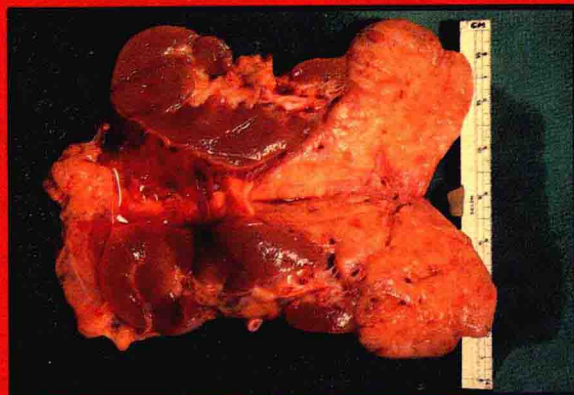
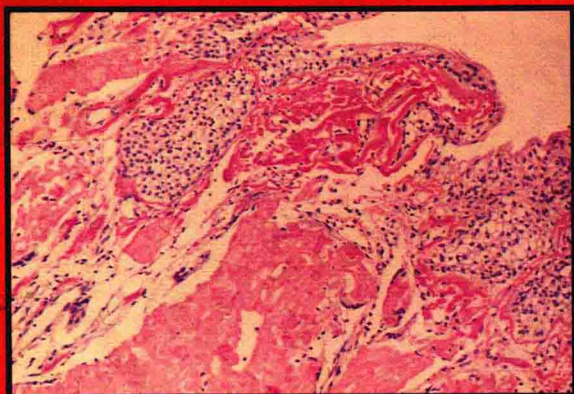
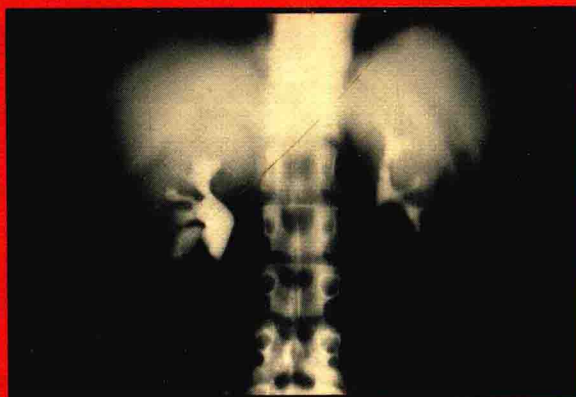
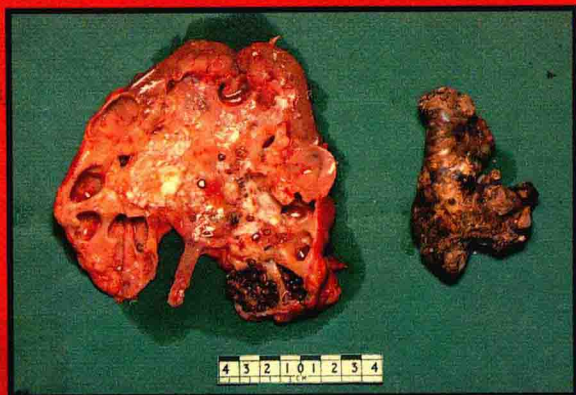


A Colour Atlas of Urology

R W Lloyd-Davies

J G Gow

D R Davies



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R W Lloyd-Davies

MS, FRCS

*Consultant Surgeon Department
of Urology, St Thomas's Hospital
London*

*Vice-President of the Section of
Urology of the Royal Society
of Medicine*

J G Gow

MD, ChM, FRCS

*Consultant Urologist (Emeritus)
Liverpool Area Health Authority
Teaching Past President of the
Section of Urology of the
Royal Society of Medicine*

D R Davies

MB, BS, MRCS, LRCP, FRCPath

*Senior Lecturer in Histopathology,
St Thomas's Hospital Medical School
London*

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Introduction

Urology, arguably the oldest speciality, has now assumed its rightful place in the forefront of surgical practice, as it embraces 30 per cent of all surgical problems. As in the last two decades significant progress has been made in all branches of urology, it can no longer be considered within the precincts of the general surgeon, although until further expansion of urological appointments has taken place, it is accepted that many urological cases will have to be treated by general surgeons throughout the world.

