
Index

A

- Abnormal anatomy, prostate gland
 - brachytherapy, 165
 - prostate abscesses, 164
 - utricular cyst, 164
- Acute rejection, 213
- Acute tubular necrosis (ATN), 213
- ADPKD. *See* Autosomal-dominant polycystic kidney disease (ADPKD)
- Adrenal gland
 - clinical experience, 230–231
 - ultrasonography, 228
 - ultrasound probe, 230
- AML. *See* Angiomyolipomas (AML)
- Anesthesia, prostate biopsy, 172–173
- Angiomyolipomas (AML), 66, 69
- Anterior-posterior (A-P) dimensions
 - cross-sectional measurement
 - bladder, 211
 - pregnant patient with right flank pain, 207
 - renal pelvic and calyceal, 206
 - transverse, 159
- Anterior rectocele, 148
- ARPKD. *See* Autosomal recessive polycystic kidney disease (ARPKD)
- Artifacts
 - acoustic shadowing, 15–16
 - description, 14
 - with Doppler ultrasound
 - aliasing, 21, 24
 - spectral Doppler, 21–22, 24
 - twinkle artifact, 20–21, 23
 - edging artifact, 16, 17
 - increased through transmission, 14–15
 - “increased thru-transmission,” 41
 - renal ultrasound
 - bowel gas, 58, 60
 - caliceal stones, 58, 59
 - edging artifact, 58, 61
 - rib shadow, 57
 - side lobe artifact, 58, 61
 - twinkle artifact, 57–58
 - reverberation artifact, 16–17
 - twinkle artifact, 43
- ASAP. *See* Atypical small acinar proliferation (ASAP)

As low as reasonably achievable (ALARA)
principle, 30–31, 40

ATN. *See* Acute tubular necrosis (ATN)

Attenuation

- absorption, 12
 - description, 11–12
 - diffuse reflector, 13, 14
 - impedance, 13–14
 - measurement, 12, 13
 - reflection, 13
 - refraction, 13
 - scattering, 13
 - TGC, 40
 - thermal effects, 27
- Atypical small acinar proliferation (ASAP), 178
- Automated bladder scanner, 140–141
- Autosomal-dominant polycystic kidney disease (ADPKD), 191
- Autosomal recessive polycystic kidney disease (ARPKD), 191

B

- Benign epididymal lesions
- adenomatoid tumor, 84, 86
 - appendix epididymis and testis, 84, 85
 - epididymal cyst, 84, 85
 - epididymo-orchitis, 82–84
 - leiomyoma, 85
 - papillary cystadenoma, 85
 - spermatocoele, 84, 85
 - sperm granuloma, 83–84
- Benign lesions, testis
- CAH, 95, 96
 - cystic lesions, 91–94
 - intratesticular abscess, 93
 - intratesticular hematoma, 93, 95
 - intratesticular varicocele, 93, 94
 - nonpalpable testis, 89
 - primary orchitis, 88, 89
 - sarcoidosis, 95
 - testicular abscess, 88–90
 - testicular macrocalcification, 91
 - testicular torsion, 86–88
 - TM, 89–91

