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Pulmonary Carcinoma

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PATHOGENESIS, DIAGNOSIS, AND TREATMENT

Edited by

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and

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Foreword

Less than fifty years ago the author of a monograph on the subject of cancer of the lung could base his remarks on 312 authentic cases that had up to then been reported in the medical literature. Today—less than a lifetime later—312 cases of the same disease may be found in the course of a single year in a single city of the United States numbering two million souls. The recorded increase of bronchogenic cancer in the span of one generation has been called “the most violent phenomenon in the history of cancer.” Competent authority has termed it “a pandemic disease in the United States and in the industrialized countries of Europe.” The statement that no noninfectious disease has ever increased so rapidly is unchallenged. In the face of a health problem of such alarming proportions, a text summarizing the essential knowledge concerning the etiology, pathology, symptomatology, clinical course, diagnosis, management, and control of lung cancer should be welcomed by physicians and physicians-to-be. On them rests the responsibility of containing cancer of the lung as best as it may be contained, and at their hands—indeed in this book—are the facts which could make such containment possible.

On the other hand, the publication at this time of a text on pulmonary cancer is a brave venture, for the volume of data pertaining to this disease is in inverse proportion to the extent of professional agreement on many, including the most important, of its aspects. To begin with, there is a difference of opinion as to whether lung cancer is actually on the rise. The opponents of the evidence cite improved diagnosis and the aging population as adequate reasons for the apparent increase. Yet when adjustment is made for the factor of extended longevity, lung cancer is found to have increased by a degree far exceeding that recorded for any of the other varieties of cancer, in spite of the fact that the techniques for diagnosing it have not improved as much as have those for some other anatomical types. Moreover, age-standardized rates show an increase of death rate from cancer in general, exclusive of the lung, amounting to 2 per cent in the past twenty years, while during the same period, death rates from cancer of the lung have risen by over 250 per cent.

Perhaps no other disease can claim so many seriously proposed and well-supported etiologic vectors. Half a dozen occupational hazards, atmospheric pollutants, smoking and non-neoplastic chronic inflammatory

conditions have varying degrees and kinds of supporting evidence as inciters of cancer of the lung. But recognition of them is capricious and inconsistent. For example, industrial contact with certain chromium compounds is generally regarded as hazardous. The evidence is wholly epidemiologic: persons thus employed get lung cancer more frequently than those in other occupations. Although lung cancer has never been produced experimentally in any living organism by any chromium compound, the statistical evidence convinces everyone. On statistical grounds, the evidence incriminating cigarette smoking as being associated with lung cancer is even weightier than that for chromium. In addition there is laboratory evidence of a carcinogenic effect of condensed cigarette smoke—as measured by the mouse's skin. But, in this instance, the evidence is rejected by many—because “statistics don't prove anything,” or because “a mouse is not a man,” although it is widely conceded that the problems of experimental carcinogenesis are extremely complex; what will cause cancer in one organ of one species may not do so in the same organ of a different species, or in a different organ of the same species. All of which has led to the observation that if the degree of association now shown to exist between cigarette smoking and lung cancer were to be demonstrated for a relationship between crossing the Brooklyn Bridge and fatal accident, the bridge would be closed to traffic without demur.

There is a serious division of views concerning the value of early diagnosis. One school holds that lung cancers found in patients who have not yet developed symptoms are consistently resectable in a greater percentage of cases (and, by all that is reasonable, are more curable) than they are in patients who have begun to cough and wheeze, who have hemoptysis, or who suffer from the infectious sequels of lung tumor. The other view maintains that the histologic nature of the neoplasm is the only determinant of curability, regardless—or almost regardless—of when it is discovered.

A corollary of this argument is that concerning the usefulness of efforts to find lung cancer in presumably well persons: case-finding, or screening, by mass chest x-rays. Again the schism: on one side, those who say it is not worth the expense and the effort; on the other, those who, admitting its shortcomings, say it is the best weapon available, so why not use it? Perhaps the only points on which all are agreed is that cancer of the lung is undesirable and that surgery offers the only hope of cure.

