

Atlas of ENDOUROLOGY

The volume aims to be of benefit to young urologists, residents in training as well as the operating room technicians. This reader friendly book gives a succinct description as regards technical concepts in endourology.

This is a comprehensive atlas volume covering common endourologic procedures in 14 chapters. Each chapter has detailed description of common endourologic procedures. The chapters include transurethral resection of prostate (TURP), optical internal urethrotomy (OIU), Holmium laser enucleation of the prostate (HoLEP), percutaneous nephrolithotomy (PCNL) and retrograde intrarenal surgery (RIRS). In addition, chapters are dedicated to special situations such as paediatric PCNL, PCNL in ectopic kidneys, supine PCNL and cystolithotripsy.

All the chapters follow easy to comprehend and lucid schema which includes instrumentation, trolley preparation and step by step description of positioning and technical nitty-gritty for common procedures. Each chapter also includes photographic description of tips and tricks pertinent to the topic.

The "key" highlight of this volume is the inclusion of "educational videos." The videos would be "value added addition" to this volume as the videos delve into the technical nitty-gritty of the procedure. These videos, which have a combined run time of 60 minutes, provide minute step by step details of the procedure which are often sought by an avid learner of endourology.

Residents in training and novice urologist alike are expected to gain immensely from this volume. It can be a quick and ready source of information and reference while handling situations in the operating room.

This book is a initiative of the Endourology subspeciality cell constituted by the Urological society of India(USI) and the Indian school of Urology(ISU)



NOT FOR SALE

Intended for distribution to qualified urologist and trainee urologist.



CBS Publishers & Distributors Pvt Ltd
4819/XI, Prahlad Street, 24 Ansari Road, Daryaganj, New Delhi 110 002, India
E-mail: delhi@cbspd.com, cbspubs@airtelmail.in; Website: www.cbspd.com
New Delhi | Bengaluru | Chennai | Kochi | Kolkata | Mumbai
Hyderabad | Jharkhand | Nagpur | Patna | Pune | Uttarakhand



Atlas of ENDOUROLOGY

Ganpule

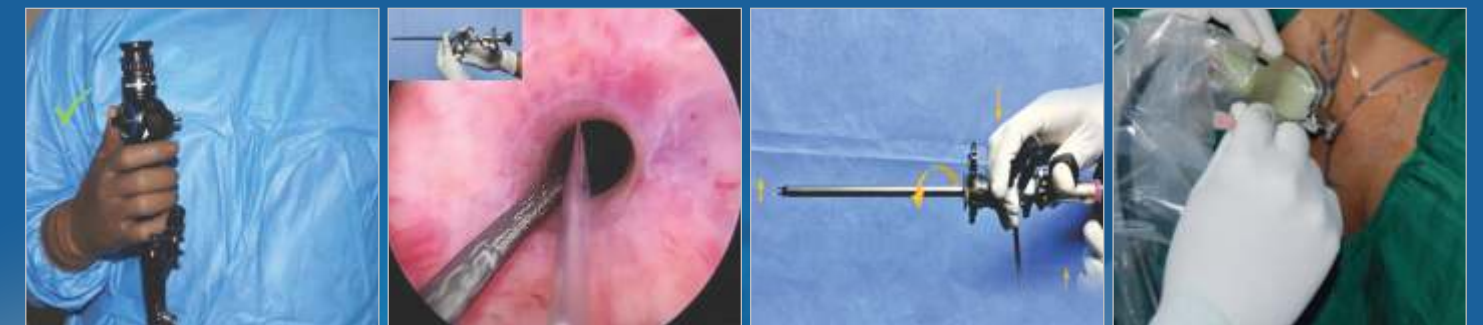


Includes 7 Videos



Atlas of ENDOUROLOGY

also includes Step by Step Videos of Individual Procedural



Editor

Arvind P Ganpule

Co-Editors

Arun Chawla
Pankaj N Maheshwari
Madhusudan Agarwal

Forewords by

Prof Anant Kumar
Prof Rajeev Sood
Prof Rajeev TP
Prof Jean de la Rosette



Dedicated to Education

CBS Publishers & Distributors Pvt Ltd

Atlas of



ENDOUROLOGY

Includes Step by Step Videos of Individual Procedures

Atlas of



ENDOUROLOGY

Includes Step by Step Videos of Individual Procedures

Editor

Arvind P Ganpule MS DNB MNAMS

Vice-Chairman
Department of Urology
Muljibhai Patel Urological Hospital
Nadiad

Coeditors

Arun Chawla

MS DNB MCh DNB FIMS
Professor and Head
Department of Urology
and Renal Transplant
Kasturba Medical College
Manipal

