

Differential Diagnosis of Internal Diseases

CLINICAL ANALYSIS AND SYNTHESIS
OF SYMPTOMS AND SIGNS
ON PATHOPHYSIOLOGIC BASIS

By JULIUS BAUER

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SECOND REVISED AND ENLARGED EDITION

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GRUNE & STRATTON

NEW YORK and LONDON

1955

FIRST EDITION
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SECOND REVISED EDITION
Copyright 1955

First printing, February 1955
Second printing, August 1955

GRUNE & STRATTON, INC.
381 Fourth Avenue
New York City 16

Printed and bound in U.S.A.

Preface to the Second Edition

THE NECESSITY of preparing a new edition, the appearance of a Spanish translation in 1951, and the favorable reception by the many reviewers of this book are proof that it served its purpose. Training and stimulation of clinical thinking and judgment was the goal set forth in the preface to the first edition in 1950. Discrimination between clinically useful laboratory methods, as well as the distinction between technical diagnostic procedures carried out on a sick person and those designed to increase our scientific knowledge and understanding of pathologic physiology, are more important today than ever before. The aim of the practicing physician is different from that of the medical research man. The clinician must save the time and expenses of, and avoid inconveniences to, his patients. Even the smallest risk of a diagnostic procedure is unjustified unless the expected diagnostic information can be obtained in no other way. I have in mind, for instance, the indiscriminate use of angiography of the heart or brain, or aortography, of myelography, of biopsies of liver or kidneys, or the newest technical achievement, suprasternal puncture of the left atrium.

The true physician cannot dispense with some knowledge of the individual patient's soul (a term used in its broadest sense) even if he has acquired full knowledge of his body. The amazing progress of medical technology is not helpful for this purpose. Those concerned with the future of medicine and with planning medical education should keep in mind Bertrand Russell's words: "Unless men increase in wisdom as much as in knowledge, increase of knowledge will be increase of sorrow."

It is obvious that thorough revision and enlargement of the text has been necessary in order to keep it up to date. Constructive criticism of reviewers of the first edition has been greatly appreciated and reasonable suggestions for improvement have been heeded. Many previous references in the bibliography have been replaced by more recent ones. A considerably increased volume of bibliography was inevitable for the benefit of medical investigators, authors and teachers. The greatly expanded and improved subject index may be of help to the advanced student, practicing physician, internist, writer and investigator as well.

Several new illustrations have been added, chiefly roentgenograms of patients from my hospital service. For these roentgenograms I am indebted to George Jacobson, M.D., the chief of the radiology department, and to Mr. Lloyd Matlovsky, the chief of the photography depart-

ment of the Los Angeles County Hospital. The invaluable cooperation of the publisher, Mr. Henry M. Stratton, and his editorial staff is greatly appreciated.

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Preface to the First Edition

ANY RATIONAL therapy must be based upon and, therefore, be preceded by a diagnosis. In cases of emergency one may be compelled to dispense with a complete and accurate diagnosis and to content oneself with a partial and fragmentary one if therapeutic measures have to be taken urgently. A patient in acute circulatory failure, for example, requires immediate treatment which will be different if it is caused by vasomotor collapse and shock (pallor, empty neck veins) than if it results from a failing heart (engorged neck veins). Whether the acute heart failure arose from coronary occlusion, hypertensive or rheumatic heart disease may be decided after the emergency treatment. The clinical syndrome of an "acute abdomen" may necessitate surgical intervention before an accurate diagnosis is possible. A patient with massive gastrointestinal hemorrhage must be treated even without foreknowledge of its origin.

When there is no emergency—and fever or 50 per cent hemoglobin, e.g., is per se no emergency—treatment should be withheld or carried out only in such symptomatic way as not to obscure an accurate diagnosis. It is bad practice to use antibiotics indiscriminately before an attempt has been made to identify the offender, or to administer a blood transfusion before the nature of the anemia has been studied. To arrive at a correct diagnosis as accurately and completely as possible a more or less wide range of diagnostic possibilities must be taken into consideration and symptoms and signs of each must be evaluated with regard to those presented by the case in question. This *differential diagnosis* requires thoroughness in observation and examination of the patient, knowledge, experience and shrewdness. Often enough we shall be unable to carry the differential diagnosis beyond a certain limit; that is, we shall be unable to decide between two or more equally possible diagnoses. Mistakes are and always will be inevitable. They must not occur, however, by missing a disease that is curable by specific therapy.

