INDEX

A

Aaby, Lt. Col. Gene
- aeromedical evacuation review, 6–7
- debridement of wounds review, 27
- penetrating abdominal injury analysis, 20
- rectal wound treatment, 22

Abdominal abscesses
- complication of aeromedical evacuation, 7
- postoperative complication, 21, 24–25

Abdominal wounds
- bacteremic shock, 25
- colon wounds, 21–22
- colostomies, 21–22
- comparative wound statistics and mortality for World Wars I and II and the Korean and Vietnam Wars, 19
- duodenal wounds, 20
- intestinal obstruction and, 25
- liver wounds, 21
- management, 19–23
- penetrating wounds, 20
- percentage mortality from, by organ, in three wars (table), 87
- postoperative abscesses, 21
- postoperative complications, 20, 21, 23–25
- small-bowel wounds, 20
- type of wounding agent and, 20
- urologists and, 23

Abscesses
- See also specific types
- abdominal wounds and, 21, 24–25
- bladder wounds and, 93–94, 107, 225

Acalculus cholecystitis
- intraabdominal sepsis and, 24

Acute renal failure
- aminoglycoside toxicity and, 219
- artificial kidney team referral, 33
- hemodialysis and, 31
- hyperkalemia and, 33
- kidney failure team and, 30–31
- nephrotoxic drugs and, 30, 218–219
- Second Conference on War Surgery discussion, 8–9
- symptoms, 30

Acute renal insufficiency
- causes, 31
- diagnostic difficulty, 31

Acute respiratory failure
- causes, 28
- fat emboli, 28, 29–30
- “wet lung” syndrome, 28, 29

Adult respiratory distress syndrome
- fat emboli and, 28, 29–30
- “wet lung” syndrome and, 28, 29

Aeromedical evacuation
- See also helicopter evacuation arrangements for, 13
- C-141s and, 5–6
- consensus recommendations, 7
- evolution of, 5–6
- medical and surgical problems, 6–7
- mortality rate, 7
- reasons for increase in, 6
- time issue, 1, 6, 12, 86

Amoebic dysentery, 34

Amoebic infections, 34

American Association for Surgery of Trauma
- Organ Injury Scale, 42, 43, 58

Aminoglycoside toxicity
- acute renal failure and, 219
- agents used, 218
- nephrotoxicity, 218–219
- ototoxicity, 218

Amputation
- decision for, 27

Anejaculation
- posterior urethra and prostate wounds and, 155, 157
- posterior urethral disruption associated with pelvic fracture and, 133

Anesthesia
- debridement of wounds and, 18, 27
- types, 18
- urinary output and, 18

Anesthesia and Perioperative Care of the Combat Casualty, 18

Anterior urethral injuries
- See also posterior urethra and prostate wounds; posterior urethral disruption associated with pelvic fracture
- associated organ system injuries, 192, 193, 194, 204, 228
- case reports, 198–204
- causes (table), 193
- complications, 196, 205, 228
- debridement, 195, 197, 204, 205
- description and disposition of casualties with (figure), 193
- diagnosis, 194–198, 204, 228
- drainage, 195, 197, 205
- gunshot wounds and, 205
- Hamilton-Russell technique, 195
initial treatment in Vietnam, 195–196, 204–205, 228–229
marsupialization, 195, 197, 198, 205
open dressings, 195
plastic reconstruction, 198
strictures and, 196, 197, 205
surgical procedures in Japan (table), 197
tension-relaxing technique, 195
treatment in Japan, 196–198, 228
treatment principles, 204
urethrography and, 194, 204
urinary diversion, 196, 205
World War II comparison, 191
wound analysis, 192–194

Antibiotic treatment
See also aminoglycoside toxicity
abdominal injuries, 22, 23
bladder disorders, 210
bladder wounds, 89, 117
clostridial infection, 28
edidymitis, 213–214
gonococcal and nongonococcal urethritis, 212
initial treatment and, 223
intraabdominal sepsis, 24
penetrating and blunt injuries of the external genitalia, 160
penetrating renal injuries, 53–54
penile injuries, 177
scrotal-testicular injuries, 165, 173
ureteral injuries, 83

Ardison, Capt. Gary
urinary tract calculi, 33–34

ARDS
See adult respiratory distress syndrome

ARF
See acute renal failure

ARI
See acute renal insufficiency

Ascariasis
occurrence and treatment, 32

B
Bacteremic shock
acute renal insufficiency and, 31
common sequence of events, 31
posterior urethra and prostate wounds and, 141
postoperative complication, 25
Balanoposthitis, 214
Barnes, Maj. Asa
fresh frozen plasma use, 18
Battalion aid stations

initial treatment, 3
Battalion surgeons
civic action projects, 15
role and responsibilities, 15
Bizer, Capt. Lawrence S.
pelvic bleeding management, 26

Bladder disorders
catheter-induced infections, 210
dysfunction secondary to spinal cord injuries, 210
nocturnal enuresis, 210–211
Bladder wounds
See also pelvic fractures and crush injuries of the bladder
anatomical considerations, 106
associated genitourinary organ wounds, 90, 106–107, 225
associated wounds to abdominal and pelvic organs, 87, 90, 91, 106–107, 225
case reports, 96–105
causes, 85, 89
cystography and, 88
debridement, 89, 103–104, 110, 225
diagnosis, 87
drainage, 88–89, 96, 103–104, 225
gunshot wounds, 85, 89
location and, 85, 105–106
long bone injuries and, 92
management, 106, 107–108, 225
missed diagnosis, 102–103
missile wounds sites of entry, 92
mortality rate, 86, 106, 108–109, 225
occurrence, 85
penetrating wounds, 85–111
reconstruction and anastomosis, 88
soft tissue injuries and, 92
suprapubic drainage, 88–89, 96, 110
surgery and treatment of complications, 94–96, 97–99, 102–103
surgical repair, 23
symptoms, 87
treatment, 88
types, 89–90
ureteral reimplantation and stenting, 88, 107
World Wars I and II and Vietnam War comparison, 85
World Wars I and II mortality rate, 19
wound analysis, 89–92
“zone of injury,” 110

