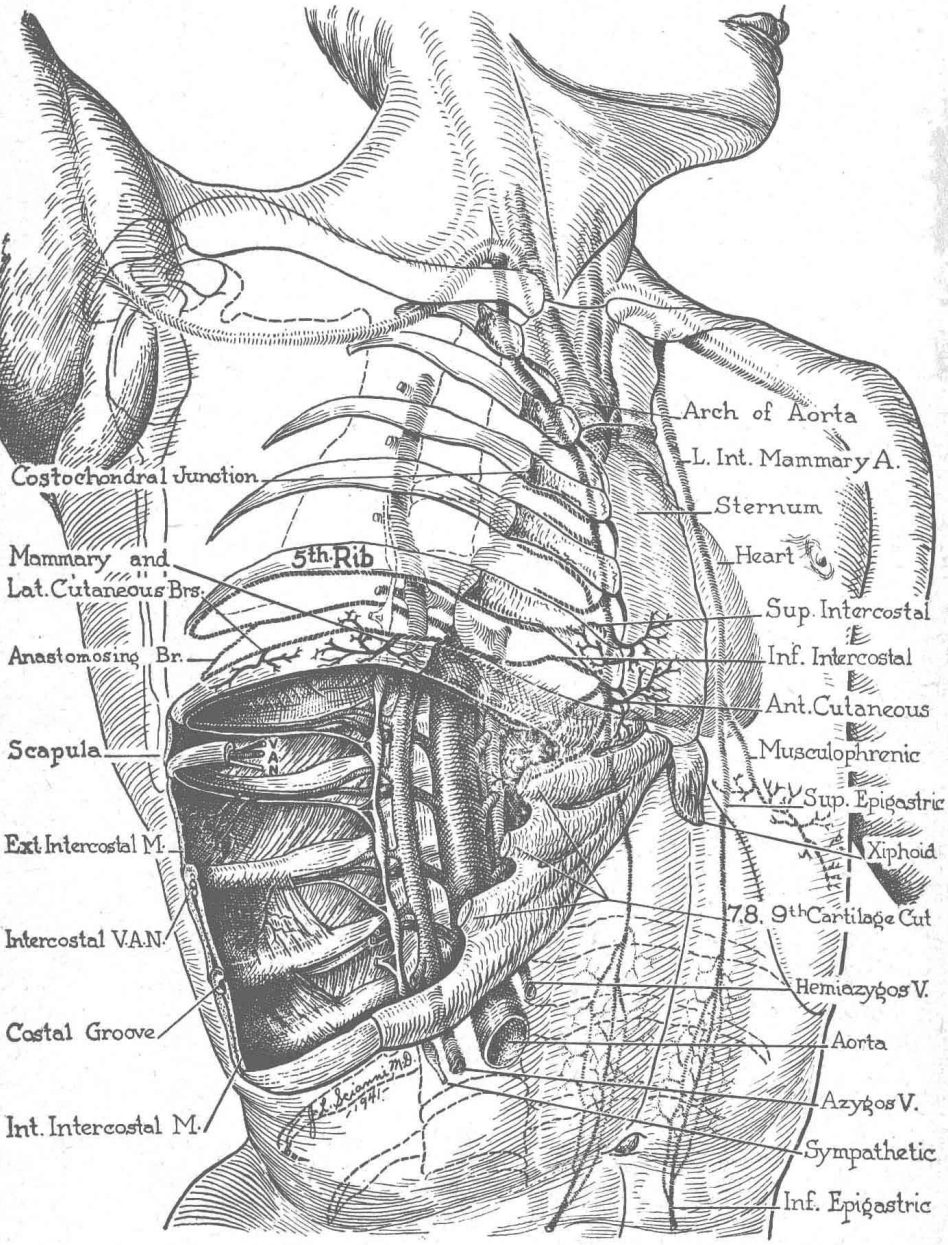
SURGICAL DISORDERS OF THE CHEST

DONALDSON


Arch of Aorta
L. Int. Mammary A.
Costochondral Junction
Sternum
Mammary and
Lat. Cutaneous Brs.
5th Rib
Heart
Sup. Intercostal
Anastomosing Br.
Inf. Intercostal
Ant. Cutaneous
Scapula
Musculophrenic
Sup. Epigastric
Ext. Intercostal M.
Xiphoid
7.8. 9th Cartilage Cut
Intercostal V.A.N.
Hemiazygos V.
Costal Groove
Aorta
Azygos V.
Int. Intercostal M.
Sympathetic
Inf. Epigastric

