patients operated on in hospitals.

The evolution of outpatient surgery to the location of choice for otologic surgery is the result of the development of potent, short-acting, safe inhalant and intravenous anesthetic agents; the great increase in the cost of inpatient surgery; and the shortage of inpatient operating room time when this evolution began. During the last few years, with the advent of cost control in hospitals and limitation of admissions, performing almost all otologic operations in an outpatient center became a practical and economic reality. Whether removal of tonsils and adenoids will be done as an inpatient or outpatient procedure remains to be decided. While many surgeons do this most common operation as an outpatient procedure, there are those who argue that the risk of bleeding during the first postoperative evening is too great to permit the patient to leave the hospital. I suspect that with better anesthesia and

attention to the details of stopping the bleeding after removal of the tonsils and adenoids, most of these patients can and will be operated on in the outpatient surgery center.