This book is therefore aimed at a comprehensive readership embracing senior clinical students, junior urologists at all stages of their training and general surgeons with an interest in urology. It is hoped also that the practising urologist will find something of value, because we have attempted to include many of the results of the exciting scientific advances which have taken place in urology in recent years.

Much of the information is basic; for this we make no apology, because we consider it is fundamental to have a sound knowledge of first principles.

Successful diagnosis is based on a combination of clinical acumen and the interpretation of appropriate investigations. We have combined investigations, macropathology and histopathology with normal and special stains and where appropriate endoscopic photography to emphasise the importance of inter-disciplinary co-operation in urology.

The first chapter is therefore a description of standard urological investigations, together with tables of normal values which can be used as a reference to compare results obtained in various pathological conditions.

In recent years urodynamics has begun to play an ever-increasing role in the investigation of disorders of micturition; consequently this diagnostic procedure has been included in some detail.

The discovery of Professor Hopkins of the rod lens system and the flexible glass fibre bundles has revolutionised endoscopy. It is now possible to portray with sufficient detail and accurate colour rendering, lesions in the urethra and bladder. A considerable part of this book has been devoted to this aspect of urology, so that endoscopists can become more readily acquainted with the normal and abnormal appearances of the urethra and bladder.

The boundary between urology and nephrology is often obscure and deceptive and we are conscious that we may have trespassed into their territory. However, we feel that if a true understanding is to be achieved it is impossible not to invade the ground more properly assigned to them, and if in doing so we have made unacceptable errors we ask for their understanding.

In this book we have attempted to include as many as possible of the commoner conditions and some of the rare diseases. It is not meant, however, to compete with textbooks of urology but to complement them and to be appreciated as a pictorial record encompassing a broad spectrum of urology.

We have not sought in any way to cover paediatric urology and have made only brief mention of renal failure and venereology and trauma, because we considered they were not subjects suitable to this kind of presentation.

Because it is an atlas the introductory texts and legends are short and are used only to highlight the more important points of each illustration.

We hope that it will be treated not just as a reference but will act as a stimulus to provoke the reader to delve deeper into the many exciting projects which have now become part of the practice of urology.

In such a book there will be many omissions particularly among the rarer diseases; for this we can only crave the indulgence of the reader and hope that it may be possible to correct them in subsequent editions.

Acknowledgements

We are very grateful to our colleagues, without whose help and encouragement this Atlas could not have been completed. Mr K.E.D. Shuttleworth, Mr N.O.K. Gibbon, Mr R.M. Jamieson and Mr M.R. Heal have contributed a large range of Diagnostic problems, and Mr M.I. Bultitude has been particularly helpful with the section on Urodynamics. Dr A. Carty, Dr N.H. Crosby, Dr J.H.E. Carmichael, Dr A.B. Ayers, Dr M. Lea-Thomas and Dr J. Pemberton, our Radiological colleagues, have been very helpful, and to them we are most appreciative.

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We wish to thank the many colleagues listed below for the loan of illustrations. Dr A.B. Ayers (**26**, **27**, **27a**, **28**, **28a**, **156**, **189a** and **b**, **190a** and **b**, **651a** and **b**, **652a** and **b**, **700a** and **b**, **701a** and **b**); Dr M. Black and his colleagues of The Department of Dermatology, St Thomas' Hospital (**1090**, **1091**); Mr N. Blackford; Dr Blackwell (**1033**, **1034**); Mr M.I. Bultitude (**95** to **107**); Dr R.D. Catterall (**971**); Mr P.B. Clark (**317**, **853**); Dr C.D. Collins (**1138**, **1139**); Mr D. Davies for the TB preparations from which **348** to **351** were taken; Professor El Ghorab and Dr N. Badr for providing most of the non-histological Bilharzia slides; Mr R. Ewing (**1018**); Dr S. Eykyn (**66**, **67**, **68**); Mr C. Gingell (**987**, **1025**, **1046**, **1054** to **1065**, **1070**, **1074**, **1075**, **1084**, **1086**, **1115**, **1116**, **1119**, **1127**, **1128**); Mr W.F. Hendry (**1122**, **1124**); Dr Eadie Heyderman for the histology sections from which **1154** and **1168** were taken; Mr J.P. Hopewell (**1029**); Professor M.S.R. Hutt (**478**), and for allowing us access to his collection of tropical pathological slides; Dr N.F. Jones (**757** to **758**); Mr C.H. Kinder (**281**); Professor J.B. Kinmonth (**341**, **342**); Dr D. Lowe (**971**); Dr C. Parkinson for the sections from which **773**, **774**, **854** and **855** were taken; Dr C. Pike for the cytology preparation from which **776** and **777** were taken; Mr W.B. Peeling and his colleagues (**29**, **30**, **31a** and **b**, **32a** and **b**, **82a** and **b**, **863**, **864**, **935** to **940**, **1134** to **1137**); Dr J. Pincott (**157a**); Mr J.M. Pullan (**1142**); The Royal Tropical Institute (**454** to **459**); Professor J.B. Stewart (**1165**); Mr T.A. Taylor (**1025**); Dr K. Thomas (**1173**); Professor J.R. Tighe (**334**) and for allowing us access to the files of the Histopathology Department, St Thomas' Hospital; Dr Lyal Walker (**506**); and Mr R.H. Whitaker (**47** to **49** and **185** to **188**).