Pankaj N Maheshwari

MS MCh
Senior Consultant and Chief
of Urology, Fortis Hospital
Mulund, Mumbai
Hon Assistant Professor
Grant Medical College
JJ Group of Hospitals
Mumbai

Madhu Sudan Agrawal

MS MNAMS MCh
Head, Department of Urology
and Centre for Minimally-
Invasive Endourology
Global Rainbow Healthcare
Agra

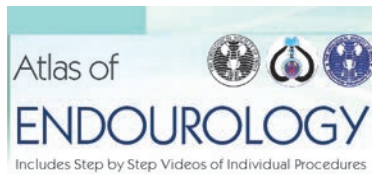


CBS Publishers & Distributors Pvt Ltd

New Delhi • Bengaluru • Chennai • Kochi • Kolkata • Mumbai
Hyderabad • Jharkhand • Nagpur • Patna • Pune • Uttarakhand

Disclaimer

Science and technology are constantly changing fields. New research and experience broaden the scope of information and knowledge. The authors have tried their best in giving information available to them while preparing the material for this book. Although, all efforts have been made to ensure optimum accuracy of the material, yet it is quite possible some errors might have been left uncorrected. The publisher, the printer and the authors will not be held responsible for any inadvertent errors, omissions or inaccuracies.



ISBN: 978-93-90709-05-2

Copyright © authors and publisher

First Edition: 2021

All rights are reserved. No part of this book may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or any information storage and retrieval system without permission, in writing, from the authors and the publisher.

Published by [Satish Kumar Jain](#) and produced by [Varun Jain](#) for

CBS Publishers & Distributors Pvt Ltd

4819/XI Prahlad Street, 24 Ansari Road, Daryaganj, New Delhi 110 002, India.

Ph: 011-23289259, 23266861, 23266867

Website: www.cbspd.com

Fax: 011-23243014

e-mail: delhi@cbspd.com; cbspdubs@airtelmail.in.

Corporate Office: 204 FIE, Industrial Area, Patparganj, Delhi 110 092

Ph: 011-4934 4934

Fax: 011-4934 4935

e-mail: publishing@cbspd.com; publicity@cbspd.com

Branches

- **Bengaluru:** Seema House 2975, 17th Cross, K.R. Road, Banasankari 2nd Stage, Bengaluru 560 070, Karnataka
Ph: +91-80-26771678/79 Fax: +91-80-26771680 e-mail: bangalore@cbspd.com
- **Chennai:** 7, Subbaraya Street, Shenoy Nagar, Chennai 600 030, Tamil Nadu
Ph: +91-44-26681266/26680620 Fax: +91-44-42032115 e-mail: chennai@cbspd.com
- **Kochi:** 42/1325, 1326, Power House Road, Opp KSEB Power House, Eranakulam 682 018, Kochi, Kerala
Ph: +91-484-4059061-67 Fax: +91-484-4059065 e-mail: kochi@cbspd.com
- **Kolkata:** No. 6/B, Ground Floor, Rameswar Shaw Road, Kolkata-700014 (West Bengal), India
Ph: +91-33-2289-1126, 2289-1127, 2289-1128 e-mail: kolkata@cbspd.com
- **Mumbai:** PWD Shed, Gala no 25/26, Ramchandra Bhatt Marg, Next to JJ Hospital Gate no. 2, Opp. Union Bank of India, Noorbaug, Mumbai-400009, Maharashtra
Ph: +91-22-66661880/89 e-mail: mumbai@cbspd.com

Representatives

- | | | | | | |
|--------------------|--------------|--------------------|--------------|----------------------|--------------|
| • Hyderabad | 0-9885175004 | • Jharkhand | 0-9811541605 | • Nagpur | 0-9421945513 |
| • Patna | 0-9334159340 | • Pune | 0-9623451994 | • Uttarakhand | 0-9716462459 |

Printed at Thomson Press India Ltd., Faridabad, Haryana, India

There are more than one ways of performing a procedure safely and effectively. Expert surgeons will do the same procedure in different ways. In this atlas, we present one of the many ways of performing a procedure in an effective way

USI Endourology Subspecialty Cell

- **Dr Arvind Ganpule**
Convenor
- **Dr Rahul C Gupta**
Member
- **Dr Harprit Singh**
Member
- **Dr Deepak Ragoori**
Member
- **Dr Zeeshan Hameed BM**
Member



Foreword

It is with immense pleasure that I am writing a preface for *Atlas of Endourology*.

