

Manual of Otolaryngology— Head and Neck Therapeutics

Arnold E. Katz, Editor

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Lea & Febiger 1986 PHILADELPHIA

Lea & Febiger
600 Washington Square
Philadelphia, PA 19106-4198
U.S.A.
(215) 922-1330

Library of Congress Cataloging in Publication Data

Manual of otolaryngology—head and neck therapeutics.

Includes bibliographies and index.

1. Otolaryngology—Handbooks, manuals, etc.

I. Katz, Arnold E. [DNLM: 1. Otorhinolaryngologic
Diseases—therapy—handbooks. WV 39 M294]

RF56.M36 1985 617'.51 85-238

ISBN 0-8121-0957-0

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PRINTED IN THE UNITED STATES OF AMERICA

Print No. 4 3 2 1

Preface

The specialty of Otolaryngology—Head and Neck Surgery is both a medical and a surgical discipline. Many of the patients referred to the otolaryngologist require a diagnostic evaluation; and in most practices, less than 20% eventually require surgery. It is this blend of medicine and surgery in patients of all ages that makes the practice of Otolaryngology—Head and Neck Surgery so rewarding. It is unfortunate that medical schools and even some residencies devote so little of their curriculum to the medical aspects of otolaryngology.

This manual presents in outline form a meticulous approach to therapeutic problems of the head and neck. It presents a thorough, logical diagnostic and therapeutic evaluation of various diseases of the head and neck, stopping short of a discussion of surgical technique. Many of the chapters deal with local signs of systemic disease and their therapeutic implications.

The 34 eminent contributors were carefully selected from 20 medical centers throughout the country to describe areas of their expertise. They were asked to present their clinical "pearls" and describe how they would evaluate and treat their patients. Several of the authors are presently chairmen of their own departments and many of the contributors have achieved national and/or international recognition for their work.

The manual has been designed for the first year resident in Otolaryngology—Head and Neck Surgery, although it should also be useful for medical students and primary care physicians. Many of the 38 chapters deal with problems commonly seen by the internist, the pediatrician, the physician's assistant, and the nurse practitioner.

The form of the manual was designed so that it could be carried easily in the house officer's coat pocket and be readily available for use in the emergency room, the ward, or the clinic. The material is concisely presented; taking care to discuss basic science subjects, such as anatomy, physiology, and biochemistry, *only* if they have *therapeutic* implications. The material is presented in outline form so that it is easily retrievable in the clinical situation, and hopefully will allow for improved care of patients with these disorders.

Boston, Massachusetts

Arnold E. Katz, M.D.

Acknowledgments

"We are like dwarfs seated on the shoulders of giants. If we see more and further than they, it is not due to our own clear eyes or tall bodies, but because we were raised on high and upborne by their gigantic bigness."

Bernard of Chartres, 1119 A.D.¹

Throughout my medical career, I have been taught by many gifted and inspired teachers. Dr. Carl V. Moore, Dr. Dean M. Lierle, Dr. Barry J. Anson, and Dr. Scott N. Reger are now deeply missed, but their works still benefit us and our patients. Dr. Brian F. McCabe continues the traditions of those great teachers, instilling his residents with an unquenchable thirst for excellence, whether in the clinic, the operating room, or the laboratory. While I was studying with Dr. McCabe, his staff included Dr. Janusz Bardach, Dr. Leslie Bernstein, Dr. Lee A. Harker, Dr. Charles J. Krause, Dr. Ward B. Litton, Dr. Jacob Sadé, and Dr. Maxwell Abramson. "If we see more than they. . . it is. . . because. . . we (are). . . upborne by their gigantic bigness."

It would be impossible to complete a work such as this without family support. My wife, Lillian, and my children, John David, Rachell Anne, Jennifer Ruth, and Jason Aaron, have sacrificed and in their own ways contributed to the production of this manual. My mother, Rose, and my brothers, Robert and Raymond, have been an unending source of encouragement when I was convinced that I had undertaken more than I could possibly accomplish.

