

Clinical Urology

BY

OSWALD SWINNEY LOWSLEY

A.B., M.D., F.A.C.S.

*Director of the Department of Urology (James Buchanan Brady Foundation)
of the New York Hospital*

AND

THOMAS JOSEPH KIRWIN

M.A., M.S., M.D., F.A.C.S.

*Attending Surgeon of the Department of Urology (James Buchanan Brady
Foundation) of the New York Hospital*

DRAWINGS BY

WILLIAM P. DIDUSCH

Second Edition

Volume I



Baltimore

THE WILLIAMS & WILKINS COMPANY

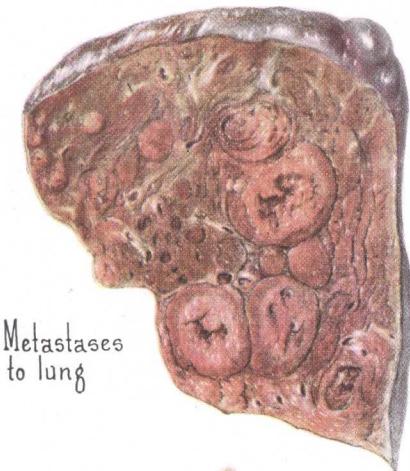
1944

COPYRIGHT, 1944
THE WILLIAMS & WILKINS COMPANY

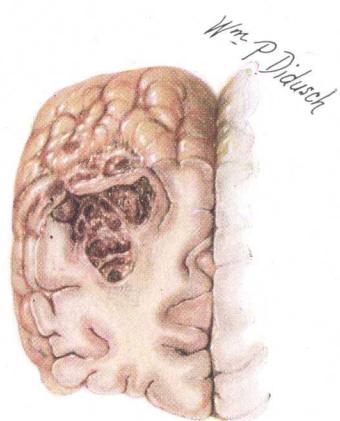
Made in the United States of America

First Edition, September, 1940
Reprinted December, 1941
Second Edition, February, 1944
Reprinted July, 1944
Reprinted July, 1946

COMPOSED AND PRINTED AT THE
WAVERLY PRESS, INC.
FOR
THE WILLIAMS & WILKINS COMPANY
BALTIMORE MD., U. S. A.



Metastases
to lung



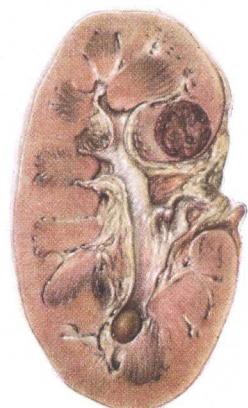
Wm P. Didusch
Metastases to
brain



Metastases to liver



Primary lesion
in testis
(chorionepithelioma)



Metastases to
kidney

CHORIONEPITHELIOMA OF THE TESTIS, WITH WIDESPREAD METASTASES TO THE LUNG, BRAIN,
LIVER, AND KIDNEY. (SEE PAGE 456) (KIRWIN'S CASE)

DEDICATION

This book is dedicated to the memory

of the late

JAMES BUCHANAN BRADY

and

GUSTAVUS L. LAWRENCE

and to

MESSRS. CHARLES C. WRIGHT AND ALFRED M. BUSIEL AND
DR. RALPH O. CLOCK

whose generous bequests have made possible

the clinical and research activities

of the Department of Urology (James Buchanan Brady Foundation)

of the New York Hospital

E 4 2 7 9

17A
L95
C12

PREFACE

Much time and thought have been expended in the preparation of this second edition of CLINICAL UROLOGY. The many new developments in urological diagnosis and treatment since the publication of the first edition, in 1940, have necessitated a thorough revision of much of the original material, as well as the addition of considerable new subject matter. Unfortunately, the exigencies of war have made it impossible to include some three hundred new illustrations of operative technics, pathological specimens, and recently designed instruments. These pictures, drawn by Mr. William P. Didusch, will be held in reserve and utilized when possible. Each new operation and instrument has, however, been described with a detail that should enable the serious student to grasp the subject matter without difficulty.

