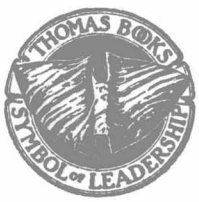
PAIN IN THE CHEST

By

WILLIAM H. WEHRMACHER, M.D., F.A.C.P., F.A.C.C.

Northwestern University Medical School
Passavant Memorial Hospital
U. S. Veterans Administration Research Hospital
Chicago, Illinois



CHARLES C THOMAS • PUBLISHER
Springfield • Illinois • U.S.A.

Published and Distributed Throughout the World by

CHARLES C THOMAS • PUBLISHER

BANNERSTONE HOUSE

301-327 East Lawrence Avenue, Springfield, Illinois, U.S.A.

NATCHEZ PLANTATION HOUSE

735 North Atlantic Boulevard, Fort Lauderdale, Florida, U.S.A.

Library of Congress Catalog Card Number: 64-14070

With THOMAS BOOKS careful attention is given to all details of manufacturing and design. It is the Publisher's desire to present books that are satisfactory as to their physical qualities and artistic possibilities and appropriate for their particular use. THOMAS BOOKS will be true to those laws of quality that assure a good name and good will.

Printed in the United States of America

D-1

PREFACE

AMONG THE LAITY, the complaint of pain in the chest is often called "pain in the heart" and by many it is often regarded ominously as the unmistakable sign of a fatal disease. Perhaps there is nothing that will put the fear of God in a man like a pain in his chest. Since pain in the chest can arise from benign causes that can be recognized and since modern treatment improves the outlook even of those whose illness is really serious, the physician has much to gain from study of this subject. The diseases which may produce chest pain arise from many anatomical locations distributed throughout the body and from many of the several body systems. The symptom occurs at all ages of life and in all social and economic categories so that it stands, significantly, at the heart of medicine, although it does not arise exclusively in the heart of man.

My personal interest in the problem of pain in the chest was sparked by a group of patients who, after rather extensive and expensive laboratory tests, obtained neither a satisfactory explanation nor effective relief from their pain. Two papers by Tinsley Harrison, published in 1943 and 1944, contrasting anginal pain with that arising from esophageal and gastric disease, kindled this initial interest and a continuing supply of distraught patients has produced in me almost a consuming preoccupation with this problem for twenty years.

My studies have led me to three major conclusions: (1) The first pitfall is failure to appreciate the great variety of possible causes for pain in the chest. Simple distinction of coronary pain from that of other origin is not enough. (2) The patient can usually lead the physician almost directly to the diagnosis if he is allowed sufficient time and encouraged to reveal his own observations completely. (3) The examination required will ordinarily be relatively simple if the physician is attentive to fundamentals.

This book is divided into two major parts: the first is devoted to the clinical history, physical examination and laboratory study, and the second to the several causes of pain in the chest according to their anatomical origins. Depending upon the reader's purpose, the book may be read either in the order written, or as a compendium for specific diagnostic and therapeutic details. The latter approach is often not only the most practical but also the only appropriate technique for the busy practitioner, but it is particularly important to consider that pain in the chest may arise from more than one cause. Failure to treat any one or more of its causes leads inevitably to a poor therapeutic result. Thus when treatment is ineffective, one should first consider sources of the complaint that might have been overlooked

before embarking on more radical means of therapy directed against a single primary diagnosis.

The length of the various sections of the book bears no direct relationship with either the inherent seriousness or the frequency of occurrence of their subject matter. Rather, an effort has been made to emphasize certain conditions which are likely to be overlooked by the general diagnostician or which may be relatively unfamiliar to many practicing cardiologists. Certain details of cardiovascular diagnosis and treatment, already well known by physicians or well described in standard reference books, are minimized since additional consideration here would unduly increase the bulk of this volume without accomplishing any useful purpose. Probably my own special interest as well as my prejudices influence the length of certain sections despite my attempts to prevent it.

I have tried to use standard nomenclature whenever possible in order to avoid repetition and overlapping, and have used English terms whenever possible in preference to Latin or Greek terms, although exceptions occur. Sometimes the nomenclature is determined primarily by a manifestation and thus would properly belong under supplementary terms as listed in the *Standard Nomenclature of Diseases and Operations*, 5th edition, 1961 (published for the American Medical Association by McGraw-Hill Book Company, New York). The specific diagnostic numbers have been listed where they could be applied conveniently.

ACKNOWLEDGMENTS

It is manifestly impossible to trace the source of the inspiration and guidance that has directed any project like the production of this book over the more than two decades that it has been under active consideration. As indicated in the Preface, Tinsley Harrison's publications of 1943 and 1944 stimulated my interest in the study. The good counsel of my teachers at that time, Horace Korns, William Fowler and the late Fred M. Smith at the University of Iowa laid a foundation of ideas on which I have tried to build.

Military service in World War II and the Korean War gave me contact with a group of young patients with such a low incidence of clinically evident coronary artery disease as to direct my special attention to other causes for chest pain. Between these two wars, the late Doctor Gordon B. Myers and his colleagues of the Wayne University Medical School provided the specialized training in internal medicine and cardiology necessary to interpret the clinical data.

