

DIAGNOSIS & TREATMENT
OF
TUMORS
OF THE
HEAD AND NECK
(Not including the Central Nervous System)

By

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In memory of our parents

FLETCHER D. AND HARRIETT W. WARD

and

HUMPHREY G. AND MARGARET F. HENDRICK

FOREWORD

I have been familiar with Dr. Ward's work and intensely interested in it since 1930, when he and Dr. J. Mason Hundley, Jr. organized and took over the supervision and much of the work of a cancer clinic in the University Hospital as one of the sections of the department of surgery. Dr. Hundley was interested in the gynecological problems and Dr. Ward in those of surgery. His especial knowledge and training had to do with neoplasms of the face, neck and scalp, the mouth, the skin, and the breast, and he had an unusual opportunity to study them.

He graduated at the Johns Hopkins Medical School in 1921, and from 1922 to 1927 he was an associate at the Howard A. Kelly Hospital where, among other things, he became versed in the use of radium and the X-ray in cancer treatment and in the value of electrosurgery as an operative procedure. In 1925 Dr. Kelly began to get together his material for a book on electrosurgery and asked Dr. Ward to be co-author. Dr. Ward in fact did most of the writing of this work. In addition, he has written and published between fifty and sixty papers, most of them dealing with malignancies.

At University Hospital, his work has been almost entirely confined to the field of cancer and he is a skilful, cautious and tireless operator. In spite of the discouraging field in which he works, he is cheerful, hopeful, and courageous. Much of his success has been due to faithful watchfulness of his patients over long periods of time.

I first knew Dr. Hendrick as an American soldier in World War I, when he was wounded and brought in to Evacuation Hospital 8, during the Argonne offensive.

He graduated from the University of Indiana in 1926. Following internship and residency in the United States, he obtained a fellowship in surgery for eighteen months in von Eiselsberg's Clinic at the University of Vienna. Returning to America, he went to Texas and occupied himself with the practice of surgery with special attention to surgical problems of the neck.

Dr. Hendrick came to the University Hospital in 1945. Here he spent several years in the Tumor Clinic as an associate of Dr. Ward. He has now returned to San Antonio, Texas, to resume the practice of surgery with an especial interest in the problems of cancer.

ARTHUR M. SHIPLEY

FOREWORD

It affords me pleasure to comply with the request of my good friend, Grant E. Ward, to write a few introductory remarks to this book which he has written in collaboration with James W. Hendrick. It has been my good fortune to know Grant Ward since our time together in medical school and I have followed his career with much interest. He worked very closely with Dr. Howard A. Kelly for a number of years beginning in 1922 and his particular interest at the time was in the development of electrosurgical technic. He and Dr. Kelly published a book on this subject in 1932. Electrosurgery is of great aid in the management of many difficult problems encountered in the treatment of tumors of the head and neck and considerable attention is given to this method in this book. Because of his vast experience in surgery and in the use of radium and x-ray, Dr. Ward is well qualified in selecting the treatment according to the indications presented by the patient and without preconceived ideas which may result if one has been trained in only one method of therapy.

In 1930 Dr. Ward and Dr. J. Mason Hundley, Jr. established a tumor clinic at the University of Maryland Hospital and in 1939 Dr. Ward established a similar clinic at the Johns Hopkins Hospital. Work in these two clinics plus that in a large private practice has resulted in a very wide experience in the treatment of tumors of the head and neck. Fortunately for all concerned, he has given unselfishly of his time and effort in instructing the students and house officers.

James W. Hendrick received his training at the Indianapolis City Hospital, the University of Maryland Hospital and Von Eiselsberg's clinic in Vienna after graduation from the University of Indiana. Following an extended period of surgical practice in Texas, a large part of which was devoted to surgery of the neck, he returned to Baltimore and has been associated with Dr. Ward in much of his work during the past several years.

Doctors Ward and Hendrick have wisely called upon some of their friends and associates at the University of Maryland Hospital and the Johns Hopkins Hospital for aid in writing of such chapters as those on tumors of the larynx and tumors of the eyes and orbit in which the experience of the general surgeon is limited. These and similar chapters add to the value of the book.

With the enormous development of surgery during the present century the increasing need for books which deal extensively with disorders of a limited part of the body has become apparent. This book should be helpful to the general surgeon, plastic surgeon, dental surgeon and x-ray therapist as well as to all who are interested in diagnosis and treatment of tumors of the head and neck.