- Benign lesions, testis (*cont.*)
- Benign prostatic hyperplasia (BPH)
 cystic dilatation, 173–174
 prostate cancers, 171–172
- Bioeffects, ultrasound. *See also* Tissue heating
 mechanical effects
 acoustic field, 28
 cavitation, 28–29
 torque and streaming, 28
 thermal effects
 intensity, 27
 scattering and absorption, 27
 temporal factors, 27–28
 testicular cyst, 28
- Bladder
 abnormal findings, 146
 normal ultrasound anatomy, 145–146
 SPT (*see* Suprapubic tube placement (SPT))
- Bladder neck descent (BND), 144–145
- BND. *See* Bladder neck descent (BND)
- Bosniak renal cysts classification
 Bosniak I, 61, 65
 Bosniak II, 61, 65
 Bosniak III, 61, 66
 Bosniak IV, 61, 67
 classification system, 61, 67
- BPH. *See* Benign prostatic hyperplasia (BPH)
- Brachytherapy, 235–236
- C**
- CD. *See* Color Doppler (CD)
- CEF. *See* Central echogenic focus (CEF)
- Central echogenic focus (CEF), 188
- Central zone (CZ), 160
- Chronic rejection, 213
- Color Doppler (CD) ultrasonography
 modes
 beam steering, 19, 21
 expected velocity, 20, 23
 radial artery, 19, 20
 resistive index, 20, 23
 with spectral display, 20, 22
 velocity of motion, 19, 20
 renal imaging, 55
 and spectral, scrotal ultrasound, 76–77
- Computerized tomography (CT) imaging
 lower quadrant transplant kidney, 219
 transplant renal stone, 219
- Congenital adrenal hyperplasia (CAH), 95, 96
- Contrast agents, 24, 26
- Corpora amylacea, 162, 163
- Cryotherapy, 233–234
- CT imaging. *See* Computerized tomography (CT) imaging
- Curved-array transducer, 131
- Cystic lesions, testis
 epidermoid cysts, 92, 93
 TERT, 93, 94
 testicular cysts, 91–92
 tunica albuginea, 92
- CZ. *See* Central zone (CZ)
- D**
- Detrusor wall thickness (DWT), 145
- Dilated distal ureter, 136
- Doppler ultrasound
 color and spectral, scrotum, 76–77
 history, 3–4
 modes
 artifacts (*see* Artifacts)
 color Doppler ultrasonography, 19–21
 Doppler effect, 18
 frequency shift, 19
 power Doppler ultrasonography, 19–20
 PDU (*see* Penile Doppler ultrasound (PDU))
 prostate gland, 165
 renal imaging, 55
- Dorsal vein thrombosis, 120–121
- DWT. *See* Detrusor wall thickness (DWT)
- E**
- EBRT. *See* External beam radiotherapy (EBRT)
- ED. *See* Erectile dysfunction (ED)
- Elastogram, prostate gland, 167–168
- Enterocoele, 148–149
- Epididymal lesions
 benign (*see* Benign epididymal lesions)
 malignant, 85–86
- Epididymo-orchitis
 causes, 83
 chronic epididymitis, 83, 84
 epididymitis, 83
 gray-scale ultrasound, 83
 physical exam, 82–83
 power Doppler ultrasound, 83
- Erectile dysfunction (ED)
 arteriogenic, 117
 assessment, vascular RI, 115, 116
 corpus cavernosum (cc), 114, 115
 diagnostic study, 115
 early treatment, metabolic factors, 115
 fully erect phallus, 117, 118
 intracavernosal injection therapy, 115–116
 with maximal stimulation, 117, 118
 PDU (*see* Penile Doppler ultrasound (PDU))
 protocol, 119
 treatment protocol, low-flow priapism, 116
 vasculogenic, 117
 vasoactive agents, 116
 veno-occlusive insufficiency, 117
- ESBL. *See* Extended-spectrum
 beta-lactamase (ESBL)
- Extended-spectrum beta-lactamase
 (ESBL), 172
- External beam radiotherapy (EBRT), 177
- Extratesticular lesions, scrotal ultrasound
 epididymal lesions (*see* Epididymal
 lesions)
 hematocele/pyocele, 81, 82
 hydrocele, 80–81
 inguinal hernia, 80
 leiomyosarcomas, 82