SURGICAL DISORDERS OF THE CHEST

DIAGNOSIS AND TREATMENT

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Second Edition, Thoroughly Revised

With 146 Illustrations and 2 Color Plates

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This volume
is dedicated to my wife
E M I L Y
whose patience and untiring devotion
have made this and many other tasks
much more worthwhile to me.

PREFACE TO THE SECOND EDITION

THE field of thoracic surgery has developed with rapidity unparalleled in surgical history. This rapid development has placed a tremendous responsibility upon all physicians and surgeons who concern themselves either with diagnosis or treatment of thoracic disorders. And the majority of physicians and surgeons, already harassed with the task of following a voluminous current literature, have found it difficult or impossible even to follow many of the fundamental advances which have been made in the pathology, diagnosis and treatment of these disorders.

It seems to the author, however, that the profession in general has made in the past few years remarkable progress in its attitude regarding thoracic surgery. It is now generally accepted that pneumonectomy for carcinoma of the lung, for example, is thoroughly practical, whereas less than five years ago a great many were very dubious regarding this. Today, the average general practitioner need not be told that there are still far too many patients with various disorders reaching the experienced thoracic surgeon after their chance for cure has been greatly diminished or lost through lack of early diagnosis. He has learned this and is anxious to do his part in correcting it. It is the duty of the teacher and the specialist to assist him in every way possible to become more proficient in his diagnostic concepts.

One of the principal objectives of this volume is to offer, in compact and easily readable form, a reference work for physicians, surgeons and medical students; a book which stresses, insofar as practicalities permit, clinical pathology and diagnosis in correlation with treatment.

A second main objective has been to offer to the general surgeon who is not a specialist in this field a practical, compactly-written book which might assist him in treatment of certain surgical disorders of the chest, which are within his legitimate domain *provided* he uses his already acquired technical skill with an understanding of improved concepts of the pathology of these disorders.

For example, there is no reason why many well qualified general surgeons cannot handle the usual case of lung abscess, or empyema about as well as can the specialist in thoracic surgery, provided they understand the varying pathology of these disorders. And, though some might disagree with this statement, in any event one must realize that economic as well as other factors do not permit all patients with surgical disorders of the chest to be served by the men most experienced in thoracic surgery; that surgical emergencies arise when time itself does not permit procurement of the specialist before life is saved or lost.

It might appear unusual that, in a text written with the primary objectives mentioned above, attempt has been made to cover with relative thoroughness present-day technique of most of the highly specialized operative procedures in the field of thoracic surgery. Yet this attempt

has been made, with most of the description of such technique submerged in smaller type to avoid bulkiness in the volume. The author realizes one could use smaller type excessively. But technique of many surgical procedures will continue to change rather rapidly for a few years at least; and the author would like those who obtain the book to have a text, the bulk space of which is devoted principally to subject matter less amenable to change.

Technique of complicated surgical procedures has been discussed principally for two reasons: First, it may be of some assistance to those younger men who as interns and residents wish to become proficient eventually in performing more major operations such as esophageal resection and pneumonectomy. Secondly, it might be of value to other general surgeons and practitioners who in behalf of their patients are interested in evaluating such operations, even though they would not perform them themselves. We sometimes forget that an appreciable number of such men like to do this; that they often deal more dogmatically, understandingly and efficiently with a patient if they have a working knowledge of just what is necessary for attempt at cure of the particular patient.

It has seemed to the author that there is need for more specific classification, at least greater stabilization of terminology as it pertains to classification of empyema and rate to less extent, to abscess of the lung. The author does not expect all to agree with him regarding classifications he presents. He has, however, attempted to present these classifications in such a way that correlation of pathology with treatment would be offered properly to the reader.