There are several sound reasons why this book will best find its fulfillment in the hands of doctors committed to general practice. First, there is the aforementioned prevalence of cancer of the lung which, if not itself sufficiently persuasive of attention today, foreshadows a health problem of truly alarming proportions in the years immediately ahead. Extra-

polation of the present rate of rise indicates that lung cancer will soon become a major concern of every family doctor.

Second, it now appears likely that current investigations of certain alleged etiologic agents to which large numbers of the population are exposed, will establish their significance beyond cavil, and at that point the practitioner, in his traditional role as health counselor to his patients, may be provided with an instrument of preventive medicine of remarkable effectiveness. Even now, most of the physicians and scientists recently queried as to the advice they would give heavy cigarette smokers, are sufficiently impressed by the evidence to recommend reducing the amount of smoking or quitting altogether.

Third, assuming that lung cancer in the presymptomatic, or silent, phases is more curable than it is once symptoms have appeared—an assumption justified by data now coming to hand—the family doctor faces the duty of looking for it among his patients, including not only those who come to him for a “routine check-up,” but, just as important, those who come to be treated for colds, backache, hernia, prostatism and what not. This concern to safeguard health by seeking out early disease is not accepted by all physicians. Yet in the light of the changing pattern of illness—primarily the dwindling importance of infections, and the emergence of the so-called degenerative diseases as the major medical problems of our time—the doctor can no longer serve his greatest usefulness by waiting for the bell to ring. If the problems of an aging population are to be met (and they will be met by the government if the profession will not meet them), the doctor is going to have to do some bell ringing himself, and it will not be embarrassing to do so, for public health propaganda from all corners, from official, voluntary, and professional organizations, are preparing the way.

Fourth, there can be no gainsaying the practitioner's responsibility to expedite the diagnosis of the patient with an abnormal chest roentgenogram or with complaints referable to the lung. Here, if anywhere, he should be at home—in differential diagnosis. Yet the fact, amply supported by the fate of those found to be “tumor suspects” following mass chest surveys, is that the family doctor to whom the problem is referred, often—too often—hesitates in pushing his patient through to definitive diagnosis. One of the more important missions of this volume is to make it clear that “good health” is consistent with x-ray evidence suggesting pulmonary cancer. Another aspect is presented by the patient with symptoms: the ubiquitous cough, chronic bronchitis, sinusitis, too much smoking, emphysema, atelectasis, virus pneumonia—how shall they be weighed? The lesson here is that no ready obvious explanation is justified until cancer of the lung is excluded. In view of the frequency of cancer,

not even the presence of tubercle bacilli may be accepted any longer as total evidence of a diagnosis.

Fifth, as the thresholds of operability are lowered, and as more operable patients are referred to surgeons, more postoperative problems are being returned to the family doctor. More and more, his is the task of supervising the patient's course following discharge from the hospital, with all the physical, psychic and social sequels involved; and they are all involved, regardless of what was accomplished in the operating room.

Finally, there usually falls to the family doctor the most exacting demand of all—that of accompanying to the end the patient who cannot be saved. Frustrating? By some standards, yes. Unrewarding? No. For just as obligating as the doctor's covenant to save life when he can, is his opportunity to help keep whatever of life remains bearable and acceptable—not only by mitigating bodily pain but, of greater concern to patient and family, by maintaining integration of personality, and when this becomes a losing battle, by making judicious concessions. Never do the ethics of medical practice permit the doctor to say to the patient, "There is nothing more I can do." He may, if in his judgment it is best, tell his patient he cannot get well, but not that he is without some resource. Most patients with hopeless cancer intuitively realize their plight. Usually they can adjust to the fatal prospect, but they cannot face abandonment. The sensitive comments on the doctor's relations to the patient facing death, which are part of this text, can do much to sustain the patient (and the doctor as well); in doing so, they go far in abating the nuisance of quackery, for much of the quack's practice consists of abandoned patients.