After the Korean conflict, Doctor Israel Steinberg gave me the opportunity to study the cardiac chambers by angiographic means in order to provide a better understanding of the radiographic study of the heart by conventional means and generously has provided many of the illustrations in this book.

Doctor Aldo A. Luisada of the Chicago Medical School has not only offered much encouragement and opportunity for my work in the chest pain problem, but also has assisted me in better understanding of graphic methods of cardiac investigation.

My colleagues at the Northwestern University Medical School and the head of the Department of Medicine, Doctor Arthur R. Colwell, Sr., have provided both research facilities and clinical case material included in this text. My students throughout the years have punctured many of my pet theories, demanded more adequate explanations for the varieties of chest pain, and helped me to complete clinical studies at the Northwestern University Medical School clinics, Passavant Memorial Hospital and the Veterans Administration Research Hospital. Doctor Paul Kezdi generously made available the data obtained by cardiac catheterization at the Chicago Wesley Memorial Hospital to me and my students, Eugene Blonsky and Koson Kuroda, for the special study of pain in the chest associated with hypertension of the lesser circulation.

The Northwestern University Medical School Library, with its outstanding collection, was placed at my disposal by the efficient, friendly staff.

Special acknowledgment is due Mr. Leon Stolz, my patient and friend, who read the manuscript when it reached the best form that I could produce

and then "put the best words in the best order," so that they might mean what I had intended or clarified my hazy thinking so that there could be a meaning. It would not be amiss to say that he translated it into English.

I wish to thank Doctors Lewis Pollock, Earl Barth, Burns Lewis, E. Clinton Texter, Jr., and C. Larkin Flanagan for reviewing those sections pertaining to their respective specialties.

Mr. John Hunsaker was tireless in suggesting, preparing, and revising special illustrations for this book. Mrs. Josephine Brod typed the final manuscript. The publisher deserves special mention for his patience and cooperation.

The following authors and publishers deserve special thanks for their permission to reproduce material in this book so that the reader need not search immediately for the original while he is reading the text:

B. Feinstein, J. N. K. Langton, R. M. Jameson, and F. Schiller:	*Journal of Bone and Joint Surgery*
W. B. Martin, Koson Kuroda, and Paul Kezdi:	*Minnesota Medicine* (Minnesota State Medical Association)
R. H. Wasserburger, K. L. Siebecker, and W. C. Lewis:	*Circulation* (American Heart Association)
J. A. Williams, D. Littmann, J. H. Hall, S. Bellman, P. B. Lambert, and H. A. Frank:	*New England Journal of Medicine*
Otto Steinbrocker, D. Neustadt, and S. J. Bosch:	*Medical Clinics of North America* (W. B. Saunders Company)
Samuel M. Bluefarb:	
Janet Travell, S. H. Rinzler, and Charles Gaylord:	*Postgraduate Medicine* (Interstate Postgraduate Medical Association)
G. R. Meneely, Con O. T. Ball, and F. T. Billings, Jr.:	*Modern Medicine*
Ian Lodge-Patch:	*British Heart Journal* (British Medical Association)
J. H. Behrmann, H. R. Hipp, H. E. Heyer, G. Vantrappen, E. Clinton Texter, Jr., C. J. Barborka, and J. Vandenbroucke:	*American Journal of Medicine* (R. H. Donnelley Corporation)
S. E. Gould, and Gordon B. Myers:	*Charles C Thomas, Publisher*
	American Journal of Cardiology (R. H. Donnelley Corporation)
T. W. Shields, E. E. Avery, and Craig Borden:	

ISRAEL STEINBERG:	*Annals of Internal Medicine* (American College of Physicians)
A. A. LUISADA:	McGraw-Hill Book Company *Diseases of the Chest* (American College of Chest Physicians)
L. M. BERNSTEIN, R. C. FRUIN, and A. PACCINI:	*Medicine* (Williams & Wilkins Co.)
GORDON MCHARDY, ROBERT MCHARDY, and C. C. CRAIGHEAD:	*GP* (American Academy of General Practice)
W. J. H. NAUTA, and J. BLOCH:	*Schweizerische medizinische Wochenschrift* (Benno Schwabe & Co.)
J. W. LORD, L. M. ROSATI, and F. H. NETTER:	*Ciba Clinical Symposia* (Ciba Pharmaceutical Products, Inc.)
EDWARD L. COMPERE:	
EUGENE L. BLONSKY:	*Quarterly Bulletin,* Northwestern University Medical School
ARTHUR M. MASTER:	*American Heart Journal* (C. V. Mosby Co.)
ARTHUR A. MICHELE:	*New York State Journal of Medicine*

W. H. W.

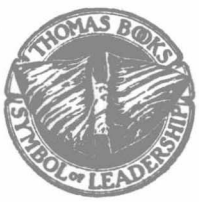
CONTENTS

PAIN IN THE CHEST

By

WILLIAM H. WEHRMACHER, M.D., F.A.C.P., F.A.C.C.

