Melvin Post

Physical Examination of the Musculoskeletal System

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To the physician
whose greatest worth is as a diagnostician

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Foreword

Dr. Melvin Post has fulfilled a definite need in creating this modern book entitled *Physical Examination of the Musculoskeletal System.* A distinguished group of clinicians has contributed to this book. The chapter on history taking and the general medical examination, by Dr. Post himself, is written with painstaking care. It includes all the essential eponyms and is filled with reminders about the psychological and emotional aspects of pain. A physician especially qualified in the field, Dr. Post covers the physical examination of the shoulder girdle, and provides a useful tabulation of the importance of understanding the origins, insertions, functions, paralysis, and special tests of the shoulder girdle muscle action.

Bernard F. Morrey outlines the physical examination of the elbow, with an important presentation of associated joint involvement and assessment. The chapter by Ronald L. Linscheid and James H. Dobyns on physical diagnosis of the wrist is noteworthy in its discussion of interrelationships, signs, and symptoms of normal and pathological processes of bone, nerve, tendons, and ligaments, etc.

Michael Jablon and Harold E. Kleinert present a succinct system of examination of the hand that includes postural deformities and even fingernail features. The chapter entitled "Physical Examination of the Spine," with its close association with abnormalities of the shoulder, is written by Dr. Post; he provides a useful, handy reference table of nerves (normal and abnormal functions) and special tests for each. The tabulation is continued through his chapter on physical examination of the thoracic and lumbar spine, with a strong emphasis on the neurological basis of orthopedic tests.

Glenn C. Landon and Jorge O. Galante contribute an up-to-date system of examination of the range of motion of the hip joint in health and disease, and conclude with the principles of evaluation of a patient with a total hip arthroplasty. Lorin M. Brown and W. John Sharrard outline the principles of the lower extremities of the child from the foot up, and Dr. Brown and Robert Salter provide essential information about examinations of the lower extremities of the child from the hip down.

Russell F. Warren provides a compendium of the old and the new procedures of the examination of the knee, equipped with all the new terminology and tests for ligament instability. Manmohan Singh and Kenneth A. Johnson admirably record the steps in the examination of the adult, compared with the child, foot and ankle, and offer classification of pes planus, metatarsalgia, and the dysvascular foot, which is useful for students and experienced clinicians.

This book is written for the handy bookshelves in the clinic examining rooms, doctors' offices, and every student's library. In the United States, patients are generally pleased to see a doctor reach for a book and read something interesting to them about the condition under consideration. There are enough of both eponymic and noneponymic names to make every test easy to locate, with the definitions brief and easy to read. While operations may come and go, the knowledge of physical diagnosis in this book should be here to stay.

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Preface

The cornerstone of clinical medicine was founded on a system of inquiry and observation. An accurate diagnosis is established by using this method of investigation. It is accomplished by taking a history and performing a physical examination. Although modern technology and new radiologic methods have added immeasurably to the armamentarium of the physician, it is the history and physical examination that still stand as the basis of an effective medical evaluation. This is the most objective method for diagnosing disease. However, it requires superior communicative skills and presumes the correct use of one's senses and judgment. It is fundamental in the training of a clinician.

With the advent of modern technology and the need to learn a large amount of new information that has truly expanded the horizons of the physician, it is unfortunate there has been less emphasis on traditional methods of medical school education and the basic sciences, with the result that the clinician is in real danger of losing a high degree of diagnostic acumen.

The technique of history taking is well known and the principles of physical examination have not changed. But there is a need to emphasize the necessity of performing a careful examination and to reinterpret this examination in the light of modern medicine. Why? Because the difference between those who follow the principles of a careful medical evaluation and those who believe it is an unnecessary burden is the difference between the physician who is an educated, thoughtful physician-scientist and another who is merely a clever technician.

This book reviews the principles of physical diagnosis as it relates to the musculoskeletal system. It is not intended as a text dealing with a general medical evaluation alone. It does stress that a complete history and physical examination are often needed in order to correctly evaluate diseases affecting the musculoskeletal system. A distinguished group of physicians have attempted to stress the primary importance of the history and the physical examination in diagnos-

ing disease. Standardized descriptive definitions and methods of determining muscle power and motions are used throughout the book.

I wish to express my gratitude to Ms. June Pedigo, who illustrated much of the text, and to Mr. Daniel J. Doody and the editorial staff of Year Book Medical Publishers who supported and helped to make this book possible.

MELVIN POST, M.D.

Contents

CHAPTER 1

General Medical Examination

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History Taking

A systematic method of taking a history and performing a thorough physical examination will enable the physician to establish an initial data base. When this initial body of knowledge about the patient is accurately collected, a problem list may be developed from which plans and progress notes can be integrated. A patient's problem may affect an individual's physical or emotional health. The following outline is one of many that is suggested as one way of performing a general medical evaluation.

