DISEASES OF THE BREAST

By

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PREFACE

In this book I have tried to present a synthesis of what I have learned during twenty-five years of specialized concentration on diseases of the breast. I wish to emphasize at once that this knowledge is a product of the medical environment in which I have worked at the Columbia-Presbyterian Medical Center in New York. The book is based not only upon my personal experience, but upon all the data concerning diseases of the breast which have accumulated in our records during the forty year period 1915 to 1955.

When I came to Columbia in 1931 I had already acquired, from Dr. Ewing and his associates at the old Memorial Hospital, an abiding interest in neoplastic disease. At Columbia I found the environment of a modern medical center which permitted my specialized interest, particularly in diseases of the breast, to evolve. In these modern times, when the sum of knowledge concerning even a subject of limited scope has grown so that it is beyond the grasp of any one individual, I feel no need to justify specialization. More than 2000 years ago the Greeks first proved the value of specialization in the sciences. In modern medicine our specialization on an anatomical and disease basis merely carries this inevitable and desirable trend one step farther. A basic qualification, however, is that the specialist have ready access to the world of medical knowledge outside his own limited sphere. Otherwise he is hopelessly handicapped in dealing with the complex problems that sick patients usually present. The modern medical center—a family of specialized hospitals and services with closely integrated house and attending staffs—provides this kind of environment.

I should like to describe some of the basic facilities at the Columbia-Presbyterian Medical Center which have made this book possible. The first of these has been a Unit Record System. It was established in 1915 and has been organized with great efficiency by Miss Dorothy Kurtz. I am indebted to her for teaching me how to adapt the punch card method of statistical analysis to the problem of correlating the findings in our breast carcinoma cases.

In its establishment of a follow-up system for surgical patients the Presbyterian Hospital was preceded only by the Massachusetts General Hospital. Our follow-up system was organized in 1915 by Dr. James Corscaden and the late Dr. Hugh Auchincloss. One of the reasons why it has been so successful is that it has been a personal follow-up, each attending surgeon following his own ward patients just as if they were private patients. I have been able to trace every one of the ward and private patients in my personal series of radical mastectomies. In this

task I have had the devoted assistance of Miss Florence Harvey, Miss Retta Pinney, and Miss Gertrude Taylor. A complete follow-up of this kind is, it seems to me, a fundamental obligation for us. Unless the fate of all our patients is known, their individual contributions to the knowledge of their disease—made at so great a cost—are entirely lost.

Dr. Arthur Purdy Stout, until his retirement three years ago the Director of our laboratory of Surgical Pathology, has contributed greatly, not only to this book, but to all the other aspects of our attack upon neoplastic disease at Columbia. Trained as a surgeon as well as a pathologist, Dr. Stout has been able to focus clinical as well as microscopical skill upon the special problem that tumors present. He has made the frozen section method of diagnosis a dependable, and therefore an invaluable, aid to our surgeons. His studies in the histogenesis of neoplasms are well known. Dr. Stout welcomed me into his laboratory when I first came to Columbia. He has been my inspiration ever since. This book is based upon the pathological material that he collected and studied over a period of forty years—1915 to 1955. We have worked together at interpreting it. The book is therefore his as much as it is mine.

All of us at Columbia who have worked at the special problems of neoplasia in the years gone by owe our opportunity to our beloved surgical chief, Dr. Allen O. Whipple. I am particularly indebted to him because he took me into his department and permitted me to specialize when specialization was not popular. He always supported and encouraged me in my clinical as well as my laboratory research.

There are a number of other individuals who have made important contributions to this book. Dr. Edith Cooley, our statistician, has worked tirelessly getting out the statistical data from our case records, analyzing them, and putting them into the form in which I have presented them. Mrs. Grace MacQueen, with her thorough familiarity with our records, and the subject matter itself, has been a great help in the preparation of the book. My wife has been my editorial mentor, correcting my manuscript with great patience, and verifying the entire bibliography.

In regard to the bibliography I should point out that it is a selected and not a complete one. I possess a substantially complete bibliography on diseases of the breast but it seemed wisest to select from it for inclusion in this book those items which not only contribute something but which are easily accessible to American and Western European readers.

I am deeply indebted to my surgical associates Dr. Joseph McDonald and Dr. David Habif for help with many of the surgical aspects of this work during the past years; to Dr. Stout's successor, Dr. Raffaele Lattes, for continuing assistance regarding matters of pathology; to Dr. John Pickren for certain pathological studies of his which I have included; to Dr. Virginia Apgar for help with the special problems of anesthesia; to Dr. Perry Hudson for assistance in regard to methods of hormone therapy; and to Dr. Maurice Lenz, until recently Director of Radiotherapy at the Francis Delafield Hospital, and to his successor, Dr. Ruth Guttmann, for help in all matters pertaining to radiotherapy.

For many years Dr. Stout, Dr. Lenz, Dr. John Hanford, and I conducted a Neoplasm Clinic in the Presbyterian Hospital. We learned to understand and

value each other's point of view, and to integrate our surgical and radiotherapeutic attack upon breast carcinoma. Dr. Lenz taught us what intensive, highly fractionated irradiation, administered with meticulous care and great patience, can accomplish. In his hands radiotherapy is a precise weapon, and its use is based upon principles which the surgeon can understand. The spirit of cooperation between surgeons and radiotherapeutists, both being guided by the facts revealed by pathology, continues in our special cancer hospital, the Francis Delafield Hospital, recently added to the Columbia-Presbyterian Medical Center. The exceptional facilities for clinical cancer research provided in the Francis Delafield Hospital have made possible a number of recent studies which I have reported in this book.