- lipomas, spermatic cord, 82
 - rhabdomyosarcomas, 82
 - scrotal hernia, 80, 81
 - varicocele, 93
- G**
- Gravid kidney
 - measurement, 205
 - and nongravid patients, 203, 204
 - right ureteral jet, 209
- H**
- Harmonic scanning
 - nonlinear propagation, sound waves, 23, 25
 - spatial compounding, 23, 25
 - three-dimensional (3-D), 23–24, 26
 - Hemolysis, elevated liver enzymes and low platelets (HELLP) syndrome, 204
 - Henoch-Schonlein purpura (HSP), 79
 - HGPIN. *See* High-grade intraepithelial neoplasia (HGPIN)
 - HIFU. *See* High-intensity focused ultrasound (HIFU)
 - High-grade intraepithelial neoplasia (HGPIN), 178
 - High-intensity focused ultrasound (HIFU), 155, 156, 158, 236
 - History, ultrasound
 - discoveries, 1
 - Doppler ultrasound, 3–4
 - dubbed “ultrasound cardiography,” 2
 - motion-mode (M-mode), 2, 3
 - in obstetrics and gynecology, 3
 - phenomenon of physics, 1
 - piezoelectricity, 2
 - prostate, 4–5
 - “reflectoscope,” 2
 - scrotum, 6
 - sonascope, 3
 - therapeutic uses, 6
 - transrectal ultrasound guidance, 6
 - as treatment modality, 2
 - use of SONAR, 2
 - Hormonal ablative therapy, 177
 - Human tissues, interaction of ultrasound
 - artifacts, 14–17
 - attenuation (*see* Attenuation)
 - Hydrocele
 - congenital/acquired, 80–81
 - description, 80
 - gray-scale ultrasound, 81
 - scrotal ultrasound, 81
 - ultrasound, 199
 - Hydronephrosis, ultrasound
 - renal pelvic dilation, 193
 - SFU system, 193, 195
 - UPJ obstruction, 193
- I**
- Image quality, urologic
 - characteristics, 46
 - “good-quality image,” 35
 - interfaces, 36, 38
 - monitor display (*see* Monitor)
 - parameters and settings, 35, 36
 - transducer selection, 35–36
 - Impedance
 - description, 13–14
 - fat, 14, 15
 - tissue heating, 28
 - urine and bladder calculus, 14, 15
 - Indications
 - penile ultrasound, 114–123
 - renal ultrasound, 47
 - scrotal ultrasound, 77–79
 - Inflammatory, scrotal ultrasound
 - cellulitis/scrotal wall abscess, 79
 - epidermoid cysts, 79
 - Fournier’s gangrene, 79
 - miscellaneous scrotal skin lesions, 79
 - pseudotumor of scrotum, 80
 - Intersex, ultrasound, 199, 200
 - Intraoperative urologic ultrasound
 - adrenal gland (*see* Adrenal gland)
 - bladder, 231–232
 - kidneys (*see* Kidneys)
 - prostate (*see* Prostate)
 - renal pelvis and ureters (*see* Renal pelvis)
 - testis, 237–238
 - transducers (*see* Transducers)
 - Intravesical prostatic protrusion (IPP), 138–140
- K**
- Kidneys
 - attenuation, 12
 - cavitation, 29, 30
 - CEF, 188
 - children, 185, 186
 - contralateral, 195
 - duplication, 194
 - ectopic, 190
 - embryologic journey, 189
 - febrile urinary tract infections, 192
 - history, ultrasound, 5
 - horseshoe, 189
 - imaging, 186
 - isthmus, 189
 - laparoscopic ablative and partial nephrectomy, 227–228
 - and liver, impedance, 14
 - malrotated and fused, 190
 - multicystic dysplastic, 191, 193
 - pediatric, 188
 - percutaneous nephrostomy and nephrolithotomy, 224–226
 - percutaneous renal biopsy, 226–227
 - polycystic disease, 191

Kidneys (*cont.*)

- renal cortex, 188
- renal pyramids, 188
- renal vein thrombosis, 189
- sagittal view, 37, 38, 187, 188
- ultrasound (*see* Renal ultrasound)

L

- Laparoscopic ultrasound (LUS)
 - ablative and partial nephrectomy, 227–228
 - description, 223
- LUS. *See* Laparoscopic ultrasound (LUS)
- Lymphocele, 217

M

- Magnetic resonance imaging (MRI)
 - diverticula, 146
 - radiographic map, 149
- Male infertility, spectral Doppler ultrasound
 - antisperm antibodies, 103
 - impaired semen quality and azoospermia, 102–103
 - testicular atrophy, 103, 104
 - testicular biopsy, 103
 - testicular trauma, 103–105
 - varicocele, 100–102
- Malignant epididymal lesions
 - clear cell carcinoma of epididymis, 86
 - incidence, 85–86
 - sarcoma of epididymis, 86
- Malignant lesions, testis
 - germ cell tumors, 95
 - NSGCT, 96–98
 - seminoma, 96, 97
 - testicular lymphoma, 98, 99
- MCDK. *See* Multicystic dysplastic kidney (MCDK)
- Mechanical index (MI), 29, 30
- Mechanical ultrasound waves
 - amplitude, 9, 10
 - cycle, 9
 - longitudinal waves, 9, 10
 - mechanical waves, 9
 - period, 9
 - velocity, 10
 - wavelength, 9
- Midurethral slings, 149–150
- Modes of ultrasound
 - Doppler ultrasound, 18–23
 - gray-scale and B-mode, 17–18
- Monitor
 - axial resolution, 41, 42
 - cine function, 45–46
 - depth/size function, 43–44
 - display information, 36–37
 - field of view, 44–45
 - focal zone adjustments, 43, 44
 - frequency adjustment, 40, 42
 - gain and acoustic power, 38–40
 - machine settings and icons, 37, 38
 - multiple focal zones, 43