It should be made a rule to concentrate attention first and foremost upon the possibility of ailments that require a specific or even life saving

treatment, especially surgical intervention. From this viewpoint the possibility of a malignant growth, of a subphrenic or subdural abscess, of an empyema, of malaria, syphilis, subacute bacterial endocarditis, myxedema or pernicious anemia, to mention only a few, must have preference in our differential diagnostic considerations. It is of minor practical importance to confuse lymphosarcoma with Hodgkin's lymphogranuloma or multiple sclerosis with amyotrophic lateral sclerosis; it is of no practical importance at all to investigate for the primary tumor if the diagnosis of carcinomatosis of the liver has been established. It may be disastrous, however, if syphilis of the liver is mistaken for metastatic carcinomatosis. It is inexcusable to treat rectal bleeding by injections for hemorrhoids without making sure (first by digital exploration) that a rectal cancer is not responsible.

Clinical-pathologic conferences offer excellent training in the differential diagnosis of fatal diseases with an anatomic substratum. They do not, however, teach the fine art of minute observation and thorough examination of a patient which provides the data for differential diagnostic consideration. They also fail to further knowledge of the large group of "functional," nonfatal diseases and may distract the physician from a very practical necessity: interest not only in the diagnosis of an anatomic disease but also in the personality who became victim of the disease. And this is important even for the management of a person diagnosed as fatally sick.

Examinations of my office records recently revealed that of the last 2000 patients who have consulted me 32.3 per cent had to be diagnosed as pure neurosis or psychoneurosis of one type or another. By the adjective "pure" I mean that the very common cases of somatic disease with a superimposed neurotic component were not included. No cases of peptic ulcer, hyperthyroidism or essential hypertension were among these 32.3 per cent. In the same material the frequency of essential hypertension—blood pressure over 160 systolic and 90 diastolic—was 16.5 per cent. This material is in no way selected and is representative of that commonly encountered by every internist. The figures also are in full conformity with those of other writers.¹

These facts involve implications of great practical importance. How, where and by whom should the diagnosis of neurotic or psychoneurotic states be made and taught? Who should take care of that great number of patients and how should their treatment be instituted and taught? It

¹ Allan, F. N., and Kaufman, M.: Nervous factors in general practice. *J.A.M.A.*, 138: 1135, 1948.

stands to reason that the diagnosis must be established by the general practitioner or internist, since he and not the specialist in psychiatry is consulted by these patients. He must be the competent man to rule out diagnostic possibilities other than neurosis and to disentangle complex psychosomatic ailments as to their somatic and neurotic component. The diagnosis of neurosis or psychoneurosis must never be made only on the grounds of absence of signs of an organic disease. It is justified only if, in addition, positive findings can be discovered which either disclose a neuropathic personality with a highly irritable nervous system and/or suggest that the patient faces a conflict situation with which he cannot cope. Recognition of the maladjustment of a patient to his environment and his failure to deal successfully with a given situation is the basis of successful treatment. This "*minor psychotherapy*" consists chiefly of a sympathetic explanation of the situation to the patient. He must be made to understand the relationship between his symptoms and his emotional stress. He must learn that his symptoms are by no means imaginary, but that their cause is either imaginary (as in hypochondria) or due to subjective misinterpretation of, or faulty attitude toward, a given difficult life situation. Thus, diagnosis merges almost imperceptibly here with therapy.

Diagnosis and "*minor psychotherapy*" is, therefore, the job of the internist. He cannot refer from 30 to 60 per cent of his patients to the psychiatrist. To this "*minor*" degree he must practice his psychiatry, which means healing of the mind, himself. He must know how to do it because he will need it just as often as the knowledge of when and how to prescribe digitalis or antibiotics. As long as he is incompetent in this art or prefers instead simply to have his nurse administer vitamin or hormone shots for indefinite periods of time, he has no right to complain of the competition of chiropractors, naturopaths, Christian Scientists and adepts of other branches of cult medicine.

Who, then, should teach the art of psychodiagnosis and minor psychotherapy? How should it be taught? The fundamentals of psychobiology and psychopathology must, of course, be taught by the psychiatrist, who is, also, the only competent authority to handle the relatively small group of severe psychoneurotics who do not respond to "*minor*" psychotherapy. Having acquired the basic knowledge of human nature and its pathologic distortions, the student must learn the approach, differential diagnosis and treatment of neurotics by watching his teacher in internal medicine—not in didactic lectures and, for obvious reasons, usually not in the wards, but in the outpatient department. Study of characteristic case histories is an equally important method of learning the art of minor

psychotherapy. This is the reason that, in this book particularly, case histories of psychosomatic diseases are used to illustrate the text.