The many contributors to this manual were carefully selected and gave unselfishly of their expertise, so that we could pass on to those who follow us that which we have received from our teachers.

Finally, this work could not have been completed without the assistance of my friend and colleague, Ms. Bess Arick.

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¹MCCabe, B.F.: Barry J. Anson. *Ann. Otol. Rhinol. Laryngol.*, 84:131, 1975.

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I.

TRAUMA

I

TRAUMA

SOFT TISSUE TRAUMA

ROGER L. HYBELS

The evaluation and treatment of injuries to the soft tissues of the face and neck should be approached with respect. The examination should be unhurried and thorough. Most often, the head and neck surgeon is called to the emergency suite to treat specific neck and facial injuries after other physicians have assessed the general condition of the patient and have assumed overall care. If the head and neck surgeon is asked to accept primary care of the patient because soft tissue damage is judged to be the "only" injury, however, he should evaluate the patient personally and not accept the diagnostic conclusions of others without verification. This principle is not only medically and legally sound, but also it is in the best interest of the patient.

One should obtain a thorough history of the circumstances of the injury if possible, including the place and time of the accident, the mechanism of trauma or the offending object, and its direction. This information is carefully documented by direct quotations from the patient and witnesses both for medicolegal reasons and for insight into the injury itself. Photographs should be taken of all injuries before repair; in time, patients and their families may forget the magnitude of an injury.

Facial injuries present a wide range of problems. Some principles, such as wound healing and suturing technique, have general applicability, but the unique anatomy of the face and its importance in one's body image add a special dimension to these injuries. The surgeon should avoid optimism with respect to final outcome in discussions with the patient and the family. In fact, it is good policy to inform them that a revision will most likely be necessary in 6 to 12 months.

I. INITIAL CARE AND EVALUATION

A. Emergency Considerations

1. Airway

a. **Obstruction** The airway is the first consideration in most emergency situations. Otolaryngologists are uniquely qualified to evaluate and to deal with this problem. Normally, immediate distress is obvious and will have been treated in some manner, usually by intubation, before the otolaryngologist arrives. Some patients, however, have an apparently patent airway that later becomes stridulous. The otolaryngologist should foresee this problem and should treat such patients before an emergency develops. Anticipation of these problems is aided by a complete examination of the head and neck and a thorough medical history. Airway obstruction is most common in association with fractures of the mandibular and maxillary skeleton or neck trauma. Traumatically created deformities are not the only cause of airway obstruction; blood, teeth, and foreign bodies may fill the mouth or pharynx.

b. **Nonobstructive respiratory distress** The otolaryngologist should not approach respiratory distress with "tunnel vision" because the upper airway is not the only source of difficulty. Other possible causes are pneumothorax including the tension type, flail chest, sucking injuries, and hemothorax. Brain injury can lead to central apnea. Not all pulmonary distress is immediate; in some patients, it develops over several hours, as in shock lung.

2. **Hemorrhages** should be stopped appropriately. Most active bleeding will have been controlled by the body's own hemostatic mechanisms by the time the patient is transported to the emergency facility. If such is the case, the surgeon should be gloved and should have hemostats ready before exploring and cleansing the wound. It is common for the inexperienced physician to clean the clots from a wound only to find severe hemorrhage. In general, simple pressure should be used for the initial control of hemorrhage. Uncontrolled clamping into a poorly visualized wound is to be condemned. Occasionally, large amounts of blood are lost from a transected named vessel, and rapid exploration with precise control of the vessel is required. Shock is uncommon with facial injuries, but when present, injuries of the chest, the abdomen, the vessels of the neck or lower extremities must be suspected.

3. **Central nervous system** A nervous system injury should be suspected in anyone receiving trauma to the head and neck. Knowing the mechanism of the injury is helpful in determining the probability of nervous system involvement. Many of these injuries cause appreciable flexion and extension of the cervical spine, at times enough to induce fracture. It is reasonable to assume that every patient has a fracture of the cervical spine until proved otherwise by physical examination and radiog-

raphy. Neurologic consultation should be obtained without hesitation.