- sagittal image, right testis, 37, 38
- TGC (*see* Time-gain compensation (TGC))
- transverse scanning, 37–38
- MRI. *See* Magnetic resonance imaging (MRI)
- Multicystic dysplastic kidney (MCDK), 190, 191

N

- Neoplasms, 136–137
- Neurogenic bladder, ultrasound, 198
- Nonseminomatous germ cell tumors (NSGCT)
 - choriocarcinoma, 97–98
 - color Doppler flow study, 97
 - etiology, 96–97
 - heterogeneous appearance, 97
 - teratoma, 98
 - testis-sparing resection, 98
 - yolk sac tumors, 97
- Normal anatomy, prostate gland
 - AFS, 160
 - corpora amylacea, 162, 163
 - histological/anatomical zonal architecture, 160, 162
 - prostatic urethra traverses, 162
 - seminal vesicles (SV), 163
- NSGCT. *See* Nonseminomatous germ cell tumors (NSGCT)

P

- Parapelvic cysts, kidney
 - description, 58–59
 - dromedary hump, 59, 63
 - hypertrophied columns of Bertin, 59, 63
 - hypoechoic structure, 59, 62
 - junctional defects, 60, 64
 - with long axes, 59, 62
 - persistent fetal lobulation, 61, 64
- Patient identification and documentation, 31
- Patient safety
 - acoustic output, selection, 29
 - ALARA, 30–31
 - MI, 29, 30
 - TI, 29–30
- PCA3. *See* Prostate cancer antigen-3 (PCA3)
- PD. *See* Power Doppler (PD)
- Peak systolic velocity (PSV), 204, 212
- Pediatric urologic ultrasound
 - acute testicular pain, 199–201
 - bladder, 196, 197
 - CT and MR imaging, 185
 - duplicated collecting system, 194, 196
 - hydrocele, 199
 - hydronephrosis, 193, 195
 - infection and scarring, 189–190, 192
 - intersex, 199, 200
 - kidney, 187–188
 - neurogenic bladder, 198
 - polycystic kidney disease, 191, 194
 - posterior urethral valves, 197–198
 - renal cystic diseases, 190–191, 193
 - renal ectopia, 189, 190

