Anesthesia and Otolaryngology

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This book is dedicated to the
Memory of

SAMUEL J. CROWE

Whose unique abilities as
Physician, Teacher and Investigator
were matched by his insistence on
the consideration of the patient
as a person and by his efforts
to relieve disease

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Preface

Because I have had the unique privilege of studying under the late Dr. Samuel J. Crowe, as well as practicing and teaching otolaryngology and bronchoesophagology for 15 years, and anesthesiology for 4 years, I have felt impelled to write some of the conclusions I have drawn regarding the problems in common to the medical practitioners in these fields. In doing so, an attempt has been made to concentrate upon fundamental considerations which may be applicable over a period of time rather than devoting too much space to details of temporarily popular techniques which may be of little use a few years hence.

Although most of the teachings contained herein are based upon practice between 1937 and 1957 in The Johns Hopkins Hospital, they are also influenced by experience in the Maryland State Tuberculosis Sanatoria as bronchoscopic consultant, in the Department of Physiology at the University of Rochester, in the Department of Anesthesiology at the University of Pennsylvania and the Children's Hospital in Philadelphia, as well as by information gained from numerous visits to various Departments of Otolaryngology and Anesthesiology in many hospitals and medical schools throughout this country.

The methods recommended in the ensuing pages are based upon the following basic considerations: that relief from pain and discomfort is an essential part of the modern practice of medicine; that anesthetic techniques offer this opportunity; that these techniques, improperly employed, may be a danger instead of a blessing; and, that an improved mutual understanding of the common problems between anesthesiologist and surgeon should greatly facilitate the provision of more adequate medical care for the patient.

The opinions which I express and the techniques which I advocate are not to be construed as those of The Johns Hopkins Hospital or any other institution or individual.

A brief explanation of my shift back and forth between two specialties may clarify the background of my present point of view.

My intense interest in peroral endoscopy and intrathoracic disease dates from experience working in the Maryland State Tuberculosis Sanatoria in 1936 and 1937. In 1943 I began the investigation of certain problems related to respiratory air flow and breathing mechanics. By 1951 this had led me to a broad interest in the physiology of the respiratory tract and thence to the not so distant field of anesthesiology.

My return to otolaryngology in 1955 was in part a protest against the anachronistic position in which the specialist in anesthesiology sometimes finds himself. Thus my major interest in anesthesia arose through work in the field of respiratory physiology and pathology. My return to otolaryngology was accompanied by a sincere interest in a more widespread mutual understanding and respect between the physicians who practice a surgical specialty and those who practice the increasingly important specialty of anesthesiology.

Anesthesiology, once thought of as a minor adjunct to surgery, is today worthy of an entirely different consideration. The physician specialist in this field is today a clinical pharmacologist and an internal medical man whose practice principally involves the pharmacological control and medical care of those patients submitted to surgery. In addition, his services are often of special value in the care of nonsurgical patients who are unconscious or in pain.

It has long been a source of amazement to me that so many patients complain of having been hurt by other doctors. The proper application of modern anesthetic techniques should permit the painless and safe performance of almost all diagnostic and therapeutic measures. The fact that so many patients continue to be hurt can mean only that some physicians do not believe that pain is an undesirable experience, that they have never learned the techniques required for the avoidance of pain, or that they are simply unwilling to take the time and trouble to make use of them.

There can be no doubt that the introduction of anesthesia a little over a century ago was a mixed blessing. No one knows how many patients have died because of the use of anesthetic techniques. Although this number is surely outweighed by the number of those whose lives have been saved by therapeutic measures

impossible before the introduction of anesthetics, this is not a reason for failing to bend every effort towards a reduction in the number of undesirable events attributable to anesthesia. Improvements in our fundamental knowledge of the action of anesthetics, and conscientious and meticulous application of this knowledge to every patient will enable us to move in this direction.

During some 15 years in the practice of otolaryngology I have frequently been puzzled by the anesthetist's lack of understanding of the problems of ear, nose, and throat surgery.

During 4 years as an anesthetist I have been equally puzzled by the otolaryngologist's lack of understanding of the problems of anesthesia.

Having had a good look at both sides of the coin, an attempt has been made to clarify the two points of view and settle some of the more controversial matters by seeking a middle ground.