- Chief complaint
- Present illness
- Past history
  - Childhood illness
  - Adult illness
  - Operations
  - Drug sensitivity and allergic reactions
- Systemic review
  - General
  - Head
  - Eyes
  - Nose
  - Throat
  - Neck
  - Respiratory
  - Cardiovascular
  - Gastrointestinal
  - Genitourinary
  - Metabolic and endocrine
  - Lymphatic
  - Musculoskeletal
  - Hematopoietic

- Neuropsychiatric
- Social history
- Family history
- Physical examination
  - General appearance and mental status
  - Skin
  - Lymphatics
  - Head and neck
  - Eyes
  - Ears
  - Nose
  - Throat and mouth
  - Teeth
  - Chest and lungs
  - Cardiovascular
  - Abdomen
  - Hernia
  - Genitalia
  - Rectum
  - Musculoskeletal
    - Back–spine
    - Extremities
  - Neurologic
- Admission laboratory data
- Initial diagnosis
- Problem list
  - Date entered
  - Date resolved

Interview

When patients believe they are ill or complain of acute pain, for example, they seek the help of a physician. Successful treatment of any condition begins with an accurate history. The interview is an art that must be learned and constantly practiced. The physician must be articulate and conversant with individuals in every walk of life. This will determine how the physician will proceed with the medical evaluation and how the patient eventually will be treated. During the initial meeting the physician must gain the confidence of the patient from the outset.

At the initial meeting, the physician must listen carefully to the complaint(s) of the patient and to the answers of his guided questions, and at the same time comprehend and assess the information that is gathered. An attempt should be made to place a priority on the importance of the patient's answers. Only when all the facts or symptoms are obtained and fully understood in their correct sequence should the physical examination be undertaken. Some patients are more easily upset than others and may be less clear about their problem(s). In any event, they should not be hurried. It may be necessary to interview the patient a second or third time to gather all the essential information that will allow a true understanding of the problem. If the patient is a deaf mute it is essential to take the time, however long, to determine the complaints of the

patient. If the patient is confused or speaks another language a friend or relative may be needed to help with the interview. Thus, a history can be obtained that will permit an early classification of a disease state, if it exists, and to clearly understand the individual relative to the history so that correct treatment decisions can be made. The examining physician must realize that it is often necessary to obtain a complete history, reviewing all medical systems, before the interview is complete because such symptoms and findings may relate to these systems as well as the musculoskeletal system. It is far better to overinterview than accept an inadequate history.

If the complaint(s) are few and localized the history can be abbreviated. For example, the patient who states he has cut his thumb has a clear-cut history. But are there any allergies to drugs, or any other disease states that may affect treatment? Was tetanus immunization once received, and if so, when? While a complete history and physical examination may not be needed, enough of an adequate history and examination is required in order to render optimum treatment. However, a patient who complains of a persistent or a radiating pain about a joint requires a more complete examination. The inexperienced physician is less likely to omit important points of the examination if there is adherence to a systematic method of history taking relative not only to the chief complaint(s) but also to other systems possibly affected that may shed additional information on the problem. The chief complaint may cross many lines of specialization and it is the educated physician who will appreciate the importance of a detailed examination. Whether it be local or the result of a distant abnormality, the purpose of the examination, especially by one who is an initiate, is to gain experience in recognizing a disturbance in form and function regardless of the involved system(s). Every illness ordinarily evokes an emotional response in a patient. The questioner must be astute in recognizing the patient's reaction, whether verbal or by gesture. An individual may deny an illness or may have a different threshold of pain than another with the same disease state. Having understood the patient's problem and the disease process, the physician must begin to react to the patient in an appropriate manner, to explain to the patient the disease or problem, and what must be done to solve the problem, including any alternative treatment. Only after this is accomplished should a specific treatment be selected that is best for the individual. The physician should remain objective and at the same time inform the patient, so that the patient can make an intelligent choice about his care. In other words, the patient or guardian should be a part of the decision-making process whenever possible.

The history consists of the chief complaint(s) and present illness, which should be documented in a chronological order. This is followed by the past history, which itemizes all medical conditions in the life of the patient before the present event. During this interview, the physician has a golden opportunity to put the patient at ease, and to establish a genuine physician-patient relationship.

If after preliminary questioning about a particular system significant information is obtained, more detailed questions may be asked. It will permit the pieces of a puzzle to form a clear picture of the problem. As many questions are asked as are needed to clarify a given symptom. Even the age and sex of the patient can be significant. If a patient complains of thigh pain, for example, its specific location, character, frequency, duration, variation, aggravation, distribution or radiation, intensity, and course should be determined. Was the pain caused by trauma, and if so what was the kind and degree of trauma? Was the pain