B. Initial Inspection

The initial assessment of the wound after emergency or lifesaving procedures accomplishes several objectives. Diagnostic studies are chosen and a treatment plan is formulated at this time. The presence of fractures should be determined before undertaking any repair of soft tissue because fixation should be performed through the open wound if possible. One may explore the wound gently in a sterile manner while irrigating it; the full extent of soft tissue damage is difficult to determine in a wound obscured by clotted blood. Instruments to control larger blood vessels should be at hand. At this time, visible contamination and foreign bodies may be removed. If injuries to other regions of the body are so serious that repair of soft tissue is impossible or is of secondary importance, the wounds can be cleansed and dressed. Tissue flaps are assessed for vascularity and are placed in untwisted positions. This evaluation may be more comfortable for the patient if local anesthesia is administered; however, the state of the patient's motor and sensory nerves should be determined before one injects an anesthetic agent.

C. Timing of Repair

As a general rule, the earlier a wound can be repaired, the better the result. Closure within 6 hours is a reasonable goal, but primary closure is possible up to 24 hours. Cosmetic considerations must play a secondary role in the patient with multiple trauma, and repair may have to be delayed in such persons.

- 1. Patients with no other injuries** When the patient has no other injuries or only minor ones, the repair can normally be performed in the emergency suite, with the patient under local anesthesia, as soon as diagnostic studies have been completed. When a wound is seen late and when the degree of contusion and devitalization is considerable, closure may be delayed. This procedure involves necessary debridement, application of wet dressings, and administration of antibiotics until the wound appears clean, with little edema and inflammation.
- 2. Patients with associated injuries requiring general anesthesia** When major associated injuries require surgical intervention, the facial and neck injuries can be repaired concurrently without adding significant anesthesia time. When anesthesia time is short, expeditious closure may consist primarily of wound toilet and debridement, elimination of dead space, and rapid skin closure with a continuous running suture or with staples if necessary.
- 3. Patients with associated injuries not requiring general anesthesia** In patients who have major associated injuries but who do not require general anesthesia, wounds should be

cleansed thoroughly, packed, and dressed under pressure for later closure. Occasionally, a few strategically placed sutures align the wound edges in adequate, temporary approximation. Delayed repair can often be performed at the bedside, when the patient's condition has stabilized, 24 to 48 hours later.

D. Tetanus Immunization

These guidelines have been adapted from the recommendations of the Committee on Trauma of the American College of Surgeons, as revised in 1979.

1. **General** Basic immunization is accomplished in adults and older children by 3 injections of tetanus toxoid, with booster injections given every 10 years thereafter. For children under 7 years of age, 4 immunizing doses are given.

2. Previously immunized patients

a. Booster within 10 years

i. No booster dose is given when the chance of tetanus is small.

ii. A booster dose is given if more than 5 years have elapsed since the last booster and if the wound is prone to the development of tetanus. If the patient has had excessive previous toxoid injections, the booster may be omitted.

b. **Booster more than 10 years previously** These patients should be given 0.5 ml tetanus toxoid.

3. **Inadequate previous immunization**, that is, either none or one previous injection or when the patient's history of immunization is unknown.

a. **For non-tetanus-prone wounds**, one should give 0.5 ml toxoid and follow-up with additional injections to complete immunization.

b. **For tetanus-prone wounds**, one should give 0.5 ml toxoid and 250 U human tetanus antitoxin. Equine antitoxin is indicated only when human antitoxin is unavailable and when the possibility of tetanus is greater than the risk of reaction to horse serum. Prophylactic antibiotics may be considered.

II. ANESTHESIA

A. Local

Whenever possible, local anesthesia should be used for patients, including children, with soft tissue injuries. Parenteral narcotic-barbiturate combinations provide supplementary sedation for children. Adults may benefit as well from an intramuscular or intravenously administered narcotic or tranquilizer, as long as an injury to the central nervous system is not suspected. Lidocaine (Xylocaine), 1 or 0.5%, with 1:100,000 or 1:200,000 epinephrine, is used; the latter combination is preferred if large amounts are required.