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食管外科学

Esophageal Surgery

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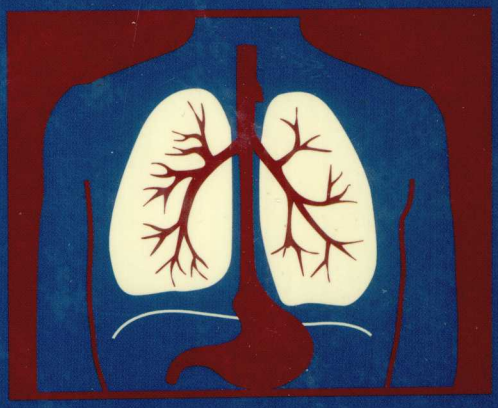

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SECOND EDITION

Esophageal Surgery

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PREFACE

Six years have elapsed since publication of the first editions of *Thoracic Surgery* and *Esophageal Surgery*. In these second editions, all original chapters have been updated and a significant number of new chapters added. Important additions include major advances in the application and acceptance of minimally invasive video-assisted techniques; advances in the technology of imaging with positron emission tomography scanning and ultrasound; the current emphasis on multimodality therapy in the management of many thoracic malignancies (including locally advanced lung and esophageal carcinomas); the expanding field of lung volume reduction surgery and three-field lymphadenectomy for esophageal cancer; and new operative techniques for the management of difficult technical problems, such as resection and reconstruction of the pulmonary artery and superior vena cava.

Otherwise, format and objectives remain the same. Each of the seven medical editors has assumed responsibility for one or more sections in which that particular editor has internationally recognized expertise. Chapter authors were chosen because of their acknowledged expertise in the assigned topic. Content and presentation were designed to create a comprehensive textbook for general reference, with an emphasis on practical guidance for the resident in training and for the established practitioner.

Again, the text has been separated into two volumes in an effort to accommodate the potentially disparate interests of the reader. *Thoracic Surgery* encompasses operative techniques of the airways, lungs, chest wall, and mediastinum. *Esophageal Surgery* will be of interest to general surgeons and gastroenterologists, as well as to thoracic surgeons.

The Department of Surgery at the University of Toronto continues to dominate the background of the editors: Six of the seven current editors hold or have held academic positions in the Division of Thoracic Surgery in Toronto. Many of the individual chapters have been written by graduates of the Toronto training program in general thoracic surgery.

F. GRIFFITH PEARSON

NOTICE

Medicine is an ever-changing field. Standard safety precautions must be followed, but as new research and clinical experience broaden our knowledge, changes in treatment and drug therapy become necessary or appropriate. Readers are advised to check the product information currently provided by the manufacturer of each drug to be administered to verify the recommended dose, the method and duration of administration, and the contraindications. It is the responsibility of the treating physician, relying on experience and knowledge of the patient, to determine dosages and the best treatment for each individual patient. Neither the publisher nor the editor assumes any liability for any injury and/or damage to persons or property arising from this publication.

THE PUBLISHER

CONTENTS

SECTION VI

■ Trauma 577

SECTION VII

■ Neoplasms 637

SECTION VIII

■ Operative Techniques 793

Introduction

CHAPTER 1

The Historical Evolution of Esophageal Surgery

Earle W. Wilkins, Jr.

Secluded in the posterior mediastinum against the dorsal vertebrae and abutted anteriorly by the heart, the great vessels, and the tracheobronchial airway, the esophagus has always, by its remote inaccessibility, been a major challenge to surgeons. Emslie (1988) has provided perhaps the best perspective of the surgeon's struggle with the esophagus:

> The history of oesophageal surgery is the tale of men repeatedly losing to a stronger adversary yet persisting in this unequal struggle until the nature of the problems became apparent and the war was won.

As we shall see, continuation of the struggle has resulted directly in (1) the founding of the American Association for Thoracic Surgery and (2) the recognition of general thoracic surgery as a necessary subdivision for the appropriate and complete training of the cardiothoracic surgeon.

ORIGINS

"There is no exact date or specific event that marks the birth of chest surgery" (*General Thoracic Surgery: Its History and Development*). That statement is likewise true in the evolution and development of esophageal surgery. It also did not arise de novo in a particular country, nor in a single school of surgery.

Sporadic accounts of surgical procedures on the cervical esophagus are scattered through the millennia dating back to Egyptian times. Brewer (1980) provides a wonderfully detailed reference to the Smith Surgical Papyrus (3000–2500 BC), discovered in 1862 by Edwin Smith and translated and edited in 1930 by Henry Breasted. Case No. 28 describes the treatment, apparently successful, of "a gaping wound of the throat penetrating the gullet." Collis (1982) cites a comment made by Ambroise Paré (1510–1590): "when the oesophagus is being sutured great care should be taken." A marvelous cautionary guideline for the ages!

Vincenz Czerny of Heidelberg, a former assistant of the pioneer Viennese surgeon Theodor Billroth, performed one of the early resections for carcinoma of the cervical esophagus in 1877. Billroth (1871) had demonstrated in dogs that resection with anastomosis of the cervical esophagus was indeed feasible.

Johann von Mikulicz-Radecki, likewise a pupil of Billroth, is described by Olch (1960) as "the father of such endoscopy as we know it today" for his 1881 development with Leiter of an esophagoscope with distal illumination. Such events as these were but preludes to developing attempts at resection of the thoracic esophagus.

ESOPHAGECTOMY

Decades of pioneering surgeons' struggles with resection of the intrathoracic esophagus form a thread that actually traces the historical development of surgery of the esophagus. The anatomic remoteness of the thoracic esophagus along with the physiologic challenge of intraoperative control of respiration presented a double obstacle to successful esophagectomy. It would take some six decades from the time of Billroth's laboratory successes with cervical esophageal resection to a successful resection and intrathoracic anastomosis.

Respiratory Control

Ultimately it was the solution of the problem of control of respiration in the open thorax that permitted substantive advances in the technical challenges of esophageal resection.

In 1904, Mikulicz in Breslau (now Wroclaw, Poland) initiated research into the development of a differential pressure methodology for control of respiration during surgery. His pupil, Ferdinand Sauerbruch (1904), was directly responsible for the negative differential pressure chamber, the complicated system in which the patient and the operating team were closeted in a hermetically sealed space with only the patient's head outside for control of respiration and administration of anesthetic