- renal tumors, 191–192, 194
- renal vein thrombosis, 189, 191
- scrotum, 198
- stones, 192–193
- undescended testis, 198–199
- unilateral renal agenesis, 188–189
- ureterocele, 196
- vesicoureteral reflux, 196–198
- Pelvic floor ultrasound
 - abnormal findings
 - bladder, 146
 - urethra, 146
 - anterior compartment, 143
 - anterior rectocele, 148
 - enterocele, 148–149
 - midurethral slings, 149–150
 - normal anatomy
 - bladder, 145–146
 - BND, 144–145
 - urethra, 144
 - periurethral bulking agents, 153
 - posterior rectocele, 148
 - prolapse assessment, 146–148
 - prolapse mesh kits, 150–152
 - ultrasonography, 143–144
 - urologists, 143
- Pelvic kidneys, ultrasound evaluation
 - anatomy, 210
 - Lich-Gregoir technique, 210
 - nipple artifact, 210, 212
 - orifice and ureter with obstructing stone, 210, 211
 - posttransplant kidney, 210
 - PSV, 212
 - RAR, 213
 - stent, 210, 211
 - transplant kidney, 210
 - transplant kidney and renal vasculature, 212
 - ureteral implant with echo and posterior shadowing, 210, 212
- Penile Doppler ultrasound (PDU)
 - description, 111
 - ED
 - diagnosis, 117
 - as diagnostic tool, 111–112
 - documentation, 112
 - element, ED workup, 124, 125
 - parameters, 117
 - penile fracture, 120
 - priapism, 119–120
- Penile fracture, 120
- Penile masses, 121
- Penile ultrasound
 - angle of insonation, 124
 - description, 111
 - Doppler shift (FD), 123–124
 - element of ED workup, 124, 125
 - indication
 - description, 114, 115
 - dorsal vein thrombosis, 120–121
 - ED, 114–118
 - fracture, 120
 - masses, 121
 - Peyronie's disease, 121
 - priapism, 119–120
 - urethral pathologies, 121–123
 - patient preparation, 112
 - PDU (*see* Penile Doppler ultrasound (PDU))
 - protocol
 - anatomic scanning, 112
 - baseline images, 113–114
 - corpora cavernosa (cc), 112, 114
 - corpus spongiosum, 112
 - indication, 112
 - mid-shaft views, 112, 113
 - survey scan, 112, 113
 - scanning technique, 111–112
 - ultrasound settings, 111
- Peripheral zone (PZ)
 - and CZ, 160
 - prostate cancer on TRUS, 155, 156
- Periurethral bulking agents, 152, 153
- Peyronie's disease, 121
- Physical principles, ultrasound
 - with biological tissue (*see* Human tissues, interaction of ultrasound)
 - contrast agents, 24, 26
 - harmonic scanning, 23–24
 - image generation, 10–11
 - mechanical ultrasound waves, 9–10
 - modes of ultrasound, 17–23
- Polycystic kidney disease, ultrasound, 191, 194
- Posterior rectocele, 148
- Posterior urethral valves, ultrasound, 197–198
- Power Doppler (PD) ultrasonography
 - modes
 - backscatter, 19, 21
 - description, 19
 - integrated amplitude, 20
 - intensity of color, 19, 21
 - renal imaging, 55
- Pregnancy
 - stent placement (*see* Stent placement)
 - ultrasound evaluation
 - AP measurement, 205
 - diuretic Doppler ultrasound, 204–205
 - gravid and nongravid patients, 203
 - hormonal changes, 203
 - hydronephrosis, 203–204, 206
 - NSAIDs, 205
 - pathological obstruction, 205
 - renal pelvic and calyceal measurements, 206
 - RI, 204
 - ultrasonography, 204
 - ureteral jets, 207–209
 - ultrasound-guided ureteroscopy
 - physician goals, 210
 - sonography and ureteroscopy, 210
 - stent, 210

PRF. *See* Pulse repetition frequency (PRF)

Priapism, 119–120

Prolapse mesh kits, 150–152

Prostate

abscesses, 164

brachytherapy, 235–236

critical disinfection, 32

cryotherapy, 233–235

HIFU, 236

history, ultrasound, 4–5

laparoscopic radical prostatectomy, 236–237

transducers selection, 36, 37

transperineal biopsies, 233

transrectal ultrasound, 232–233

Prostate biopsy

anesthesia, 172–173

antibiotic prophylaxis, 178

CD, 174–175

description, 171

EBRT, 177

ESBL, 172

hematuria and hemospermia, 178

HGPIN and ASAP, 178

hypoechoic lesions, 174

medications, 179–180

pathologic elements, 179

perineal recurrence, 178

peripheral zone, 172

prostatic and paraprostatic cysts, 173–174

prostatic glandular anatomy, 171–172

PSAD, 173

repeat biopsy, 175–176

saturation biopsy, 176–177

strategies, 175

transrectal biopsy technique, 173

tru-cut needle travels, 175

TRUS, 171

TRUS/TPB, 177

Prostate cancer antigen-3 (PCA3), 176

Prostate-specific antigen (PSA)

PSAD, 159

serum, 155

Protocol and technique, scrotal ultrasound

color and spectral Doppler, 76–77

documentation, 77

indications, 77–79

with phallus support, 73, 76

in supine position, 73, 75

survey scan, 75–77

transducer selection, 73, 75

Protocol, penile ultrasound, 112–114

PSA density (PSAD), 159, 173

PSV. *See* Peak systolic velocity (PSV)