Since anesthesiology is still a young specialty in medicine, and, since many surgeons have accustomed themselves to taking full responsibility for pre- and postanesthetic care as well as choosing and, to a degree, managing the anesthesia, it is not surprising that we find considerable reluctance towards the acceptance of the authority of the physician specialist in anesthesiology.

Just as it would be unwise to have two surgeons with different opinions working on the same operation, it is unwise to divide the responsibility for anesthesia. The specially trained and skilled physician-specialist in anesthesiology should be as responsible for the choice and administration of the anesthetic as the otologist is for the choice and administration of therapy.

The anesthesiologist is always a consultant and thus never in total charge of a patient's welfare. As a consultant, his opinions and actions must always be influenced by those of the other physicians caring for the patient. Careful consideration of each individual problem and thoughtful discussion with the surgeon will usually result in a ready agreement on a course of action designed for the optimum in safety and comfort for the patient in addition to providing optimum conditions for the performance of surgery.

The surgeon must realize that the specialist in anesthesiology, after due consideration and discussion of the problem at hand, is

the person best equipped to decide about premedication, choice of anesthetic drug and technique, anesthetic management, and certain phases of postanesthetic care.

Such a mutual respect between surgeon and anesthesiologist can only grow from experience; but it can be nurtured and encouraged by the avoidance of dogmatic opinions regarding the other man's specialty and due consideration for his opinions.

The surgeon who does not want to follow the anesthesiologist's advice about anesthesia is either himself mistaken or he has the wrong anesthetist. Insisting that the anesthesiologist abandon his own ideas about the management of anesthesia is a sure way of producing a situation dangerous to the patient.

The book is divided into four main sections to present:

1. The problems common to the administration of anesthesia in any field.
2. The methods of employing general anesthesia in otolaryngological surgery.
3. The local anesthetic methods applicable to this field.
4. Certain aspects of respiratory assistance or resuscitation which may become the responsibility of either anesthesiologist or otolaryngologist.

Many facets of these problems are barely touched upon and some are left out entirely. These omissions occur either because my own experience has not equipped me to speak authoritatively about them, or because the subjects have been covered quite adequately elsewhere.

Special instances of such omissions are problems related to plastic surgery and oncology, because the author does not include them in his own practice, and the details of certain nerve block techniques, because they have been described so beautifully in the texts referred to in Section III, Chapter 15.

No attempt has been made to enter into exhaustive discussions of the pharmacology of anesthetic agents or detailed descriptions of anesthetic techniques. The reader is referred to standard texts and the current literature on anesthesia and pharmacology for such information.

A fairly extensive bibliography is provided at the end of most

chapters. I sincerely hope this will be of use to the interested reader. It is an impossibility to include all the pertinent material available in the field in a book of this sort. References are made especially to books and papers which substantiate my own beliefs, which present the opposite view of some controversial questions, or which offer in greater detail findings or techniques discussed only briefly herein. After spending so many years as student, teacher, and practitioner in these fields the finding of so many papers heretofore unknown to me came as a pleasant and rewarding surprise. The reader is urged to go directly to the works listed for more complete information regarding any matter of particular interest to him. It is hoped that some readers will communicate with me regarding important papers which may have escaped my conscientious search so that they may be included in subsequent editions.

Of necessity some of the material is of immediate use only to the anesthesiologist or only to the otolaryngologist. If there is to be a mutual appreciation of one another's problems all of the material should be of interest to the specialist in either field.

I wish to express my appreciation to Mr. Kenneth C. Proctor and Mr. Jerard Wm. Wittstadt for preparing Chapter 6 on Medicolegal Considerations, which is a matter of increasing importance in present-day practice; to Dr. Leroy D. Vandam of the Peter Bent Brigham Hospital, and to Dr. James E. Eckenhoff of the Hospital of the University of Pennsylvania for their kind and patient advice and assistance; and to Mrs. Margaret Welsh whose patient secretarial assistance has helped to bring order out of chaos.