histology slides; Mr V. Clarke for the photography of many of the pathological specimens; Mr T. Brandon and his staff, Photographic Department, St Thomas' Hospital; Mr W.C. Fitzsimmons and his staff, Photographic Department, Liverpool Eastern District and Mr J. Stammers and his staff, Central Photographic Department, University of Liverpool. Mr Ken Biggs, Medical Artist, Anatomy Department, University of Liverpool has been responsible for the line drawings and the excellent colour diagrams, and his superb technique has added considerable distinction to the Atlas.

No work such as this could be completed without the help and sympathetic understanding of our secretaries, Mrs J.E. Stephens, Mrs N.M. Williams, Mrs B.D. Worthington and Miss M. Murphy, and to them we shall always be most grateful.

1 Investigations

In the management of any urological patient there are three main facets. First and most important is the history, second is the clinical examination and third there are the ancillary investigations which are considered appropriate to the clinical assessment.

Radiology

Intravenous urogram (IVU)

The excretory urogram demonstrates anatomical features of the renal substance and the pelvicalyceal system, and at the same time gives some information about the functional capacity of the whole system. There are two phases: first the nephrogram which outlines the upper nephron as most of the water reabsorption takes place in the proximal tubules. This phase demonstrates functional renal tissue and so the density of the nephrogram is important as it will help in assessing the quality of glomerular filtration.

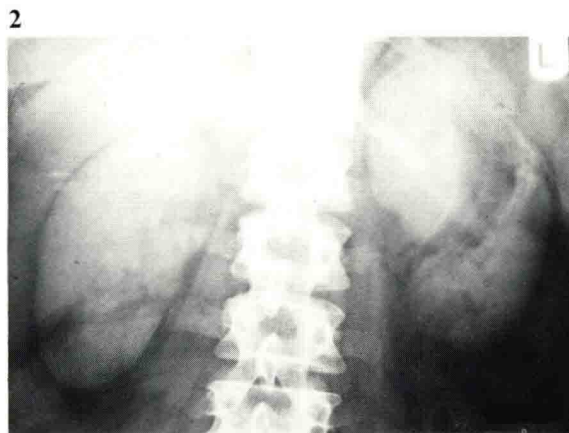
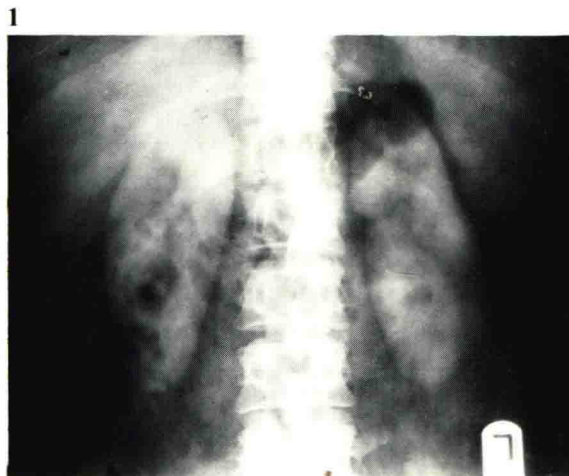
1 Dense nephrogram indicating good glomerular filtration.