Since the appearance of the first edition, particularly great strides have been made in the application of chemotherapy in the practice of urology. This subject is discussed fully, especial attention being paid to the newer sulfa drugs and penicillin. Sections of the book that have been augmented and greatly improved include those dealing with syphilitic chancre; carcinoma of the prostate gland; the hormonal treatment of the prostate; sarcoma of the prostate; renal cysts; urogenital tuberculosis; plastic induration of the penis; obstructions at the ureteropelvic junction; the chemotherapeutic management of the various urogenital infections, including gonorrhea; uretero-intestinal anastomosis; the preoperative and postoperative treatment of the prostatic case; and the postoperative care of the renal case. New subjects added to the book include: the renal factor in arterial hypertension; the surgical treatment of arterial hypertension; calyceal resection; the castration treatment of prostatic carcinoma; aneurysm of the renal artery; hydrocalyx; a new theory of etiology and a new operation for vesical papillomatosis; automatic tidal drainage of the bladder; continuous (fractional) spinal anesthesia in urology; dried blood plasma therapy; new diets in urology, especially for calculus; and methods of dissolving certain types of urinary calculi.

As with the first edition, this book is written primarily for the medical student, the general practitioner, and the general surgeon. We believe,

PREFACE

however, that it will also prove a useful reference work to the trained urologist. Its purpose is to give a practical survey of the nature, diagnosis, and treatment of the anomalies and diseases of the genito-urinary organs according to the present state of knowledge. It is at once a manual of operative technic and a comprehensive, though necessarily brief, exposition of the embryology, anatomy, histology, and pathology of the urogenital tract. The urological diseases of women and children are considered, as well as those of the adult male.

Although we have drawn frequently and freely from the experiences and researches of others, as recorded in the vast literature of modern urology, the opinions expressed are mainly the result of our own experience in hospital and private practice over a period of many years.

A word regarding the arrangement of the text may be helpful. We have retained the structural form employed in the first edition, since we believe that this simplicity of arrangement increases the practical value of the material. Chapters I to V are devoted to the general diagnostic procedures of urology, and include separate chapters on history-taking and physical examination, examination of the urine, tests of renal function, instrumental examination, and roentgenography of the genito-urinary tract. Then follows a chapter on anesthesia in urology. Beginning with Chapter VII, the organs of the urogenital tract are taken up in their anatomical sequence from without inward, and considered as to their embryology, anatomy, anomalies, physiology, injuries, and diseases. The architecture of each section is the same, making it easy to find facts desired. Anomalies, injuries, and diseases are each described from the standpoints of etiology, pathology, symptoms, diagnosis and differential diagnosis, prognosis, and treatment—both surgical and non-surgical. Of special usefulness, we believe, are the section dealing with the splendid work done by Dr. Stanley L. Wang in the treatment of inoperable and postoperative urogenital tuberculosis, and the chapter on gonorrhea, which includes the recent advances with chemotherapy and physiotherapy. Chapters on radiation therapy in urology, and dried blood plasma therapy complete the book.

The surgical aspects of urology are given particular attention. The procedures described have proved their worth and practicability in an extensive personal experience and in the hands of our colleagues. Most of the surgical technics have been illustrated step by step and fully explained in the legends accompanying the drawings, thereby doing away with the need for lengthy descriptions of operations in the text.

These illustrations, which have been beautifully executed by Mr. William P. Didusch from drawings made at the operating-table, add enormously to the lucidity and value of the presentation, and should make this work of particular value to surgeons far removed from metropolitan surgical centers, who find it necessary to perform occasional urological operations and desire to keep abreast of the latest phases of urological practice. Our inability to include new illustrations of surgical technics in the present edition has, unfortunately, made it necessary, in a number of important instances, to resort to the unsatisfactory method of lengthy textual description. Since photomicrographs and pathological sections are available in most works on urology, these have been reduced to a minimum so as to allow more space for illustrations of surgical technic.