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Section I

GENERAL CONSIDERATIONS

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1. Mortality and Morbidity Associated with Otolaryngological Surgical Procedures

Cardiac Arrest, Aspiration of Vomitus, Anesthetic Fires and Explosions

A survey by Bishop[1] of deaths occurring on the operating table between 1922 and 1931 indicated that of 6,250 such deaths 542 (9 per cent) were patients undergoing tonsillectomy (table 1). No really adequate studies are available today to tell us whether this shocking figure is or is not representative of the facts for the current year.

Operative procedures upon the ear, nose, and throat occupy a large part of the operating schedule in most general hospitals. They are also performed in large numbers in hospital out-patient departments, in the private offices of physicians, and, even today, on an occasional kitchen table. The very frequency of these operations results in a somewhat casual attitude towards them, not only on the part of many patients, but also on the part of some surgeons. One encounters this attitude less frequently among anesthesiologists.

Some of the most difficult problems of anesthetic management, and some of the most tragic anesthetic accidents occur in this field. The custom of assigning the inexperienced student anesthetist to these problems, the tendency to neglect usual pre-operative preparations, and the general attitude that these are minor procedures

TABLE 1

Number of Deaths in the United States Associated with Anesthesia

Year	Total No. of Deaths	No. of Deaths Accompanying Tonsillectomy and Adenoidectomy
1922	513	87
1923	474	80
1924	598	73
1925	677	116
1926	654	108
1927	695	112
1928	569	89
1929	690	100
1930	702	91
1931	678	86

Mortality Statistics, U. S. Bureau of Census.

Reproduced from the article Operating room deaths, by Harold F. Bishop, Anesthesiology 7: 651–662, 1946, Table 1, p. 652, with the kind permission of Dr. Bishop and the editor.

all tend to needlessly increase the magnitude and hazards of what is an already difficult problem.

Both surgeon and anesthesiologist must realize that there is no such thing as a minor general anesthesia. The custom of classifying certain surgical procedures as minor because of their brevity or simplicity should influence in no way whatsoever the simple fact that the most common and most serious difficulties associated with anesthesia occur during induction of, or recovery from any general anesthetic. The nature or duration of the surgery performed between these two events has relatively little bearing on these difficulties.

Standards for proper pre-operative preparation of a patient have developed on a basis of long, and usually painful experience with their necessity for the prevention of what would otherwise be needless troubles during anesthesia. Failure to maintain such standards, regardless of the type of surgery, will inevitably increase the dangers inherent in the situation.

As is the case in other fields in medicine the anesthesiologist must learn by practicing his specialty on patients. In many first-class teaching centers the medical student working in anesthesia,

the young physician starting his residency training in anesthesia, the student nurse anesthetist, or the less experienced and less skillful member of the specialty is assigned to tonsillectomies. Many gynecological and orthopedic procedures, and some general surgical procedures, offer relatively simple anesthetic problems ideal for the beginner in the field. By the time the student comes to tonsillectomies he should be experienced and confident, and, even then, he should be carefully supervised by senior personnel.

Certain preparations and precautions, to be detailed in subsequent chapters, must be considered essential requisites before every anesthetic. The very instance when one feels, because of some special circumstance, that they may be omitted may turn out to be the one with a tragic outcome. The desire to avoid added expense to the patient, to avoid arguing with a parent, to save an additional day in the hospital, these and a multitude of other quite understandable considerations will have no detrimental result in the great majority of instances; but, if one troubles to investigate the rare anesthetic tragedy, the frequency with which some minor omission of standard precautions is found will shock one into the full realization that these omissions are never justifiable.

The surgical procedures performed by the otolaryngologist make up about 15 per cent of all of the surgery performed in The Johns Hopkins Hospital. During 22,000 surgical procedures of all kinds performed in this hospital in the year 1953 and part of 1954 there were 38 deaths on the operating table. One of these occurred at the conclusion of a tonsillectomy. The author knows of three other deaths during tonsillectomy at this hospital during the preceding 15 years, and one death during another otolaryngological procedure since 1954, but no overall statistics are available for these periods.

Especially because of this rarity of fatal outcome associated with otolaryngological surgery constant vigilance is required to maintain the highest standards of care in the handling of these patients. The house officer spending four years in the ear, nose, and throat residency may not encounter a single operating table death. Such a physician might enter practice with a false sense of security and fail to appreciate the necessity for some of the precautions to

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