ALFRED BLALOCK

PREFACE

The purpose of this book is to furnish the reader practical information regarding the diagnosis and treatment of tumors of the head and neck. It is written for the clinician, be he specialist or general practitioner. The importance of early diagnosis is stressed and the proper choice of treatment is emphasized. Each year a considerable number of patients come to the clinics in advanced stages of cancer who could have been cured had the clinician first consulted recognized the disease and insisted on proper treatment. The value of biopsy as a diagnostic study and guide to therapy is mentioned repeatedly.

A chapter on embryological considerations of the head and neck is included to assist in understanding the types of tumors encountered in these areas. A discussion of pathology accompanies each section to aid in diagnosis and to lay the foundation for treatment. Sir William Osler has aptly said, "As is our pathology, so is our practice." Since the management of patients with tumors in the regions covered in this volume frequently requires knowledge and experience in several fields of medicine, some of the chapters and sections are contributed by specialists to make the presentation of material authentic.

Far too often the surgeon or radiologist views the patient and his malady in the light of his own training and experience without adequate information of the value of the other's therapy and without recognizing the limitations of his own field. We have compared both methods of treatment and suggested our choice based on years of experience in surgery and radiation therapy.

The clinical and pathological material for this work has been made available by the School of Medicine of the University of Maryland and the University Hospital, the Johns Hopkins University School of Medicine and the Johns Hopkins Hospital, and the Baltimore College of Dental Surgery Dental School, University of Maryland. In recent years, tumor clinics in these hospitals have concentrated patients for study and treatment. To this wealth of material has been added that from our private practices.

Many colleagues and associates have given generously of their time and effort in accumulating and preparing the material for publication and in writing parts of the manuscript. To all of these we express gratitude and appreciation. Special acknowledgement is due the following:

Our efficient and loyal secretary, Mrs. Ethel Caskey, who for the past year has labored long and hard in preparing the manuscript. Her fine sense of humor has lightened the load.

Miss Nancy Ferneyhough, our chief medical artist, for carefully depicting operative procedures and anatomical structures.

Mrs. Garland White, a most careful and thorough office secretary, who for twenty years has kept accurate case records so essential in studying malignant disease.

The Departments of Art as Applied to Medicine, under the directors, Mrs. Ranice Birch Davis (Johns Hopkins University School of Medicine) and Dr. Carl Dame Clarke (School of Medicine, University of Maryland) have contributed a wealth of illustrations. Other members of these departments who are

intensely interested in this project and have worked incessantly are Mrs. Elizabeth Blumenthal, Mr. Luther Gilliam, Mrs. Edna Jackson, and Mrs. Ray Brickner (Johns Hopkins), and Miss Frances Blackburn, Mr. Richard Gill, and Mr. Thomas A. Burns (University of Maryland).

Dr. Hugh R. Spencer, Professor of Pathology, School of Medicine, University of Maryland, lent valuable assistance in assembling pathological material.

Dr. Myron S. Aisenberg, Professor of Pathology, Baltimore College of Dental Surgery, Dental School, University of Maryland, for reviewing the chapter on Tumors of the Jaws and for making helpful suggestions.

Dr. Morgan Berthrong of the Department of Pathology, Johns Hopkins University School of Medicine, gave helpful advice in the preparation of the pathological material for the chapter on salivary tissue tumors and the section on carcinoma of the thyroid gland.

Mrs. R. Corbin Taylor, Mrs. Dorothy H. Duvall, and Miss Ruth M. Murray, secretaries of the tumor clinics, accumulated follow-up data on several series of cases.

Doctors Robert G. Chambers and Marvin M. Lacy, Trainees in Cancer Diagnosis and Therapy of the National Cancer Institute assigned to the School of Medicine, University of Maryland, were indispensable in studying several series of cases and reviewing literature.

Doctors Arthur G. Siwinski, Edwin H. Stewart, and Harold P. Biehl (Trainee, National Cancer Institute assigned to the School of Medicine, University of Maryland) made helpful clinical studies.

The publishers, Williams and Wilkins Company, have cooperated in every respect in bringing this work to completion. The president and his staff have offered many helpful suggestions and have allowed the free use of illustrations and color plates.