It is truly said that a picture is worth a thousand words. This atlas truly authenticates this saying. It has been designed by our faculty in their own operation theatres depicting all important and relevant aspects of the procedures including equipment, consumables and endoscopes. One can grasp it quickly by leafing through it in a very short time.

Seeing is believing and visuals leave an everlasting impression over the brain.

Each chapter is well written and explores the minute details of each procedure and its variations. Each procedure is first written in a classical way with its all possible variations and upgradation.

This atlas should be part of the library of all training institutions and should be a handbook in the theatre for teaching purposes. It is a must for a practicing urologist to keep improving their skills. This atlas will also be very useful for our nurses and OT technicians. Once they go through it, they will be better assistants and will do a better job of arranging the instrument trolley in a more practical way.

This is a maiden effort, by the members, to produce a document of lasting relevance and will go down in the archives of urology for posterity. I wish to encourage other subspecialities to put on their thinking caps and come up with more books/atlas.

At the end, a pat on the back for all those who have put in their valuable time and effort for creating such a masterpiece!

Let your creative juices flow and keep up the good work.



Prof Anant Kumar

Chairman
Department of Urology, Uro-oncology, Robotics and
Renal Transplant,
Max Group of Hospital, Delhi and NCR
Ex-Prof and Head
Sanjay Gandhi PGI Lucknow (SGPGI)
Ex-President, Indian Society of Organ Transplant (ISOT)
President, Urological Society of India (USI)
Organizing Secretary, CAST 2019

Foreword

Urology is one of the fastest developing medical specialties and endourology remains an important subspecialty. Endourology is the sub-speciality with which the concept of minimally invasive surgery and technological advances are integrated. In the new norm of education, the structure has changed from conventional teaching and training to Competency-Based Education and Training (CBE&T) in which uniformity remains the hallmark. The concept of Urological Medical Educational Technologies (UROMET) is based on five levels of competency, viz. know, know-how, show, show how, and performance. Knowledge imparts insight, which can be forgotten over time unless the skills are demonstrated and showcased. This can happen by 'show' of standard technique and also showcasing variations from standard, sometimes punctuated by 'how I do it' while demonstrating. These third and fourth levels of CBE&T conform with the eligibility to graduate to the final fifth level, namely "performance".



Dr Arvind P Ganpule and his associates have significantly contributed to this effort of educating through 'show' and 'show how' steps by providing us with a unique and extraordinary *Atlas of Endourology* embodied with contemporary knowledge and techniques beneficial for residents, trainee, young urologists, and the practitioners of the art to adopt uniformity and skill-sharing. This is an endeavour to perfect the art and craft of endourology, instrumentations, and its technological integration.

For this exemplary contribution of preparing the '*Atlas of Endourology*', on behalf of Indian School of Urology—The Urological Society of India, I applaud Dr Arvind P Ganpule and other contributors for enriching our treasury of endourology subspeciality, with an important component of educational and training tool kit.

Prof (Dr) Rajeev Sood

Chairman
Indian School of Urology (USI-ISU)
Past President
Urological Society of India (USI)
National Delegate, Société Internationale d'Urologie (SIU)

Foreword

Today as I write this foreword, I share my thoughts that I always hoped, that I would have the chance to write. It has been a long time since there has been the idea of bringing out something unique in endourology. 2020 has been difficult, but the endourology subspecialty cell could work on a unique *Atlas of Endourology* potentially beneficial to many upcoming urologists.

This atlas captures excellent depiction of procedures in endourology and shows that it is more than a fable, parable or a pipe dream. What I like about this atlas is that you can have a concise information on various technical “know how” in endourology. Going through this novel atlas, you have a different and extraordinary learning experience. Dr Arvind P Ganpule and his team showed their ability to convey how things can be elicited and described in a simple manner.

Through a series of captivating examples and images, this atlas explains numerous common endourologic procedures. I have accepted the honour of writing the foreword to the present atlas, to lay stress on its special nature, and to plead for more work of a similar nature.



Prof Rajeev TP

Hon. Secretary
Urological Society of India

Foreword

For many decades, TURP and TURBT have been the dominating endourological procedures in the armamentarium of every urologist. More recently, however, numerous and innovative endourological approaches have surfaced. And while we just have become familiar with some of these recently introduced devices, we are already impatiently waiting to move rapidly for the next innovation. Our demand for ever more versatility seems almost limitless while we consider the frontiers of our capability still far away.