Pulse repetition frequency (PRF)

aliasing, 21

description, 10

tissue heating, 28

ultrasound ranging, 11, 12

PZ. *See* Peripheral zone (PZ)

R

RAR. *See* Renal aortic ratio (RAR)

RAS. *See* Renal artery stenosis (RAS)

Renal aortic ratio (RAR), 213

Renal artery stenosis (RAS)

grayscale ultrasound, 215

Parvus Tardus, 215

and PSV, 212

and RAR, 213

Renal artery thrombosis (RAT), 214, 215

Renal imaging

left kidney

goal of, 52

small exophytic peripheral lesion, 52

spleen, 50–51

transducer, 50

true midsagittal view, 51

upper and lower poles, 51–52

orientation, 49

right kidney

liver window, 49, 50

lower pole, left kidney, 50, 51

midsagittal plane, 50

in supine position, 49

transducer, 49–50

Renal pelvis and ureters, 238–239

Renal ultrasound

adjacent structures, 54

AML, 66, 69

anatomic considerations, 49

artifacts, 57–58

contours, 52

cortical scars, 62, 64, 68

cortical vs. parenchymal thickness measurements, 52–54

cystic diseases, 190–191, 193

cysts (*see* Bosniak renal cysts classification)

description, 47

Doppler, 55

echotexture, 54

ectopia, 189, 190

equipment and patient preparation, 48

hydronephrosis, 66, 69

image documentation, 55

indications, 47

intraoperative ablation, 64, 66

left kidney, imaging, 50–52

measurements, 52

medical renal disease, 64, 68

parapelvic cysts, 58–61

pathologic findings, 58

renal masses, 64

RI, 55–57

right kidney, imaging, 49–50

stones, 66

tumors, 191–192, 194

ultrasound report, 54–55

vein thrombosis, 189, 191

Resistive index (RI)

Doppler angle indicator, 55–56
 elevation, 205, 213
 formula, 204
 NSAIDs, 205
 patients with partial obstruction, 57
 pregnant patient, 205
 renal arcuate and interlobar arteries, 204
 resultant waveform, 56
 ureteral obstruction, 56–57
 Retrovesical angle (RVA), 145
 RI. *See* Resistive index (RI)
 RVA. *See* Retrovesical angle (RVA)

S

Sagittal images
 adolescent male, scrotal pain, 201
 febrile urinary tract infections, 192
 normal kidney, 188
 pre-and post-void images, normal bladder, 197
 renal duplication, 196
 renal ultrasound, teenager, 194
 renal vein thrombosis, 191
 scrotal ultrasound, 199
 Scanning environment, 31, 36
 Scrotal hernia
 gray-scale ultrasound, 80, 81
 scrotal ultrasound, 80
 Scrotal ultrasound
 anatomy, 71–73
 extratesticular lesions (*see* Extratesticular lesions, scrotal ultrasound)
 inflammatory (*see* Inflammatory, scrotal ultrasound)
 male infertility (*see* Male infertility, spectral Doppler ultrasound)
 noninflammatory, 78–79
 scanning protocol and technique, 73–78
 SCC, 80
 scrotal wall lesions, 78
 testicular lesions (*see* Testicular lesions, scrotal ultrasound)
 tumors of the spermatic cord, 82
 Scrotum
 anatomy
 adult epididymis, 72, 73
 adult testis, 71
 appendix testis and epididymis, 72, 74
 blood supply, 73, 75
 color flow imaging, 73
 mediastinum testes, 71, 73
 normal adolescent testis, 71, 72
 rete testis, 71–72
 seminiferous tubules, 71, 72
 spermatic cord and paratesticular structures, 73, 75
 testes, 71
 testicular appendages, 72, 74
 wall, 71
 history, ultrasound, 6
 ultrasound, 198