GRANT E. WARD
JAMES W. HENDRICK

1950

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Chapter I

INTRODUCTION

GENERAL CONSIDERATIONS

The head and neck constitute a small portion of the volume of the human body, having packed within a limited space a large number of structures of varied embryological origin and of diverse histological characteristics, all covered by skin. Organs developed from ectodermal anlagen, skin, mouth, teeth, salivary and nerve tissue are closely associated with mesodermal derivations, as connective tissue, bone, muscle, and blood vessels. Endoderm, too, contributes its share in the formation of the pharynx and esophagus. From this great collection of anatomical parts, a large gamut of neoplasms may arise from small benign tumors to rapidly growing and metastasizing cancers.

Because of the numerous and varied structures confined within a small area, a tumor, benign or malignant, arising in any one organ soon presses upon or invades those adjacent, making the problems of diagnosis and therapy complex and complicated. No one clinician masters all of these problems. Dermatologist, oral surgeon, dentist, otolaryngologist, ophthalmologist, radiologist, general surgeon, plastic surgeon, and at times the neurosurgeon, focus their attentions on this field of medicine. Often two or more of these specialists work in close cooperation in the diagnosis and treatment of tumors of the head and neck. The internist and general practitioner repeatedly are confronted with patients requiring diagnosis of a benign tumor or premalignant or malignant lesion. They must know the importance of early recognition and prompt therapy.

Cancer of the head and neck is predominantly an accessible disease and in the majority of patients should be diagnosed early. It is an axiom in cancer therapy that the earlier the diagnosis, the better the clinical result. There-

fore, the death rate from cancer of the head and neck should be lower in proportion to the incidence than from cancer in inaccessible regions, such as the lungs, gastrointestinal tract, liver, etc.

There were 199,267 cancer deaths in the United States in 1947 (Dorn). Cancer of the head and neck causes about 14 per cent of all cancer deaths (exclusive of deaths from brain tumors and malignant lymphomas beginning in the head and neck region). Eleanor J. MacDonald (1948) reported from the Cancer Record Registry, Division of Cancer and Other Chronic Disease, Connecticut State Department of Health, the percentage of cancer deaths according to sites. Adding the percentages from the various sites in the head and neck, including skin, but excluding brain and malignant lymphomas arising in this region, it is found that 14.7 per cent of cancer deaths are from cancer of the head and neck.

In like manner, by adding the similar figures in Table II—"Statistics on Cancer" a booklet published by The American Cancer Society (1949), it is found that 14.2 per cent of cancer deaths are due to cancer of the head and neck.

Early diagnosis and prompt and adequate treatment by radiation or surgery, alone or combined, should reduce this mortality rate.

In this introductory chapter, the value of careful histories and an outline of the types of examination to be made will be given, followed by discussions of the fundamentals of surgery and radiological therapy in preparation for a specific consideration of diagnosis and treatment in the subsequent chapters.

This treatise will not include tumors of the central nervous system.

HISTORY

A carefully taken and accurately evaluated history is the essential beginning in making a diagnosis of a suspected tumor of the head and

neck. Diseases of short duration are apt to be inflammations; those present for several weeks or months are more likely to be neoplasms, benign or malignant, and those present for years or since birth, of congenital origin. Habits, modes of living (exposure to the elements), injuries, both acute and chronic, and recent infections must be taken into consideration.

EXAMINATION

Inspection and palpation are as important in examining the head and neck as in examining other parts of the body. Many times information can be obtained by palpation which is impossible by inspection alone. Ulcers and tumors vary in consistency from normal tissue. During palpation, the examiner must bear in mind the possible histopathological, as well as gross, changes occurring in the disease processes under suspicion.

Inflammations usually begin with localized erythema which, when visible on the surface of the skin or in the oral cavity, gives a red appearance with increased local temperature. There is edema, due to perivascular infiltration of fluid and leukocytes, followed in the more chronic cases by lymphocytes. The more chronic the inflammation, the more infiltrated is the area with lymphocytes and fibroblasts coming in to repair. At the same time, the early, soft, edematous tissue becomes firmer but rarely attains the stony-hardness of malignancy.

Malignant disease gives rise to two types of tissue change: (1) the rapid growth of the tumor itself, and (2) the reaction of the host in its defense mechanism around the tumor. Malignant tumor cells grow rapidly and, when vegetating externally, will not be compact and hard; but, when infiltrating into surrounding tissues, their expansion is limited; consequently, the tumor cells are packed closely together. The host builds at first a protective wall of leukocytes and, later, lymphocytes, scar tissue, and fibroblasts. The combination of rapidly growing cells closely packed together, and the surrounding wall of fibrous tissue produces a very hard tumor mass. A

malignant tumor is stony-hard and, when attached to bone, is often difficult to differentiate, by palpation, from bone.