In our constant and increasing demand for faster and better, we should not underestimate and neglect the need for training. It goes beyond saying that a proper preparation and training is the cornerstone of any successful use of instruments that eventually transfers in a favourable treatment outcome. The editors of the *Atlas of Endourology* demonstrate very well that they have understood the importance and the need for a proper transfer of knowledge of instrumentation and complementary skills. In a stepwise approach, they have illustrated elegantly the current state of the art use of instruments including preparation of the operating setting, a concise list of the 'toolbox' per procedure and demonstration of the handling of the instruments.

It goes beyond saying that many of you want to be involved in this exciting and rapidly developing endourological field. You are most welcome and the editors of the *Atlas of Endourology* are obviously reaching out to you. It is therefore within this spirit that I conclude with a quote from Benjamin Franklin: "Tell me and I forget, teach me and I may remember, involve me and I learn".



Prof Jean de la Rosette MD PhD

Professor in Urology
Istanbul Medipol University
Istanbul, Turkey
General Secretary, SIU



Preface

“Seeing is believing”: The genesis of *Atlas of Endourology*

“Trust what you see, not what you hear”. This line summarises the idea behind the genesis of this atlas. There are a number of volumes and books written on different aspects of urological surgery. As they say, “seeing is believing”, a student of urology/trainee need to be taught the subtle but important technicalities of the procedure which make a lot of difference in the outcomes. The importance lies in minute details. The *Atlas of Endourology* emphasises on technical nuances of common as well as uncommon endourologic procedures alike.

In addition, to the different steps in various procedures of endourology, the chapters also include subsections on minute tips in endourology for instance how to insert a safety wire? What should be the position of the surgeon when he is gaining access in PCNL? Each chapter provides clear step by step guidance on the technique with the pictures that are explained by short text. Hopefully, this volume will serve as one step reference for residents and young consultants.

A key feature of this atlas is access to teaching videos from experts. The videos are embedded in the manuscript itself.

Every coin has two sides. There are different ways of performing the same procedure. In this atlas, we have attempted to highlight techniques. We do admit that there can be ways in which the same procedure can be done in a different way with similar efficacy. We concede that there ought to be shortcomings in the current volume. We would urge the readers to point out the areas of improvement.

We take this opportunity to thank all the contributors for their outstanding contribution and sparing their time for this volume.

Nothing happens without a visionary leadership. This volume is an initiative by the *USI Endourology Subspeciality Cell* constituted by the Urological Society of India (USI). We take this opportunity to thank the USI for supporting us in envisaging this atlas and providing the “USI Endourology Subspeciality Cell” a free hand to make sure that this volume sees the light of the day.

Arvind P Ganpule

Editor

Arun Chawla

Coeditor

Pankaj N Maheshwari

Coeditor

Madhu Sudan Agrawal

Coeditor

List of Contributors

Abhijit Patil MS MCh DNB

Consultant Urologist
Muljibhai Patel Urological Hospital
Nadiad
Contribution in Chapters: PCNL, PCN, PCN in Transplant
Kidney, TURP, URS
Proofreading, editing: All chapters

Aditya Parikh MS

Resident in Urology
Muljibhai Patel Urological Hospital
Nadiad
Contribution in Chapter: PCN
Proofreading, editing: All chapters

Aditya K Sharma MS MCh

Senior Consultant Urology
UroOncology and Renal Transplantation
Apollo-medics Superspeciality Hospital
Lucknow
Contribution in Chapter: Supine PCNL

Anil Kumar Varshney MS PhD

Senior Director Urology
Max Hospital Shalimar Bagh
New Delhi
Contribution: Chapter review; HoLEP

Arun Chawla MS DNB MCh DNB FIMS

Professor and Head
Dept of Urology and Renal Transplant
Kasturba Medical College
Manipal
Contribution in Chapters: PCNL, TURP, SPCL, Cystolithotripsy, TURBT
Review and editing: All chapters

Arvind Ganpule MS DNB MNAMS

Vice-Chairman
Department of Urology
Muljibhai Patel Urological Hospital
Nadiad
Contribution in Chapters: PCNL, PCN, TURP, SPCL, PCNL in Ectopic
Kidney, Paediatric PCNL, TURBT, URS
Concept and design: All chapters
Chapter review and editing: All chapters

