Contents

SECTION 1: INSTRUMENTS

1. Cystoscope and its Accessories **3**
Introduction and Brief History 3
The Cystoscope Sheath 4
Bridges 8
Obturators 9
Special Types of Cystourethroscopes and their Uses 10
Flexible Cystourethroscope 13
Meatotomy Scissor 17

2. Visual Internal Urethrotomy, Otis Urethrotome **21**
Sachse's Optical Urethrotomy 21
Blades 22
Otis Maurmyers Urethrotome 23

3. Transurethral Resection of the Prostate Instruments **25**
Introduction and History of Transurethral Resection of the Prostate Instruments 25
Resectoscope Sheath (Monopolar) 25
What is a Rotating Resectoscope? 27
Working Element 29
Irrigating Fluids in Transurethral Resection of the Prostate 34
Transurethral Resection of the Prostate Syndrome 35
Accessories to Evacuate Prostate Chips 36

4. Bipolar Transurethral Resection of the Prostate **38**
Introduction 38
Irrigation in Bipolar Transurethral Resection of the Prostate 39
Advantages of Bipolar Transurethral Resection of the Prostate 39
Limitations of Bipolar Technology 39
Types 39

5. Cystolithotrity Instruments **43**
History and Brief Introduction 43

6. Percutaneous Nephrolithotomy Instruments **48**
Instruments 48
Access Needles 48
Percutaneous Nephrolithotomy Tract Dilators 50
Nephroscopes 55
Ultramini Percutaneous Nephrolithotomy 60
Energy Sources 66

7. Semirigid Ureteroscopy **74**
Introduction 74
Evolution of Ureteroscopes 74
Classification 75
Karl Storz 7/9.9 Fr Semirigid Ureteroscope 76
Richard Wolf Ureteroscopes 78
Olympus Ureteroscopes 79
Accessories 79
Instruments Used in Retrograde Endopyelotomy 79

8. Flexible Ureteroscope **81**
Evolution of Flexible Ureteroscopes 81
Types of Flexible Ureteroscopes 81
Basic Design of a Flexible Fiberoptic Ureteroscope 82
Optical System 82
Parts of a Conventional Fiberoptic Flexible Ureteroscope 82
Why Dual Deflection has Disappeared? 84
What do you Mean by Active and Passive Deflection? 84
What is Leakage Tester? 84
Accessories 87

9. Laparoscopy and Robotics Instruments **91**
Laparoscopic Instruments 91
Armamentarium 91
Video and Imaging 92
Access Devices 96
Insufflation Devices 97
Trocars 99
Instruments Used for the Retroperitoneal Approach 104
Laparoscopic Scissors 107
Laparoscopic Staplers 113
Miscellaneous Instruments 114
Angle of View 114
Special Laparoscopes 115
Newer Instruments 115
New Platforms for Laparoscopy 117
Robotics Surgery in Urology 117

10. Energy Sources in Open, Laparoscopic, and Robotic Surgery **122**
Introduction 122
Definitions 122
Classification 123
Electrosurgical Tissue Effects 125
Advance Bipolar Systems 126
Argon Beam Coagulator 132
Safety Consideration 134

11. Accessories **137**
Ureteric Catheter 137
Guidewires 140
Double J Stent 142
Description of Individual Catheters 145
Various Size Parameters and Color Coding of Catheters 147
Baskets and Retropulsion Devices 150
Urethral Balloon Dilators 153
Ureteric Dilator 153
Passive Dilators: Double J Stents 153
Percutaneous Nephrolithotomy Accessories 157

12. Sterilization **160**
Definitions 160
Approach to Disinfection and Sterilization 161
Different Methods of Sterilization 161
Aldehyde 165
Formaldehyde 166
Steps of Sterilization and Processing of Surgical Instruments 167

13. Open Urology Instruments **174**
Open Surgery Retractors 174
Vascular Instruments 177
Uses of Vascular Instruments 179
Stone Holding Forceps 179
Use 180
Instruments Used in Urethral Surgery 181

14. Pediatric Urology **186**
Pediatric Endourology Instruments 186
Deflux 195
Diagnostic and Therapeutic Indications 198
Diagnosis 198
Therapy 198

15. Lasers in Urology **199**
Introduction 199
Classifications of Laser as per its Use in Urology 199
Mechanism of Laser Beam Production in Holmium Laser 201
Neodymium:Yttrium Aluminum Garnet Laser 202
Potassium Titanyl Phosphate Laser 202
Holmium:Yttrium Aluminum Garnet Laser 202
Thulium:Yttrium Aluminum Garnet Laser 203
Thulium Fiber Laser 203
Anatomy of a Laser Fiber 204
Fiber Size 206
Role of Shape Tip and Configuration of the Laser Fiber 206
Newer Technologies that Enhance the Performance of a High Watt Holmium Laser 207
Different Techniques of Laser Lithotripsy 210
Techniques of Enucleation 211

SECTION 2: URORADIOLOGY

16. Stricture Disease **215**
Pan Anterior Urethral Stricture 215
Distal Bulbar Stricture 217
Post Traumatic Posterior Urethral Injuries 218
Proximal Penile Urethral Stricture 223