Benign tumors, on the other hand, have a rubbery consistency, intermediate between the brawny induration of chronic inflammation and the stony-hardness of cancer. They are usually well delineated by their capsule and grow slowly, giving time for expansion of the capsule and for the surrounding soft tissues and, at times, bone to accommodate to the neoplasm. The tumor cells are not so compact, as a rule, as in cancer. Slow growth and encapsulation do not stimulate the host to produce a lymphocytic and fibrotic wall; therefore, benign tumors are usually freely movable, whereas malignant ones invade and fix themselves to the surrounding tissues.

GENERAL INSPECTION

The general symmetry and contour of the head and neck are noted. No person is perfectly symmetrical; the ears vary; the eyelids and orbits are not exactly the same on both sides; the nose may be slightly crooked; the mouth may be longer from midline to one corner than from midline to the other. There may be normal variations in the neck to be differentiated from any asymmetry due to tumor or other disease.

Skin. The color and texture of the skin are important. Certain diseases, notably hyperkeratosis, occur in people who have been exposed to the elements. Their skin is usually dry and of higher color than the average person's. Swellings, ulcerations and other changes in color are searched for.

Eyes. Tumors, ulcerations, ectropion, entropion, exophthalmus, enophthalmus, fixation of the eyeballs, and other abnormalities are to be noted.

Nose. Tumors of the skin of the nose are frequent. They may begin as tiny lumps or ulcerations which are detected on inspection. The nostrils are carefully examined with a bivalve speculum and a head mirror. It is essential for anyone examining the head and neck to be familiar with the use of the head

mirror for reflected light or some form of head light, to illuminate the cavities of the head for inspection and instrumentation, when necessary.

Mouth. A routine medical examination of the mouth is far too often hasty. The average examination consists of asking the patient to open the mouth and say "ah". About all that is accomplished thus is a cursory glance at the surface of the tongue, occasionally the inside of the cheeks and the palate, and perhaps a slight glimpse of the tonsils. Many tumors are not recognized by such superficial inspection. On examining the mouth, the lips are inspected

ula for inspection of the labial side of each gingiva and for the floor of the mouth between the tongue and the jaw (Fig. 6).

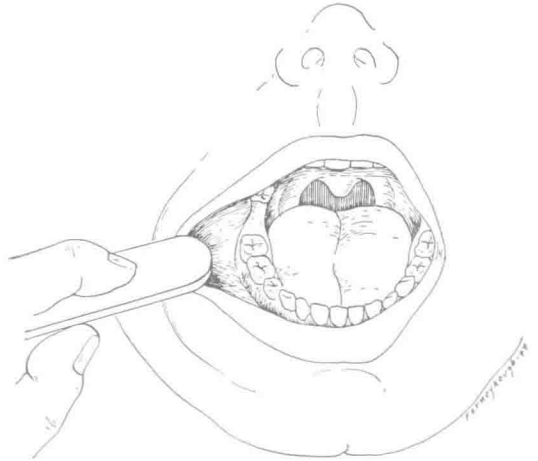


Fig. 1. Technic of palpation of the lip between finger and thumb.

first and, if an abnormality is found, palpated between the thumb and index finger, preferably covered by a glove or finger cot (Fig. 1). The lips are lifted away from the gingiva and the cheeks pulled aside with a spatula for adequate inspection of the entire buccal mucous membrane and upper and lower buccogingival and labiogingival sulci (Fig. 2). The patient is asked to put out his tongue for careful observation of each side (Figs. 3 and 4), and is requested to raise the tip of the tongue to the roof of the mouth for an adequate view of the under-surface and the floor of the mouth (Fig. 5). When the patient withdraws the tongue the examiner pushes it to the midline with a spat-

Fig. 2. Cheek is retracted for inspection of the buccal mucosa.



Fig. 3. Inspection of the dorsum of the tongue

The hard and soft palate, uvula, tonsillar fossae, and oropharynx are carefully examined. A small retractor, pulls aside the anterior pillars of the fauces for adequate inspection of the tonsils or tonsillar fossae.