There is another serious reason why not only the general practitioner and internist but also the surgeon and every specialist should be familiar with the physiology and pathology of the human mind. An unbelievably great number of neurotic patients owe an aggravation of their disease or even its origin to thoughtless or imprudent remarks or actions of a physician. Authoritative voices have been raised in the last few years to point out the importance of such "*iatrogenic*" ("caused by the physician") ailments. One may well ponder Armstrong's² dictum: "It is better to attribute incorrectly a small percentage of organic illnesses to functional causes than to condemn a large number of healthy patients to the fear of a non-existent disease."

Diagnostic considerations must start with the first contact with the patient. His general appearance and behavior, the way he presents his story and answers questions may be valuable guides. Keep in mind that the chief complaints of psychoneurotic origin usually are trimmed with a variety of most disparate symptoms. *History* must be taken intelligently and with an attempt at insight, not simply as a routine according to a standardized scheme. Many believe that this is the greatest art in medicine.³ Its interpretation, at least, is. Years ago I estimated that about 55 per cent of all internal diseases can be diagnosed from aspect and history alone, an additional 20 per cent by physical examination and another 20 per cent by laboratory tests. The rest of the patients remain undiagnosed, regardless of whether they get well or die.

Diagnosis should embrace more than simply putting a case in one or more of the pigeonholes constructed by medical science; that is, the labelling of a patient with one or more of the numerous terms of disease which may change as time passes, and which often do not cover the problem presented by an individual patient. The term "diagnosis," literally translated from the Greek, means thorough understanding; in medicine it is the thorough understanding of the patient's disturbance, both anatomically and physiologically, somatic and psychic.

The *laboratory* should be used intelligently, not indiscriminately. Thoughtless accumulation of tests which cannot be expected to contribute to the diagnosis must be condemned. Time, inconvenience, expenses, even possible danger to the patient and last, but not least, the reliability of laboratory procedures must be taken into consideration. I have seen

² Armstrong, T. G.: The use of reassurance, *Lancet* 2: 480, 1946.

³ Platt, R.: Two essays on the practice of medicine. *Lancet* 2: 305, 1947.

gastroscopy done on a patient with clinically and roentgenologically typical duodenal ulcer, peritoneoscopy performed on a patient whose abdomen was distended by, and full of, palpable cancer metastases, a glucose tolerance test carried out on patients with proved diabetes. These are, of course, preposterous outgrowths of mechanized medicine. I hope the words of an enthusiastic roentgenologist, "... percussion and auscultation become the tools of another age" (Radiol. 50: 44, 1948), will not be taken too seriously. There is no infallible method of examination and testing in medicine, including biopsy.

Those mechanically minded physicians of the younger generation who lay greater stress on figures concerning the biochemical constituents of blood and excretions of a patient than on his history, physical findings and personality should not fail to familiarize themselves with the survey carried out by the Medical Society of the State of Pennsylvania as to the accuracy of some of the more common chemical measurements made in hospital laboratories throughout the State. "The accuracy of the measurements is below any reasonable standard," was the conclusion of the investigators.⁴ My unforgettable teacher, F. Widal, defined medicine: "Toutes les sciences au service de l'homme" (All the sciences at the service of man). And he used them to full extent in his laboratory of the Hôpital Cochin in Paris. But he foresaw that the day will come when tempted by the apparent exactness of biological tests man may forget his true destination and for the subtle art of the clinician substitute blind accumulation of tests of scientific appearance, the sum of which often may contribute only confusion and error.⁵

It might be well to mention a few points concerning the general arrangement of this book in anticipation of possible criticism.

1. Schematic tables of differential diagnosis which apparently are much favored in such textbooks as this have been almost completely omitted. This has been done deliberately. They encourage memorizing and discourage thinking, besides being necessarily incomplete and frequently misleading. The good physician is not one who memorized nineteen diseases of which a particular symptom or sign might be a manifestation, but rather one who is familiar with, and tries to analyze, the pathophysiological mechanism that might account for the presenting clinical picture.

⁴ Belk, W. P., and Sunderman, F. W.: A survey of the accuracy of chemical analyses in clinical laboratories. *Am. J. Clin. Pathol.* 17: 853, 1947.