Deepak Ragoori MS MCh

Senior Consultant Urologist
Asian Institute of Nephrology and Urology
Hyderabad
Contribution in Chapter: RIRS
Concept and Chapter Review: All chapters

Gyanendra R Sharma MCh DNB

Consultant Urologist
Chitale Clinic Pvt Ltd
Solapur
Contribution: Chapter review: All chapters

Harprit Singh MS DNB

Head of the Department
Mercy Hospital
Jamshedpur
Contribution: Concept and Chapter review: All chapters

Madhu Sudan Agrawal MS MNAMS MCh

Head, Department of Urology and
Centre for Minimally-Invasive Endourology
Global Rainbow Healthcare
Agra
Contribution in Chapter: PCNL
Chapter review, proofreading and editing: All chapters

Pankaj N Maheshwari MS MCh

Senior Consultant and Chief of Urology
Fortis Hospital, Mulund
Mumbai
Hon Assistant Professor
Grant Medical College
JJ Group of Hospitals
Mumbai
Contribution in Chapters: PCNL, RIRS, TURP, TURBT, Paediatric PCNL
Chapter review, proofreading and editing: All chapters

Rahul C Gupta MS DNB

Associate Professor
Department of Urology
Government Medical College
Jammu
Contribution: Concept and Chapter review: All chapters

Ravindra Sabnis MS MCh

Chairman
Department of Urology
Muljibhai Patel Urological Hospital
Nadiad

Contribution: Chapter review and editing: All chapters

Sameer Swain MS MCh

Associate Professor
SCB Medical College
Cuttack

Chapter Contribution: PCNL

Chapter Review: All chapters

G Soundarya MS MCh

Consultant Urologist
Preeti Urology and Kidney Hospital
Hyderabad

Contribution in Chapter: OIU

Tanuj Paul Bhatia MBBS MS DNB

Senior Consultant Urologist
Sarvodaya Healthcare
Faridabad

Contribution in Chapter: HoLEP

V Chandra Mohan MS MCh MRCS DNB

Consultant Urologist
Managing Director
Preeti Urology and Kidney Hospital
Hyderabad

Contribution in Chapter: OIU

Zeeshan Hameed BM MS MCh

Associate Professor
Department of Urology
Kasturba Medical College
Manipal

Contribution: Concept and Chapter review: All chapters

Contents of

Scan QR Code to Access Free Videos

Chapter 1.	Transurethral Resection of Prostate (TURP)	
	Video A. Instrumentation in TURP	20
	Video B. TURP: Step by Step	21
Chapter 2.	Holmium Laser Enucleation of Prostate (HoLEP): Step by Step	31
Chapter 6.	Optical Internal Urethrotomy (OIU): Step by Step	65
Chapter 8.	Retrograde Intrarenal Surgery (RIRS): Step by Step	88
Chapter 11.	Percutaneous Nephrolithotomy(PCNL): Tract Dilatation and Fragmentation	115
Chapter 14.	Supine PCNL	157

Contents

<i>Foreword by Prof Anant Kumar</i>	<i>vii</i>
<i>Foreword by Prof (Dr) Rajeev Sood</i>	<i>ix</i>
<i>Foreword by Prof Rajeev TP</i>	<i>xi</i>
<i>Foreword by Prof Jean de la Rosette</i>	<i>xiii</i>
<i>Preface</i>	<i>xv</i>
<i>List of Contributors</i>	<i>xvii</i>
<i>Contents of Videos</i>	<i>xix</i>

Section I: Prostate Surgery

1. Transurethral Resection of Prostate (TURP)	3
2. Holmium Laser Enucleation of Prostate (HoLEP)	28

Section II: Bladder Surgery

3. Transurethral Resection of Bladder Tumour (TURBT)	39
4. Cystolitoltripsy	44
5. Suprapubic Cystolithotripsy (SPCL) or Percutaneous Cystolithotripsy (PCCL)	49

Section III: Urethral Surgery

6. Optical Internal Urethrotomy (OIU)	59
--	-----------

Section IV: Ureteroscopic Surgery

7. Uretersoscopic Removal of Stone (URS)	71
8. Retrograde Intrarenal Surgery (RIRS)	78

Section V: Percutaneous Surgery

9. Percutaneous Nephrostomy (PCN)	93
10. PCN in Transplant Kidney	99
11. Percutaneous Nephrolithotomy (PCNL)	104
12. PCNL in Ectopic Kidney (Ultrasound Guided)	128
13. Paediatric PCNL	131
14. Supine PCNL	138
<i>Index</i>	<i>159</i>