An attempt has been made to present in the volume the fundamental advances made in the field of thoracic surgery during World War II. The author considers that the newer concepts regarding decortication of the lung is one of these and this subject has been discussed in some detail.

Massive bibliography and long historical reviews have been avoided. The author can only acknowledge here his indebtedness to those men whose names have not appeared as often as they should, if at all. He hopes the student will understand that because of the objectives of the text the bibliography is meant to serve as a key for those who wish to pursue particular subjects in more detail rather than an epitomized historical review in itself.

During World War II and subsequently the author has reviewed many worthwhile articles by British authors which helped him formulate his concepts as they are presented in this text. Under duress of trying days some of these articles and authors were not catalogued in the author's bibliography files as well as they should have been. Apologies are offered to the men concerned.

The author acknowledges with pleasure and appreciation his association with and indebtedness to those efficient and sincere workers with whom he associates in Chest Clinic, *viz.*, Drs. Jerome Levy, Doyle Fulmer, R. H. McLochlin, W. B. Grayson; his appreciation for the support and assistance rendered him by Dr. George V. Lewis, Director of the Department of Surgery, and Dr. S. T. W. Cull, Director of Department of Medicine at the University of Arkansas School of Medicine; his appreciation for the

most able assistance which Dr. S. C. Fulmer has given him on many occasions; and his gratitude for the capable coöperation of Dr. D. T. Hyatt, in charge of pneumothorax therapy. Dr. B. B. Wells, Medical Director of Clinic and Hospital, has also been of great assistance in many ways.

The author acknowledges deep appreciation for his period of service under (Col.) Dr. John B. Flick of Philadelphia during World War II. This service did not pertain to thoracic surgery except to limited extent. The acknowledgment is made rather because of an admiration which the author has not only for the general surgical ability of Dr. Flick, but for his attributes in many non-professional categories. In similar vein the author gratefully mentions his service under (Col.) Dr. Condict C. Cutler, Jr. of New York City.

He acknowledges his indebtedness to Dr. Mahlon Prickett, chief of anesthesiology at University Hospital for bringing to that hospital the type of modern anesthesia which is indispensable to major intrathoracic surgery; his appreciation of most excellent service rendered by Elizabeth A. Joyce in anesthesia at St. Vincent Infirmary.

Acknowledgment is gratefully made for the efficiency and faithfulness of Mrs. Maude McRae of the nursing staff of University Hospital. She has served for years with superior proficiency, undoubtedly motivated by idealism alone. Mrs. Elizabeth Ross has served with equal distinction.

Mrs. Virginia Martin also is due many thanks for her nursing service in prewar days from the time that development of the thoracic surgery service began, and for her postwar service as a member of the anesthesia staff.

Mrs. Elizabeth Richardson, Librarian, is due thanks for many courtesies.

Mr. W. D. Wilcox, Mr. Victor J. Boland of Lea & Febiger deserve thanks for their efficiency and courtesy.

In final and most grateful acknowledgment the author presents thanks to Mrs. Lilian Moore, his personal secretary, for her efficiency and tolerance. Without her assistance this second edition would have been delayed much longer.

J. K. D.

LITTLE ROCK, ARKANSAS

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SURGICAL DISORDERS OF THE CHEST

PART I

Inflammation, Tumors, Congenital Anomalies of the Thoracic Wall; and Thoracic Injuries

CHAPTER I

INFLAMMATIONS OF THE THORACIC WALL

PYOGENIC INFECTIONS AND ABSCESSES

TEXTBOOKS on general surgery have for many years discussed amply certain phases of inflammations of the soft tissues of the wall of the chest. For example the problem of carbuncles and boils is in general the same whether they appear on the chest or some other portion of the body. These particular disorders and others which have been thoroughly covered in texts of general surgery will not be discussed in detail in this volume.

Neither is it considered necessary that we go into repetitious detail regarding dosages of such drugs as penicillin. However, specific mention will be made of dosages of drugs (as for example in intrapleural instillations) when these differ in a particular problem from the basic rules of dosages which are common to all fields of surgery and which are discussed in various general texts.