2 Paler nephrogram suggesting some impairment of glomerular function.

The second phase is to outline the calyces, pelvis and ureters which depend on water reabsorption and hence the level of hydration of the patient.

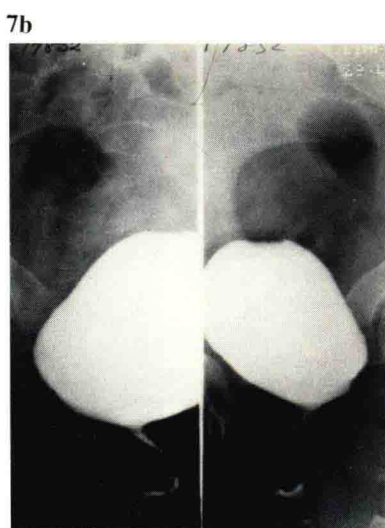
3 Normal intravenous urogram.

4 An oblique view of a normal upper urinary tract which often helps to outline a small calyceal lesion.



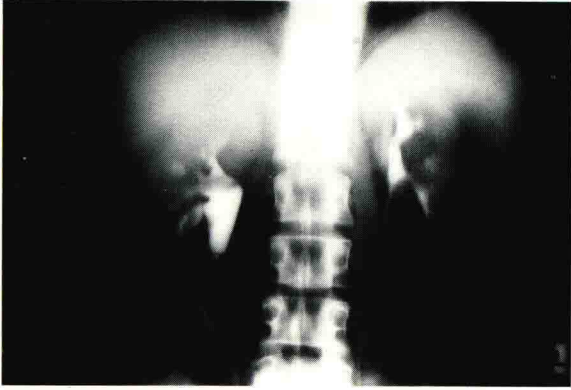
5 IVU normal cystogram in which the bladder outline is smooth and regular.

6 IVU normal post-micturition film in which the dye is seen between the folds of the flaccid mucus membrane.



7a, b and c Normal micturating cystourethrogram in the female: a) full bladder; b) during micturition (oblique views to show reflux if present); c) after micturition.

8



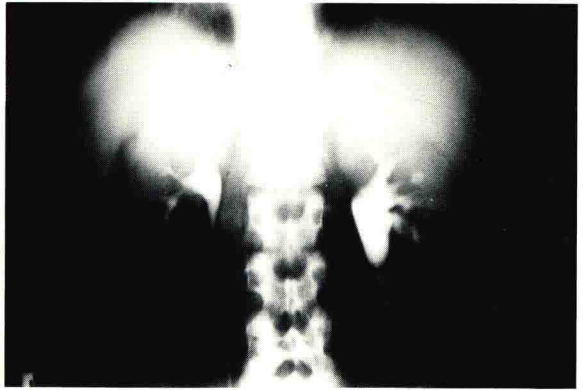
Tomograms are useful adjuncts to the conventional urogram in helping to differentiate whether a lesion is in the anterior, middle or posterior part of the kidney, especially in the presence of intestinal gas.

8 Tomogram of both kidneys with 5 cm cut.

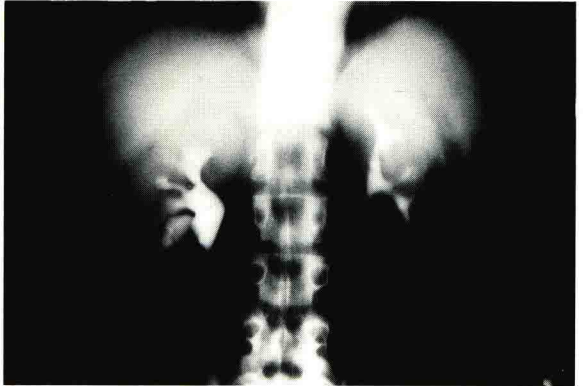
9 Tomogram of both kidneys with 6 cm cut.

10 Tomogram of both kidneys with 7 cm cut.

9



10



11



Pyelovenous backflow

What was originally thought to be pyelovenous backflow is now (with modern high-dose techniques) considered to be a concentration of dye in the collecting tubules giving a dense pyramidal outline.