Seminal vesicles (SV)
 diagnose cysts, 156
 measurement, 163
 prostate, 163
 and vasa deferentia, 157
 SFU system. *See* Society for Fetal Urology (SFU) system
 Society for Fetal Urology (SFU) system, 193, 195
 Sonographic images
 Doppler signal, 200
 urinary tract, 198
 SPT. *See* Suprapubic tube placement (SPT)
 Squamous cell carcinoma (SCC), 80
 Stent placement
 clinical data, 239
 conservative treatment, 238
 nonsteroidal anti-inflammatory medications, 238
 PCN, 238
 technique, 238–239
 ultrasound probe, 238
 ureteral, 238
 Suprapubic tube placement (SPT)
 application, 231
 clinical data, 232
 technique, 231–232
 ultrasound probe, 231
 Survey scan, scrotal ultrasound
 longitudinal schematic view, 76
 longitudinal view, 76
 measurements, 76
 transverse schematic view, 76, 77
 transverse view, 75–76
 SV. *See* Seminal vesicles (SV)

T

Testicular lesions, scrotal ultrasound
 benign lesions (*see* Benign lesions, testis)
 malignant lesions (*see* Malignant lesions, testis)
 nonpalpable testicular mass, 98–99
 Testicular malignancies. *See* Malignant lesions, testis
 Testicular microcalcification (TM)
 bilateral multiple microcalcifications, 89, 90
 carcinoma in situ (CIS), 89
 clinical data, 89
 color Doppler study, 89, 90
 definition, 89
 management, 91
 prevalence, 89
 Testicular torsion
 diagnosis, 87
 extravaginal/intravaginal, 86–87
 gray-scale ultrasound, 87, 88
 symptoms, 86
 “torsion knot” or “whirl-pool appearance,” 87
 ultrasound, 86
 Testis
 clinical data, 237–238
 ultrasound probe, 237
 TGC. *See* Time-gain compensation (TGC)

- Thermal index (TI), 29–30
- Three-dimensional (3D) ultrasound,
prostate gland, 166–167
- Time-gain compensation (TGC)
amplification, signal strength, 40
description, 40
renal cyst, 61
shape, TGC curve, 40, 41
- Tissue heating
beneficial effects, 28
potential, 28
scattering and absorption, 27
temporal factors, 27–28
type, 28
- TOT. *See* Transobturator taping (TOT)
- Trabeculation, 134, 135
- Transabdominal pelvic ultrasound
abnormalities, bladder stones, 134
automated bladder scanning, 140–141
bladder (*see* Urinary bladder)
documentation, 139–140
equipment and techniques
 curved-array transducer with orienting
 notch, 130, 131
 probe manipulation, 130, 131
 transverse view, 130, 132
foreign bodies and perivesical processes, 137–138
indications, 129
neoplasms, 136–138
patient, 129–130
prostate gland, 138–139
trabeculation and diverticula, 134–136
ureteral dilation, 135–137
ureteral efflux, 134
urologists, 129
- Transducers
console interface, 38, 39
curved array, 36, 37
Doppler shift (FD), 123
frequency, 36, 37
linear array, 36, 37
linear array transducer, 111
LUS, 223
mid-shaft views, 112, 113
pulse, 41
renal imaging
 curved array, 48
 left kidney, 50
 right kidney, 49–50
scrotal ultrasound
 curved array probe, 73, 75
 high-frequency linear array, 73
sector/vector, 223
selection, 35–36
and sonographer, 36
survey scan, 112, 113
transrectal, 223–224
- Transition zone (TZ)
and CZ, 160
prostate cancer on TRUS, 155, 156
- Translabial ultrasound
advantages, 150
apical and posterior compartment prolapse,
 measurement, 148
application, 146–147, 149, 150
midsagittal line, 2D, 144
- Transobturator taping (TOT), 150–152
- Transplant complications
acute and chronic rejection, 213
acute pyelonephritis, 220
ATN, 213
AV fistula, 217, 220
foreign body, 213
lymphocele, 217, 219
RAT, 214, 215
renal artery stenosis, 214–216
renal transplant stones, 217, 219
renal vein thrombosis, 213–215
ureteral and UPJ obstruction, 215–219
- Transrectal ultrasound (TRUS)
prostate gland
 abnormal anatomy (*see* Abnormal anatomy,
 prostate gland)
 abnormalities, 157
 clockwise rotation visualizes, 159
 complications, 160
 contrast-enhanced ultrasound, 165–166
 coupling medium, 158
 definition, 155
 documentation, 160
 Doppler ultrasound, 165
 3D ultrasound, 166–167
 elastogram, 167–168
 gray-scale, 158
 hematospermia, 160
 hematuria, 160
 indications, 155–157
 invasive procedure, 157–158
 lithotomy position, 158
 lower frequency transducers, 158
 meticulous and systematic approach, 165
 neoplastic tissue, 165
 normal anatomy (*see* Normal anatomy,
 prostate gland)
 patients, 158
 planimetry, 159–160
 PSAD, 159
 side-fire/end-fire probe, 158
 survey scan, 159
 transverse and A-P dimensions, 159
 transverse and the sagittal planes, 158–159
prostatic biopsy, 171
TPB, 177
treatment and hormonal ablative therapy, 177
urologists' application, 171
- Transrectal ultrasound-guided/transperineal prostate
 biopsy (TRUS/TPB), 177
- Transurethral microwave therapy (TUMT), 156
- Transurethral radiofrequency needle ablation
 (TUNA), 156