Extensive, though by no means complete, bibliographies have been appended to the chapters. All literary references noted in the text have been included in these bibliographies, thereby enabling the reader, if he so desires, to look up original sources and thus obtain more complete information than can possibly be furnished him within the confines of a single book.

In response to many requests, the complete index of the contents has been included in each of the two volumes. Another improvement is the inclusion in the index of Mr. Didusch's drawings, as well as the other illustrations.

A certain amount of repetition will be found in different chapters of the book. This repetition is intentional, and for the purpose of avoiding constant, annoying cross-reference to other portions of the book, with consequent loss of time to the student.

Although we have made every effort to be accurate, and have scrupulously endeavored to give credit where credit is due, errors may inadvertently have been made in quoting from other authors, or there may have been occasional failure to acknowledge our indebtedness to others. For any such oversight we ask indulgence, and hereby gladly express our gratitude to those of our predecessors and contemporaries who have made possible the present state of knowledge of urological diseases and their treatment.

Expression of appreciation is due to our colleagues on the staff of the Department of Urology (James Buchanan Brady Foundation) of the New York Hospital, and to others, for permission to use illustrative cases and pathological material, as accredited to them in the proper places in the text and in the legends accompanying the illustrations. We also wish to

thank the authorities of the New York Hospital, who have made available certain records of the Brady Foundation for use in this work. And—lest we forget—to the memory of that warm-hearted philanthropist, James Buchanan Brady, whose desire to help suffering humanity prompted him to establish the Foundation, we again pay grateful tribute. Mr. Robert L. Gordon and Mr. Richard C. Crowley, executors of Mr. Brady's estate, have sustained their interest in all of the Foundation's activities, and we are most grateful to them.

Grateful acknowledgment is due to Mrs. Amy Pope Shirk for translations from foreign languages and assistance with research; and to Mr. Harry Blumenthal, radiographer at the New York Hospital, for valuable advice in the selection and arrangement of the roentgenograms.

We wish particularly to express our gratitude to Miss Ebba M. Rogstad for her ever-present loyalty and unselfish devotion to the preparation of this book. Without her intelligent cooperation and editorial supervision, this publication could not have been completed at this time. To her should be credited the literary form of the entire work, as well as the excellent index of text and illustrations.

Finally, we wish to thank the publishers, who have spared no effort to make the book a success in every way.

O. S. L.
T. J. K.

CONTENTS OF VOLUMES I AND II

VOLUME I

CHAPTER I

HISTORY-TAKING AND PHYSICAL EXAMINATION

History-taking.....	1
Physical examination.....	11

CHAPTER II

EXAMINATION OF THE URINE

Collection of urinary specimens.....	21
The clinical tests.....	24
The physical tests.....	27
The chemical tests.....	30
The microscopic tests.....	35
The bacteriological tests.....	41
Animal inoculation tests.....	42

CHAPTER III

TESTS OF RENAL FUNCTION

Tests of excretion.....	46
Tests of retention.....	52
Combined tests of excretion and retention.....	62

CHAPTER IV

INSTRUMENTAL EXAMINATION

Urethral exploration (with bougies, sounds, and filiforms).....	71
Urethral catheterization.....	74
Ureteral catheterization.....	83
Urethroscopy.....	87
Cystoscopy (with examination of the upper tract).....	104
Cystoscopy and urethroscopy in children.....	122

CHAPTER V

ROENTGENOGRAPHY OF THE GENITO-URINARY TRACT

Plain roentgenograms.....	125
Retrograde pyelo-ureterography.....	129
Serial pyelography.....	133
Intravenous pyelo-ureterography (excretory urography).....	138
Subcutaneous urography.....	141
Peroral urography.....	142

Interpretation of pyelo-ureterograms.....	143
Renal arteriography.....	171
Pneumoperitoneum.....	171
Excretion urography as a measure of residual urine.....	171
Cystography and urethrography.....	172
Seminal vesiculography.....	185

CHAPTER VI

ANESTHESIA IN UROLOGY

Preparation of patient: preliminary medication.....	191
General inhalation anesthesia.....	192
Rectal anesthesia (with avertin).....	197
Regional anesthesia.....	198
Local infiltration anesthesia.....	212
Local anesthesia for intraurethral procedures.....	213
Intravenous anesthesia.....	215
Summary of anesthetic practice in authors' clinic.....	217