11 Diffuse pyramidal contrast.

Retrograde pyelography

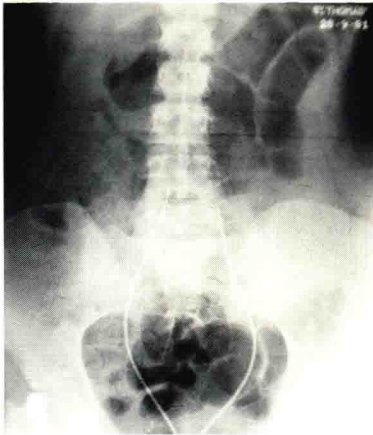
This procedure is used less frequently as a result of the improved pictures produced by the intravenous urogram. When retrograde pyelography is required it should first be performed through a bulb catheter, so that a dynamic study of the ureter can be carried out, using the image intensifier at the time of the injection. Later, a catheter can, if required, be passed to the kidney.



13



14



14a

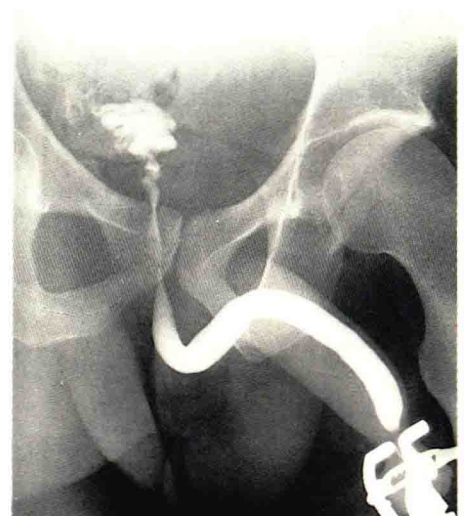


13 Bilateral normal retrograde ureterogram. Note bulb-ended catheter.

14 Bilateral retrograde catheters in situ.

14a Fine detail of pelvicalyceal system.

15



15 Normal ascending urethrogram. The urethra is smooth and always becomes narrow in the region of the external sphincter. The verumontanum is shown as a filling defect in the prostatic urethra.

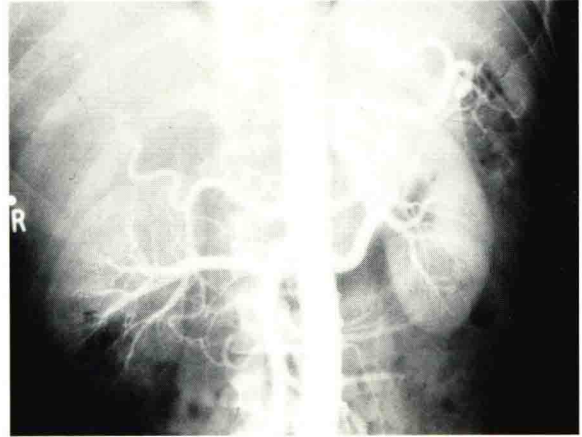
Arteriography

Selective renal arteriography is usually carried out by passing a catheter up the femoral artery and guiding it into the renal artery under direct vision. If this method is not possible, either the axillary artery or a translumbar aortic puncture may be used.

The arteriogram is carried out in four phases.

16 Flush arteriogram, which shows the vascular tree and architecture, of both kidneys, and will identify plaques in the renal artery.

16



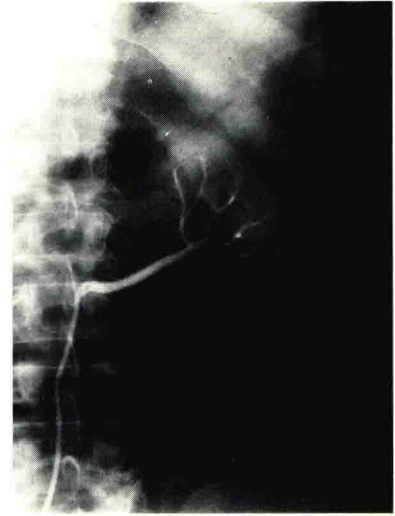
17



18



19



17 Nephrographic phase, which demonstrates the small vessels in the cortex.

18 and 19 Early and late vascular phases, when the main vessels become more obvious.