⁵ De Gennes, L.: Chaire de pathologie et thérapeutique générales. *Presse Méd.* March 27, 213, 1948.

2. Overlapping is unavoidable in a textbook of differential diagnosis. It is not detrimental, in my opinion. The association of a particular symptom or sign with various combinations of others is strengthened and impressed on the reader's mind by such overlapping.

3. The selection of references does not claim to be impartial. In a book of such scope it is obvious that to avoid unwieldiness many fundamental publications can not be given the deserved credit. It was attempted, however, to quote as far as possible the most recent publications containing references of previous work done along the particular line. This also should be of help to a research worker in his special field. It is quite natural, too, that more consideration was given to the work carried out by my former co-workers and myself than to some other equally or more pertinent and important one.

4. It is fully realized that some views expressed in this book do not conform to current and generally accepted concepts. It remains to be seen whether or not they will be common knowledge in the future. Progress, however, cannot be expected if new ideas are banned and rejected without due consideration of all pros and cons. Since this book attempts to train and stimulate clinical thinking and judgment rather than to compile only known facts it is in keeping with this goal not to overlook concepts that cannot be fully proved at the present time but offer the most satisfactory explanation of known facts. Who considers medicine to be only applied exact science may deserve the title of "doctor," which means an erudite man; he will never be a good physician if he does not understand the art of medicine also.

Parts of chapters 14 (Infectious Disease) and 16 (Electrocardiogram) were written by my son, Franz K. Bauer, M.D., Instructor in Medicine at the College of Medical Evangelists and Junior Attending Physician, Los Angeles County Hospital.

I am indebted to Drs. Ray A. Carter, Walter L. Stilson and particularly Denis C. Adler for the roentgenological illustrations, to Drs. Walter S. Graf and Harold J. Hoxie as well as to my Viennese collaborators Drs. Max Schur and Alfred Vogl (New York) for valuable advice and suggestions. The clerical work of my indefatigable secretary Mrs. Leonore Abelman is deeply appreciated. Last but not least I am grateful for the cooperation of my publisher, Mr. Henry M. Stratton, and his efficient staff.

Los Angeles

JULIUS BAUER, M.D.

To my wife, Marianne Bauer, M.D., Ph.D.

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PART ONE : LEADING SYMPTOMS

1. Headache

Acute Headache, 1

Chronic Headache, 4

“Nervous” and Psychoneurotic Headache, 14

HHEADACHE as chief complaint of a patient is a frequent occurrence in everyday practice. The first concern is the duration of the headache, whether or not it is localized at a particular part of the head, and which other symptoms or relevant facts from the life history of the patient may be detected.

Acute Headache

An *acute headache* which is the result of any local inflammatory processes, such as abscesses of the scalp, periostitis or osteomyelitis of the skull, will easily be recognized by proper examination. The same holds true for acute headache caused by acute purulent paranasal sinusitis during the course of an upper respiratory infection or for the headache indicating a cerebral complication of a suppurative otitis (sinus thrombosis, brain abscess). The history of adequate trauma explains the headache following skull fracture, hemorrhage from the medial meningeal artery, or concussion of the brain. Acute headache caused by sunstroke occurs after long exposure to intense sunshine and may be associated with dizziness, nausea and vomiting. Spinal puncture or spinal anesthesia may occasionally result in severe headache with or without signs of meningeal irritation (stiffness of the neck, Kernig's sign). If puncture is done for the diagnosis of lues, it will likely be negative if such a “meningism” has occurred. Other diagnostic procedures such as myelography with radiopaque dye or air insufflation in the ventricular system can cause considerable headache.

Acute headache is a frequent precursor and chief symptom of various acute infectious diseases. The febrile state and the accompanying symptoms and signs will clarify the situation. An important variety of acute headache is the one occurring in secondary syphilis. The following case history illustrates the importance of examining a patient not only stripped but also in bright daylight, even if acute headache is the only complaint.