17. Benign Bladder Diseases **225**
Bladder Diverticulum 225
Neurogenic Bladder 227

18. Pediatric Urology **229**
Bilateral Primary Obstructive Megaureter 229
Posterior Urethral Valves with Reflux 231
Bilateral Posterior Urethral Valves 233

19. Urolithiasis **237**
Bilateral Renal Calculi 237
Staghorn Stone 238
Nephrocalcinosis 243
Bilateral Ureteric Stone 244
Calculus in Ectopic Kidney 246

20. Renal Imaging **250**
Pelvic Ureteric Junction Obstruction 250
Angiomyolipoma 254

Renal Mass 256
Renal Mass with IVC Thrombus 258
Small Renal Mass 260

21. Bladder and Ureteric Imaging **262**
Lower Ureteric Mass 262
Transitional Cell Carcinoma 263
Bladder Mass 265
Bladder Mass with Nonfunctioning Kidney 266

22. Adrenal Mass **268**
Adrenal Mass 268

23. Miscellaneous **273**
Trauma 273
Retrocaval Ureter 279

SECTION 3: UROPATHOLOGY

24. Renal Pathology **283**
Specimen 1: Nephrectomy with Upper Ureteric Stones 283
Specimen 2: Xanthogranulomatous Pyelonephritis 284
Specimen 3: Autosomal Dominant Polycystic Kidney Disease 285
Specimen 4: Angiomyolipoma with Hematoma 288
Specimen 5: Large Angiomyolipoma 289
Specimen 6: RCC (Clear Cell) 290
Specimen 7: RCC (Chromophobe) 292
Specimens 8 and 9: Oncocytoma 293
Specimen 10: RCC (Pappilary) 295
Specimen 11: Radical Nephroureterectomy 298
Specimen 12: Wilms' Tumor 300

25. Bladder and Ureter Pathology **304**
Specimen 13: Cystectomy 304
Specimen 14: Nephroureterectomy with Cystectomy 306
Specimen 15: Distal Ureteric Tumor 308

26. Penile Mass **310**
Specimen 16: Radical Penectomy 310
Specimen 17: Partial Penectomy 311

27. Testicular Mass **314**
Specimen 18: Testicular Tumor 314

28. Adrenal Mass **318**
Specimen 19: Adrenal Tumor 318

29. Prostatic Pathology **321**
Specimen 20: Radical Prostatectomy 321

SECTION 4: MISCELLANEOUS

30. Chemotherapy in Urological Malignancies **327**
Introduction 327
Chemotherapy for Bladder Cancer 327
Bacillus Calmette–Guérin (BCG) 328
Chemotherapy for Muscle Invasive Bladder Cancer 330
Immunotherapy for Bladder Cancer 333
Chemotherapy for Carcinoma Prostate 334
Adjuvant Therapy for Renal Cell Carcinoma 336
Chemotherapy in Squamous Cell Carcinoma of Penis 340
Chemotherapy in Testicular Cancers 341
BEP Protocol 341
EP Regimen (Etoposide and Cisplatin) 343
TIP Protocol (Paclitaxel, Ifosfamide, and Cisplatin) 343
VEIP Protocol (Vinblastine, Ifosfamide, and Cisplatin) 345
Chemotherapy for Neuroendocrine Tumors of Genitourinary System 345
Chemotherapy for Adrenocortical Carcinoma 346
Chemotherapy for Wilms' Tumor 347

31. Operative Notes **350**
Hypospadias 350
Distal Hypospadias 350
Proximal Repair 351
Complications 353
Anterior Urethral Strictures 355
Grafts 356
Urethral Strictures 356
Progressive Perineal Urethroplasty 357
Steps 358
Anastomosis 359
Complications 360
Vesicovaginal Fistula Repair 360
Nephrectomy 362
Preoperative Evaluation 362
Indications for Simple Nephrectomy 362
Steps 363

Partial Nephrectomy 363
Complications of Partial Nephrectomy 365
Radical Nephrectomy 366
Steps 366

Pyeloplasty 367
Dismembered Pyeloplasty 367
Complications 368

Surgeries for VUR 369
Principles of Antireflux Surgery 369
Approaches 369

Radical Prostatectomy 369
Surgical Approach 370
Surgical Technique 370
Complications 371

Radical Cystectomy 372
Complications 373

Adrenalectomy 374
Preoperative Preparation for Adrenalectomy 374
Open Adrenalectomy 376
Complications 377

Penile Mass 378
Partial Penectomy 378
Total Penectomy 379

Radical Orchiectomy 380

Partial Orchiectomy 381
Complications 382

Retroperitoneal Lymph Node Dissection 382
Types 382
Preoperative Planning 382
Steps 382
Inferior Vena Cava Thrombectomy 387
Politano–Leadbetter Technique 387
Glenn Anderson Technique 388
Cohen's Cross Trigonal Technique 389
Leich-Gregoir Extravesical Approach 390
Complications 391

32. Biostatistics 393
Statistics 393
Biostatistics 393
Kurtosis 399
Types of Error in Analysis 402
Screening and Diagnostics Tests 407

Receiver Operating Characteristic Curves 411
Regression Analysis 413
Survival Analysis Kaplan–Meier Curves 421

33. Research Methodology **422**
Study Designs 422
Observational Studies 422
Experimental Studies 426
Systematic Reviews and Meta-analysis 436

Index **445**