Others who have helped with the preparation of the book have been Robert Demarest and Leon Schlossberg, who made the drawings; Lewis Koster, who, together with the late Walter O'Neil, made the photographs; Anton Samuel, research technician; and the staff of the library of the College of Physicians and Surgeons. The highly skilled staff of W. B. Saunders Company have made the technical aspect of the preparation of the book easy for me.

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CHAPTER 1

ANATOMY OF THE MAMMARY GLAND

The mammary glands are a distinguishing feature of the zoological class which has been named after them—the mammals. The number of pairs of breasts varies greatly among different species of mammals, but has a general relationship to the number of young in each litter. For instance, the rodents have six or seven pairs of breasts and the lion but two. The anthropoid apes and man have but a single pair. The number of mammary glands has no relationship to the tendency of carcinoma to develop in them, for the disease is frequent in the mouse, in the dog, and in man, but is rare or unknown in other species.

Anomalous Structures

The single pair of pectoral breasts with which human beings are provided is occasionally augmented by anomalous breasts or nipples situated along a line from the axilla to the groin, corresponding to the nipple line in lower species of mammals and to the embryonal mammary line. The incidence of such supernumerary mammary glands and nipples has been estimated at 1 per cent (Speert). The majority of these anomalous structures are situated below the normal breasts.

The anomalous structures may consist only of a pigmented area representing a rudimentary accessory areola, or of a supernumerary nipple without an areola, or of a complete nipple and areola. The extra nipple may have no connection with mammary tissue or it may connect with the duct system of the normal breast and function during lactation. These supernumerary nipples are often situated in or near the areola of the normal breast. Complete supernumerary breasts with a well developed parenchyma and with normal physiological function are occasionally encountered.

Figure 1 shows a girl aged 15, otherwise normal, with a functioning supernumerary nipple about 10 cm. below the inframammary fold on the right side, and a supernumerary breast, complete with its own nipple, just below her normal left breast. This accessory left breast enlarged premenstrually. Both the right-sided extra nipple and the left-sided supernumerary breast were excised (service of Dr. J. P. Webster).

Figure 2 shows a woman, aged 35, with a well developed supernumerary breast in the right axilla. She had noted its presence since she was 18 years old. During each of her three pregnancies it had enlarged, and during lactation it had secreted milk through the small protuberance in its center resembling a

small nipple. There was a similar but much smaller supernumerary breast which did not possesss a nipple in the left axilla.

Because the large right axillary breast bothered her, the patient wished it excised. This was done, and microscopical study showed abundant breast tissue with some cystic change, and a nipple of normal structure.

Form

Nulliparous breasts are conical but after lactation they usually become flattened and more pendulous. There is a great variation in their form and size.

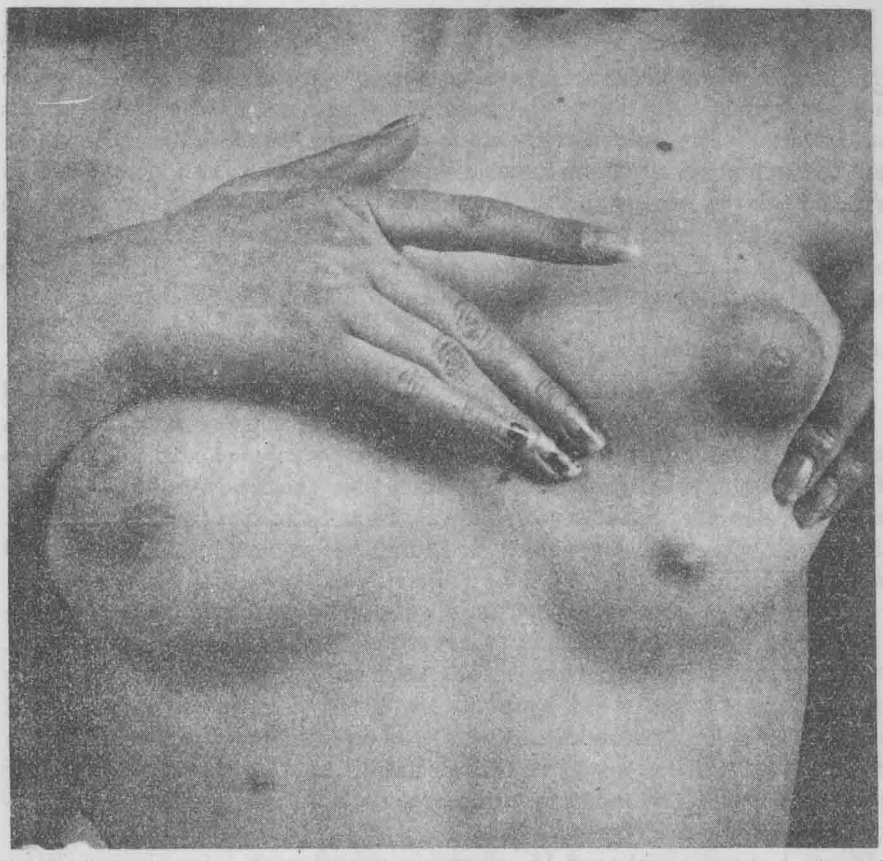

Fig. 1. Supernumerary mammary development. Right supernumerary nipple; left supernumerary breast.

Obesity plays a part, for excess fat has a tendency to accumulate in the breasts.

It is important to point out that the two breasts are often unequal in size, although perfectly symmetrical in contour. The clinician alert for inequalities produced by neoplasms must not confuse differences in size which are developmental in origin, with those due to pathologic changes.

These developmental differences in the breasts may sometimes be marked. The following case illustrates the phenomenon.