CHAPTER VII

EMBRYOLOGY, ANATOMY, ANOMALIES, AND PHYSIOLOGY OF THE PENIS

Embryology of the penis.....	223
Anatomy of the penis.....	226
Anomalies of the penis.....	229
Physiology of the penis.....	241

CHAPTER VIII

INJURIES AND DISEASES OF THE PENIS

Injuries of the penis.....	245
Diseases of the penis.....	252

CHAPTER IX

OPERATIVE TREATMENT OF THE PENIS

Anesthesia.....	318
Preparation of operative field.....	318
Circumcision.....	319
Surgical treatment of penile carcinoma.....	323
Plastic surgery of the penis.....	334

CHAPTER X

EMBRYOLOGY, ANATOMY, ANOMALIES, AND PHYSIOLOGY OF THE SCROTUM AND SCROTAL
CONTENTS

Embryology.....	360
Anatomy.....	365
Anomalies.....	375
Physiology.....	384

CONTENTS

xiii

CHAPTER XI

INJURIES AND DISEASES OF THE SCROTUM AND THE SCROTAL CONTENTS

Injuries of the scrotum and scrotal contents.....	400
Diseases of the scrotum and scrotal contents.....	414

CHAPTER XII

OPERATIVE AND NON-OPERATIVE TREATMENT OF THE SCROTUM AND SCROTAL CONTENTS

Operative treatment of the scrotum and scrotal contents.....	486
Non-operative treatment of the scrotum and scrotal contents.....	517

CHAPTER XIII

EMBRYOLOGY, ANATOMY, ANOMALIES, AND PHYSIOLOGY OF THE VAS DEFERENS, SEMINAL VESICLE, AND EJACULATORY DUCT

Embryology.....	521
Anatomy.....	522
Anomalies of the vas deferens, seminal vesicle, and ejaculatory duct.....	526
Physiology.....	526

CHAPTER XIV

INJURIES AND DISEASES OF THE VAS DEFERENS, SEMINAL VESICLE, AND EJACULATORY DUCT

Injuries of the vas deferens, seminal vesicle, and ejaculatory duct.....	529
Diseases of the vas deferens, seminal vesicle, and ejaculatory duct.....	529

CHAPTER XV

OPERATIVE AND NON-OPERATIVE TREATMENT OF THE VAS DEFERENS, SEMINAL VESICLE, AND EJACULATORY DUCT

Operative treatment.....	556
Non-operative treatment of the vas deferens, seminal vesicle, and ejaculatory duct.....	562

CHAPTER XVI

EMBRYOLOGY, ANATOMY, ANOMALIES, AND PHYSIOLOGY OF THE FEMALE EXTERNAL GENITALIA

Embryology of the female external genitalia.....	569
Anatomy of the female external genitalia.....	571
Anomalies of the female external genitalia.....	576
Physiology of the female external genitalia.....	580

CHAPTER XVII

INJURIES AND DISEASES OF THE FEMALE EXTERNAL GENITALIA

Injuries of the female external genitalia.....	581
Diseases of the female external genitalia.....	581

CHAPTER XVIII

OPERATIVE TREATMENT OF THE FEMALE EXTERNAL GENITALIA

Preoperative preparation.....	602
Anesthesia.....	602

Circumcision.....	603
Clitoridectomy.....	603
Extrication of Bartholin's glands.....	603
Vulvectomy.....	603
Operative treatment of hypospadias in the female.....	603
Operative treatment of epispadias in the female.....	603
Postoperative care.....	605

CHAPTER XIX

EMBRYOLOGY, ANATOMY, ANOMALIES, AND PHYSIOLOGY OF THE MALE URETHRA

Embryology of the male urethra.....	607
Anatomy of the male urethra.....	610
Anomalies of the male urethra.....	615
Physiology of the male urethra.....	629