Pyogenic Cellulitis.—Pyogenic cellulitis of the skin and subcutaneous tissues of the chest wall may be very serious. Infections of this type may be similar to pyogenic involvement of the deeper layers of the scalp. It may follow the tissue planes, spreading widely over the entire side of the thorax with surprisingly little aptitude for localization. This is especially true of streptococcic infections.

Etiology.—The most common cause of widespread tissue inflammation of this type is contamination from needle puncture during aspiration of an infected pleural effusion. The author remembers one of his private cases in which pleural effusion which had occurred in conjunction with gangrene of the lung, was aspirated. Within four days from the time of aspiration the patient presented an angry cellulitis involving practically the entire left half of the thorax including the axilla, extending to well below the crest of the ileum. This was before the days of modern drug therapy.

Cellulitis may be secondary to, or associated with, axillary gland abscess, subpectoral abscess, osteomyelitis of ribs or sternum, intrathoracic suppuration, thoracic wounds, septicemia, or ascending infection of an upper extremity. Carbuncles or boils on the chest, especially if traumatized or improperly treated, may cause a spreading cellulitis.

Pathology.—Stress has been laid upon anaerobic and facultative anaerobic microörganisms (Meleny) as causes of the serious widespread necrosis and toxemia in many of these cases. Such infections can spread rapidly between muscle and fascial planes much as does cellulitis of the scalp as stated above.

Prophylaxis.—Lilienthal recommended years ago that alcohol be placed in the aspirating syringe and a small amount run through a needle before and during withdrawal of the needle through the soft tissues when pleural effusions are aspirated. If alcohol is used, 70 per cent by weight at ordinary room temperature, is considerably more antiseptic than other concentrations.

Theoretically one might consider concentrated penicillin solution, or other drugs instead of alcohol. In any event one should start systemic drug therapy at once after highly odoriferous pleural effusion has been aspirated, *i. e.*, penicillin or other drugs as might be indicated by particular bacteriology involved.

Treatment of Pyogenic Cellulitis.[1] (See Subpectoral Abscess, below).—Systemic penicillin or sulfonamide therapy may be life-saving in cellulitis of the chest wall and one or the other should be used immediately in such cases. Penicillin is usually preferable. If a sulfonamide is used it is to be administered orally usually in full dosage with proper regard to blood counts, possible kidney damage, blood concentration levels and untoward signs and symptoms.

Massive moist packs, hot or cold, according to the preference of the physician, may be used here as in cellulitis elsewhere. If the cellulitis is not too angry the preference is for hot magnesium sulphate solution used continuously.

Transfusions and general sustentative measures are used according to the judgment of the physician.

If it appears that deep-seated infection of anaerobic nature may be present, early and ample incisions should be made into tissue planes if the infection does not respond favorably to drug therapy within twelve to twenty-four hours at most. Dakin tubes are inserted and irrigations carried out as discussed under Subpectoral Abscess (Fig. 1). One should avoid incising widely into a spreading cellulitis when the anaerobic factor and suppurations are *absent*, however, and should depend chiefly upon systemic drug therapy in such cases. The judgment of the operator, keeping in mind the pathologic factors mentioned and the difficulty of always determining whether pus is present in the tissue planes or not, and the degree of toxemia as indicated by frequent blood counts, will guide him as to proper procedure.

Subpectoral Abscess.—This may follow suppurative axillary adenitis, cellulitis of the arm, forearm or chest wall tissues, occasionally empyema,

[1] It would be highly impractical to attempt to discuss all phases of possible drug therapy each time in this text when it might be debatable as to the particular drug indicated. It will probably be many years before the great therapeutic field which has been opened by modern drug therapy has become sufficiently stabilized that legitimate debate could not be held at times regarding usage of our modern drugs. This subject has been discussed briefly in Chapter XXV. And throughout the text reference will be made at this time in general way to drugs, especially penicillin and sulfonamides, with the understanding that other drugs, or derivatives or compounds of those mentioned, may at any time be found to offer even more specific application against bacteriologic agents.