A 43 year old bachelor had been suffering from severe headache for three weeks (October, 1942). The headache was continuous but particularly severe at night. He had never before experienced such headache. He did not complain of any other symptoms, particularly no dizziness, no nausea. He had no fever. He used to drink large amounts of alcohol, but did not become intoxicated. His physician had found no cause for the complaint. Sedatives and analgesics, even large doses, were of no avail. Physical examination revealed a man of normal build with no abnormality of inner organs, particularly no abnormality of the nervous system. Careful examination of the skin, however, revealed a pale, pinkish, fading maculopapular rash on the trunk and volar side of the arms which was visible only in bright daylight—not in an artificially lighted room. No primary syphilitic lesion or its residue was to be found. The cooperative patient gave only a history of a tonsillitis with lymphadenitis in the right submaxillar region several weeks before. His last sexual intercourse was reported to have been three months previously. The diagnosis of *secondary syphilis* was corroborated by a strongly positive reaction of Kahn and Wassermann. After the first injections of bismuth and Mapharsen the headache subsided completely and has not recurred to date. Serologic reactions became negative after his first series of Mapharsen and have not changed since.

The possibility of acute headache indicating incipient meningitis or encephalitis should always keep one on the alert for concomitant symptoms or signs. Double vision due to extraocular muscle paresis together with headache, for instance, may for days be the only indication of an incipient tuberculous meningitis in a youngster. Listlessness, drowsiness or psychic alterations accompanying acute headache may announce a beginning encephalitis. In patients with arteriosclerosis or arterial hypertension acute headache may be a prodromal symptom of a massive hemorrhage or thrombosis. Yet even young persons without arteriosclerosis and with normal blood pressure may suddenly experience unbearable headache as a result of a subarachnoid hemorrhage from a ruptured small aneurysm at the basis of the brain. The rapid display of the severe cerebral syndrome and the hemorrhagic spinal fluid will enable the physician to diagnose this dramatic event.

Acute intoxication by carbon monoxide or methyl alcohol can be responsible for acute headache. In the latter case it will be accompanied by rapidly developing visual disturbances. Headache as part of the "hangover" after acute alcoholic excess should cause no diagnostic difficulties.

Disastrous consequences may result from misinterpreting the headache which announces an acute attack of *glaucoma*. Immediate administration of pilocarpin or physostigmin in such a case is imperative in order to prevent irreparable damage to vision. The pain is usually localized around the eye and along the first and second branch of the trigeminal nerve. It may be experienced in the ear and teeth and even be associated

with vomitus and elevated temperature. Examination of the eye and particularly its increased tension will make the correct diagnosis possible.

Headache, chiefly in the supraorbital region, often accompanies iridocyclitis. Photophobia and lacrimation point to the ocular origin of such headache.

More or less *permanent headache*, for some time tormenting a previously healthy person, requires first a thorough investigation as to the presence of symptoms and signs of increased intracranial pressure, and perhaps of a localized lesion of the brain. Dizziness and occasional vomitus (the latter not related to food), without nausea and without abdominal pain, are important symptoms of increased intracranial pressure. Bradycardia, mental and emotional dullness, visual disturbances due to choked disc, beginning optic atrophy (the latter in pituitary tumors) or restriction of visual fields, and especially epileptic fits are unmistakable indications that the headache of the patient is due to an elevation of intracranial pressure. This may be caused by a brain tumor, cyst (echinococcus, cysticercus cellulosae), cerebral syphiloma (gumma), tuberculoma, abscess or cerebral edema. If a tentative diagnosis of a brain tumor has been made, the patient should be investigated as to the possibility of a metastatic tumor. Renal and bronchogenic carcinomas are the most frequent types of malignant growths metastasizing in the brain. In one of my cases a surgical scar in the lumbar region of a patient gave the clue to the correct diagnosis of a metastatic cerebral hypernephroma. The patient had forgotten a nephrectomy performed several years before. Successful operation of a single metastatic brain tumor has been reported as long as 15 years after resection of a carcinoma of the breast.¹⁹ High grade eosinophilia makes one suspicious of a parasitic cyst if increased intracranial pressure is present. Complement fixation reaction and skin test are available for the diagnosis of echinococcus. Cysts of cysticercus cellulosae (the larva of the hog tapeworm, *Taenia solium*) develop with preference in the fourth ventricle. Sometimes they may be associated with numerous small cystic tumors visible and palpable in the skin.

The diagnosis of gumma of the brain should not be discarded on the grounds of negative serologic tests only. The past history, the detection of a syphilitic aortitis and the absence of one or both patellar or Achilles reflexes are important. Abnormalities of the pupils other than Argyll-Robertson's sign are of less differential diagnostic value in such a case, since they may be caused by a tumor as well as by an old syphilis. In a questionable case, antisiphilitic treatment should be given a short trial before surgery is resorted to. Tuberculoma of the brain may be con-