CHAPTER XX

INJURIES AND DISEASES OF THE MALE URETHRA

Injuries of the male urethra.....	632
Diseases of the male urethra.....	637

CHAPTER XXI

OPERATIVE TREATMENT OF THE MALE URETHRA

Preoperative preparation.....	672
Position of patient on operating table.....	672
Anesthesia.....	672
Operative treatment of stricture of the urethra.....	673
Operative treatment of ruptured urethra.....	679
Operative treatment of congenital valves of the posterior urethra.....	685
Excision of urethral diverticulum.....	691
Excision of urethroperineal fistula.....	693
Operative treatment of recto-urethral fistula.....	694
Excision of accessory channel.....	696
Operative treatment of urethral calculus.....	696
Repair of hypospadias and epispadias.....	699
Postoperative considerations in urethral surgery.....	699

CHAPTER XXII

GONORRHEA IN THE MALE

Introduction.....	701
History.....	702
Public health and epidemiological aspects.....	703
Definition.....	705
Bacteriology.....	705
Predisposing factors.....	708
Modes of transmission.....	708
Pathology.....	708

CONTENTS**XV**

Symptoms.....	712
Diagnosis.....	715
Treatment.....	717
Criteria of cure.....	726

CHAPTER XXIII**COWPER'S GLANDS**

Embryology of Cowper's glands.....	732
Anatomy of Cowper's glands.....	734
Anomalies of Cowper's glands.....	736
Physiology of Cowper's glands.....	736
Injuries of Cowper's glands.....	736
Diseases of Cowper's glands.....	737
Operative treatment of Cowper's glands.....	743

CHAPTER XXIV**EMBRYOLOGY, ANATOMY, ANOMALIES, AND PHYSIOLOGY OF THE FEMALE URETHRA**

Embryology of the female urethra.....	748
Anatomy of the female urethra.....	749
Anomalies of the female urethra.....	751
Physiology of the female urethra.....	753

CHAPTER XXV**INJURIES AND DISEASES OF THE FEMALE URETHRA**

Injuries of the female urethra.....	756
Diseases of the female urethra.....	757

CHAPTER XXVI**OPERATIVE TREATMENT OF THE FEMALE URETHRA**

Preoperative preparation.....	781
Anesthesia.....	781
Diversion of the urinary stream.....	781
Operative treatment of Skene's glands.....	782
Operative treatment of prolapse of the urethra.....	783
Operative repair of urethrovaginal fistula.....	784
Postoperative considerations following operations on the female urethra.....	785

CHAPTER XXVII**EMBRYOLOGY, ANATOMY, ANOMALIES, AND PHYSIOLOGY OF THE PROSTATE GLAND**

Embryology of the prostate gland.....	787
Anatomy of the prostate gland.....	792
Anomalies of the prostate gland.....	800
Physiology of the prostate gland.....	801

CONTENTS

CHAPTER XXVIII

INJURIES AND DISEASES OF THE PROSTATE GLAND

Injuries of the prostate gland.....	804
Diseases of the prostate gland.....	806

CHAPTER XXIX

OPERATIVE AND NON-OPERATIVE TREATMENT OF THE PROSTATE GLAND

Operative treatment of the prostate gland.....	878
Non-operative treatment of the prostate gland.....	935

INDEX.....	i
-------------------	---

VOLUME II

CHAPTER XXX

EMBRYOLOGY, ANATOMY, ANOMALIES, AND PHYSIOLOGY OF THE BLADDER

Embryology of the bladder.....	943
Anatomy of the bladder.....	946
Anomalies of the bladder.....	957
Physiology of the bladder.....	968

CHAPTER XXXI

INJURIES AND DISEASES OF THE BLADDER

Injuries to the bladder.....	986
Diseases of the bladder.....	994

CHAPTER XXXII

OPERATIVE AND NON-OPERATIVE TREATMENT OF THE BLADDER

Operative treatment of the bladder.....	1102
Non-operative treatment of the bladder.....	1158