Northwestern University Medical School
Passavant Memorial Hospital
U. S. Veterans Administration Research Hospital
Chicago, Illinois



CHARLES C THOMAS • PUBLISHER
Springfield • Illinois • U.S.A.

Published and Distributed Throughout the World by
CHARLES C THOMAS • PUBLISHER
BANNERSTONE HOUSE
301-327 East Lawrence Avenue, Springfield, Illinois, U.S.A.
NATCHEZ PLANTATION HOUSE
735 North Atlantic Boulevard, Fort Lauderdale, Florida, U.S.A.

Library of Congress Catalog Card Number: 64-14070

With THOMAS BOOKS careful attention is given to all details of manufacturing and design. It is the Publisher's desire to present books that are satisfactory as to their physical qualities and artistic possibilities and appropriate for their particular use. THOMAS BOOKS will be true to those laws of quality that assure a good name and good will.

Printed in the United States of America
D-1

SECTION I
EVALUATION OF THE PATIENT

"One must put questions to the patient, for thereby certain aspects of the disease can be better understood, and the treatment rendered more effective. And I place the interrogation of the patient himself first, since in this way you can learn how far his mind is healthy or otherwise; also his physical strength and weakness; and you can get some idea of the disease and the part affected . . . next also those about him should be questioned, if there are any obstacles from the side of the patient in getting information . . . First we have to ask at what time the illness began . . . The next thing to ask is whether what has now happened is one of the diseases to which the individual is accustomed, or is something which has never happened to him before . . . The patient must . . . also be asked how he is naturally affected by each article of food and drink . . . whether he has a good or a bad appetite . . . his habits . . .

"My own view, however, is that, while one may discover a great deal by one's self about disease, yet one does this best and most definitely by means of questions; for if the result of these corresponds with the signs found, the condition is then more easily known . . .

"We must also ask how much pain the ailment is causing. . . . Yet even this is not quite enough for a complete diagnosis, since many people, owing to softness and effeminacy, are no more expert at imitating pain than the tragedians who weep and lament on our stage. Other things must also be considered; whether the individual is of sound mind, manly, and self-controlled; he at least will not tell lies about his ailment. And since pains also have for the most part their varying phases, this must also be inquired about; for obviously we have not on the one hand to ask when other acute paroxysms occur, while yet leaving out of account periods when pains become exacerbated. It is also of some value to inquire into the natural condition of the patient's bowels, whether they move readily or not. And similarly with the other discharges; for sweating, micturition, and vomiting take place easily in some subjects, and with greater difficulty in others."

RUFUS OF EPHESUS, ca. 200 A.D.
On the Interrogation of the Patient

From Greek Text, Ch. Daremberg's edition, Paris, 1879. Cited and Translated by Arthur J. Brock *in: Greek Medicine.* London and Toronto, J. M. Dent & Sons, Ltd., 1929.

PATIENTS' COMPLAINTS

Anamnesis

THE ILLNESSES of a man are the responses of the constitution he has inherited to certain experiences of his life. The hereditary endowment sets limits to the variety of his responses to external forces. The physician's chore is to identify and correct the precise combination of harmful forces responsible for the unfavorable reaction of the body which we identify as illness. Therefore, a narrative recounting of the development of the patient's complaint in the perspective of his personal history, the characteristic life story of blood relatives, living and dead, and the environment to which he has been subjected, is the proper beginning of all clinical investigation.

This individual history of the patient sets forth his problem and in this sense guides all subsequent investigations. The more detailed the history the better; items that are easily overlooked often provide significant clues for diagnosis and thus will greatly simplify the care of the patient and save him time and money. Hardly any symptom can be regarded as irrelevant, even though its importance may escape recognition before the entire pattern of the illness is assembled.

Although relatives or friends often accompany the patient when he visits the physician, the first discussion should be between the physician and patient alone. The patient may fear the implications of chest pain to the point of terror, and must assure himself that the physician fully comprehends and appreciates precisely what he is experiencing. Even close trusted friends offer some impediment to the free exchange of information. Certainly, those who accompany the patient are striving to be as helpful as possible and wish to spare the patient any unnecessary strain, but they are only capable of giving second-hand information which may mislead the investigator. When their account is valid and amplifies the history, it can be added later, after the patient has done his best.

The patient's candid description is the most nearly objective evidence of pain, available. It should be recorded, preferably in his own words. Since it is hard to find phrases to describe the sensation of pain, most patients eagerly utilize any cue words supplied by the examiner to resolve the perplexity as quickly and easily as possible. The patient's description of pain in the chest is particularly important because physical findings and laboratory tests are rarely pathognomonic. Inevitably, a physician's cue words suggest sensations to the patient which he may never have experienced or serve as "reasonable approximations" of sensations which the patient could better describe if he were forced to search within himself for the appropriate words. Many examiners put words in the patient's mouth to speed the recitation, not realizing that in so doing, they are defeating their own purpose.

Since the spontaneous description of complaints is apt to be incomplete, skill-