This compilation of authoritative statements on a health problem of growing oppressiveness comes none too soon. As a summary of what is known that is of clinical usefulness, it deserves the attention of all doctors in general practice and those about to be.

CHARLES S. CAMERON

Editors' Preface

A phenomenal increase in the incidence of pulmonary carcinoma has been reported from many parts of the world during the past few decades. Primary cancer of the lung, previously considered to be a relatively uncommon type of neoplasm, is now a topic of major clinical importance. The preparation of this volume was prompted by the belief that there was need for a presentation on cancer of the lung which encompassed all facets of pathogenesis, diagnosis, and therapy.

In view of the increasing incidence of certain types of lung cancer, a discussion of possible etiologic factors is presented by contributors actively engaged in such investigations. Also the various experimental approaches to lung cancer are described. The pathology of pulmonary neoplasms is presented from the standpoint of clinical correlation. The pathologic variations in lung cancer that emphasize the fallacy of considering all such neoplasms as a single disease entity are indicated.

This volume presents a discussion of the many aspects of cancers of the lung that play a role in diagnosis and therapy. Pitfalls in the early recognition of pulmonary carcinoma are emphasized by the inclusion of a section with short case reports illustrating many of the common problems in differential diagnosis and management. The relative values of the various diagnostic procedures are thoroughly analyzed by contributors who have had wide clinical experience in dealing with pulmonary neoplasms.

The role of surgical therapy in pulmonary carcinoma is presented and analyzed with a detailed consideration of factors influencing the surgical indications and results. Those aspects of pulmonary function that are important in the clinical evaluation of the patient undergoing surgical treatment are assessed. Chapters on radiation therapy, chemotherapy, the use of isotopes, and the medical management of inoperable cases will give the clinician a complete survey of the over-all therapeutic armamentarium in combating pulmonary cancers, both primary and metastatic. Finally the psychologic aspects, which can be an important problem for the medical practitioner in such a chronic illness, are presented.

Our objective has been to produce a predominantly practical book written by clinicians and specialists reflecting for the most part their own views and opinions gleaned from an extensive clinical experience. Our

goal was a book that will commend itself to the practitioner of medicine who is in need of guidance in his constant fight against this increasingly prevalent disease.

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Pulmonary Carcinoma

Modern Concepts of Cancer Research

CORNELIUS P. RHOADS

The search for control and the eventual prevention of the neoplastic process has undergone an interesting series of developmental steps. It began with the consideration of cancer as the expression of some omnipotent force of supernatural origin, moved into the descriptive phase with the development of pathologic anatomy, and then shifted in an effort to fall in line with the newly discovered bacterial etiology of disease. Later, it moved back into the mysterious force stage, with cancer regarded as a distorted expression of the growth process. Now the thinking has come all the way back to the early consideration of the neoplastic cell as an infecting microorganism, with its origin in a somatic mutation or a permanently acquired characteristic, and with cure to be sought by its control or destruction. Indeed, modern thought has now crystallized in a concept of cancer as a useful expression of Darwinism—the survival of the fittest mutation—reduced to a cytologic basis. Under this concept the competence of the organism and the environment in which it finds itself achieve expression in the invasive or non-invasive growth of the mutant form.

The earlier considerations of cancer, from Hippocrates through Galen to Paracelsus, solely concerned the possibility of a humoral origin. It is entertaining to observe that the claim of Galen that cancer was due to a concentration of black bile, may in the near future be expressed by the definition in bile of constituents so modified as to be cancer-producing. In the same way, the ancient feeling that cancer was due to mineral salts in the blood may turn out to have some factual basis in our knowledge of trace metals as required for a variety of kinetic reactions.

Further advances came with recognition of the local origin of cancer, with the concept of a specific virus presumed to make normal cells neoplastic, and with the idea of cachexia as a systemic manifestation of the neoplastic process—observations as pertinent today as they were in 1735.