CHAPTER XXXIII

EMBRYOLOGY, ANATOMY, ANOMALIES, AND PHYSIOLOGY OF THE URETER

Embryology of the ureter.....	1208
Anatomy of the ureter.....	1210
Anomalies of the ureter.....	1213
Physiology of the ureter.....	1226

CHAPTER XXXIV

INJURIES AND DISEASES OF THE URETER

Injuries to the ureter.....	1232
Diseases of the ureter.....	1239

CHAPTER XXXV

OPERATIVE TREATMENT OF THE URETER

Preoperative preparation.....	1302
Preparation of the operative field.....	1302
Anesthesia.....	1302

CONTENTS

xvii

Surgical treatment of ureteral anomalies.....	1302
Surgical treatment of stenosis of the ureterovesical orifice.....	1304
Surgical treatment of non-calculus obstructions at the ureteropelvic junction.....	1305
Operative treatment of ureteral injuries.....	1315
Operative treatment of ureteral calculus.....	1320
Ureterectomy.....	1324
Uretero-intestinal anastomosis.....	1324

CHAPTER XXXVI

EMBRYOLOGY, ANATOMY, ANOMALIES, AND PHYSIOLOGY OF THE KIDNEY

Embryology of the kidney.....	1343
Anatomy of the kidney.....	1350
Anomalies of the kidney.....	1361
Physiology of the kidney.....	1384

CHAPTER XXXVII

INJURIES AND DISEASES OF THE KIDNEY

Injuries of the kidney and renal pelvis.....	1395
Diseases of the kidney and renal pelvis.....	1405

CHAPTER XXXVIII

OPERATIVE AND NON-OPERATIVE TREATMENT OF THE KIDNEY

Operative treatment of the kidney.....	1655
Non-operative treatment of the kidney.....	1715

CHAPTER XXXIX

RADIUM AND ROENTGEN-RAY THERAPY OF THE GENITO-URINARY TRACT

Introduction.....	1724
Carcinoma of the penis.....	1734
Epithelioma of the scrotum.....	1736
Tumors of the testicle.....	1736
Malignant tumors of the seminal vesicle and spermatic cord.....	1739
Malignant tumors of the female external genitalia.....	1739
Malignant tumors of the male urethra.....	1742
Malignant tumors of Cowper's glands.....	1743
Malignant tumors of the female urethra.....	1744
Radiation treatment of benign hypertrophy of the prostate gland.....	1745
Carcinoma of the prostate gland.....	1747
Tumors of the bladder.....	1750
Tumors of the kidney and ureter.....	1758

CHAPTER XL

DRIED HUMAN BLOOD PLASMA THERAPY

Preparation and packaging of dried plasma.....	1766
Advantages of plasma over whole blood.....	1767
Dangers of plasma administration.....	1768
INDEX.....	i

CHAPTER I

HISTORY-TAKING AND PHYSICAL EXAMINATION

A. HISTORY-TAKING

History-taking is the first step in examination. A urological history does not differ from any other complete clinical record except for the emphasis of those features pertaining to the urogenital tract.

First, let the patient relate his story in his own words, interrupting only enough to clarify such points as appear to have an important bearing upon the condition. When the tale is finished, the history may be recapitulated and all information obtained from the patient (or his relatives) jotted down systematically so as to provide, with the findings of examination, a useful record for future reference. The complete record should include: (1) nature of the complaint, (2) present illness, (3) family history, (4) personal history (past and present), (5) résumé of patient's present condition, (6) general physical examination, (7) special examination of the urogenital tract, (8) charts helpful in examination of the urogenital tract.

Nature of the Complaint

The first item of the history should always be the complaint of the patient in his own words. The information should be elicited by questions which are not leading, and recorded exactly as stated by the patient. If, for example, he says, "I have a pain in my back," this should be so entered in the history—not "The patient complains of discomfort in the lumbar region."

Present Illness

After the patient's own statement of his complaint, there should be set down all the essential data relating to the condition for which he has sought advice.

Duration. It is advisable to inquire the date when the patient last felt well, for while this is seldom forthcoming in exact terms, it will serve to set a limit to his recollections and help in determining the duration of his illness.