- Transvaginal taping (TVT), 150, 151
 TRUS/TPB. *See* Transrectal ultrasound-guided/transperineal prostate biopsy (TRUS/TPB)
 Tubular ectasia of the rete testis (TERT), 93
 TUMT. *See* Transurethral microwave therapy (TUMT)
 TUNA. *See* Transurethral radiofrequency needle ablation (TUNA)
 TVT. *See* Transvaginal taping (TVT)
 TZ. *See* Transition zone (TZ)
- U**
- Ultrasound equipment
 cleaning, 32
 critical disinfection, 32–33
 high-level disinfection process, 32
 image quality, 35–46
 maintenance, 31
 penile (*see* Penile ultrasound)
 physical principles (*see* Physical principles, ultrasound)
- Ultrasound image generation
 amplitude, returning waves, 11
 piezoelectric effect, 10, 11
 PRF, 10
 pulsed-wave ultrasound, 10–11
 sequence of events, 11, 12
 transducer, 10
 ultrasound ranging, 11, 12
- Ultrasound performance, children
 bladder, 186
 definitions, 185
 indications, 185–186
 kidneys, 186
 scrotum, 186–187
- Ultrasound reports, renal
 equipment, 55
 findings, 55
 impression, 55
 indications, 55
 report generation, 54
- Undescended testis, 198–199
- Unilateral renal agenesis, ultrasound, 188–189
- Ureteral jets
 absence, 208, 209
 applications, 207
 double pigtail ureteral stent, 207
 dragon-breathing fire, 207
 presence, 208, 209
 and sluggish jet, 206
 well-hydrated patients, 208
- Ureterocele, 135–137, 196
- Ureteropelvic junction (UPJ)
 obstruction, 193
- Urethra
 abnormal findings, 146
 normal ultrasound anatomy, 144
- Urethral strictures, 122–123
- Urinary bladder
 automated scan, 140, 141
 balloon catheter, 131
 carcinoma, 137
 dilated distal ureter, 135, 136
 diverticula, 134, 136
 documentation, 187
 indications, 129, 130, 186
 measurements, 140, 186
 metastatic lesion, 138
 neurogenic, 198
 pre- and post-void images, 196, 197
 residual blood clot, 131
 stones/calculus, 134, 135
 survey scan, 132
 thickness and contour, 196
 trabeculation, 134, 135
 transverse images, 186
 volume, measurement, 132–133
 wall lesion, 137
 wall thickness, measurement, 133–134
- Utricular cyst, 164
- V**
- Varicocele
 blood flow velocities, 101
 cause, 100
 description, 100
 low-reflective dilated veins, 100, 101
 semen analysis, 101–102
 subfertility, 100
 ultrasound characteristics, 100–101
- VCUG. *See* Voiding cystourethrogram (VCUG)
- Vesicoureteral reflux, ultrasound, 196–198
- Voiding cystourethrogram (VCUG)
 hydronephrosis, 193
 irregular-shaped bladder, 198
 vesicoureteral reflux, 189
 young child, bilateral vesicoureteral reflux, 197
- W**
- Wall thickness measurement, urinary
 bladder, 133–134