Blanchard, T.W.
urethral injuries, 192, 194, 195, 198
Blohm, Lt. Col. Raymond W., Jr.
malaria and troop effectiveness, 34

Blood transfusions
blood storage issues, 2
coagulopathy, 17–18
fresh frozen plasma, 17
hypovolemic shock treatment, 16
large-bore catheters and, 222
“outdated” blood and, 17
penetrating and blunt injuries of the external genitalia and, 160
resuscitation of seriously wounded soldiers and, 17
transfusion reactions, 30, 31

Blood typing techniques, 17

Blumberg, N.
urethral injuries, 195, 205

Blunt renal injuries
associated injuries, 54–55
case reports, 56–57
causes, 41, 54, 58
civilian sector compared with military, 40, 41
classification, 58
conservative management, 58
delayed complications, 55
gunshot wounds and, 42
indications for radiographic imaging, 61
surgical management, 55
wound analysis, 54–55

Busch, F.M.
orchietomy rate, 165
penile injuries, 175
scrotal-testicular injuries, 163
urethral injuries, 191

Buschke-Löwenstein tumor of the penis, 214–215

C

Calapinto, V.
urethral injury classification, 120

Cancer
Buschke-Löwenstein tumor of the penis, 214–215
penile condyloma acuminata, 214
rhabdomyosarcoma of the prostate, 212
squamous carcinoma of the penis, 215
testicular tumors, 215–217

Case reports
anterior urethral injuries, 198–204
bladder wounds, 96–105
blunt renal injuries, 56–57
nephrectomies, 74–81
penetrating renal injuries, 47–50
penile injuries, 179–187
posterior urethra and prostate wounds, 142–149
posterior urethral disruption associated with pelvic fracture, 123–128
scrotal-testicular injuries, 168–172
ureteral injuries, 71–81
Catheter-induced infections
bladder, 210
urethral conditions, 213

Celiotomies
bladder wounds and, 96

Centers for Disease Control and Prevention
nongonococcal urethritis treatment recommendations, 212

Cerebral malaria, 208

Chancroid, 15

Chest wounds
See also pulmonary disorders; pulmonary failure
coexisting vascular wounds, 26
thoracotomy, 26

Cholecystitis
intraabdominal sepsis and, 24

Chordee
penile injuries and, 179, 189

Civic action projects, 15

Clostridial infections, 28

Coagulopathy
resuscitation of seriously wounded soldiers and, 17–18

Coat, Col. Ralph E., 10

Coccygectomies
bladder wounds and, 89, 96, 97–99, 107, 108, 225
procedure, 108, 110
rectal wounds and, 22

Colon wounds
bladder wounds and, 90, 91
colostomies and, 21–22

Colostomies
colon wounds and, 21–22

Computed tomography
crush injuries of the bladder, 117
renal injuries, 42–43, 51, 58, 60

Conditions of the penis
balanoposthitis, 214
Buschke-Löwenstein tumor, 214–215
penile condyloma acuminata, 214
squamous carcinoma of the penis, 215

Condyloma acuminata, 15
“Corridor concept” of fixed military hospitals, 14

Cortisone
respiratory failure and, 17
Crush injuries of the bladder  
 See pelvic fractures and crush injuries of the bladder  
 CT  
 See computed tomography  
 Culp, D.A.  
 penile injuries, 188  
 Culp, O.S.  
 penile injuries, 175  
 posterior urethra and prostate wounds associated with other organ systems, 149  
 scrotal-testicular injuries, 163  
 urethral injuries, 191  
 Cystography  
 bladder wounds and, 88, 116, 117  
 Cystostomies  
 bladder wounds and, 88, 95–96  
 posterior urethra and prostate wounds, 150  
 posterior urethral disruption and, 120–121, 123, 125–127, 131, 132  
 ureteral wounds, 224  
 
 D  
 Debridement  
 anesthesia and, 18, 27  
 anterior urethral injuries, 195, 197, 204, 205  
 basic principles, 27–28  
 bladder wounds, 89, 103–104, 110  
 crush injuries of the bladder, 114  
 description, 3  
 elasticity of skin and, 27  
 infection rate and, 3  
 initial treatment, 3, 223  
 liver wounds, 21  
 most common errors, 28  
 penetrating and blunt injuries of the external genitalia and, 161  
 penile injuries, 176, 187  
 punji stick injuries, 4  
 scrotal-testicular injuries, 164, 173  
 ureteral injuries, 69, 83, 224  
 war surgery conference discussions, 9  
 Deeths, Maj. Jeff, 9  
 Del Villar, R.G.  
 anterior urethral injuries, 205  
 Dermatological problems  
 types, 15–16  
 Diarrhea, 16  
 Dimond, Lt. Col. F.C.  
 role of mobile surgical hospitals in Vietnam, 12  
 Donadio, Capt. James V.  
 acute renal failure treatment, 30–31  
 Drainage  
 See also catheter-induced infections; foley catheters  
 anterior urethral injuries, 195, 197, 205  
 bacteremic shock and, 31  
 bladder wounds, 88–89, 96, 103–104, 225  
 colon wounds, 21–22  
 crush injuries of the bladder, 114  
 duodenal wounds, 20  
 intraabdominal sepsis and, 24–25  
 latex catheters, 213  
 liver wounds, 21  
 Penrose drains, 53, 82, 110, 134, 226  
 posterior urethra and prostate wounds, 150–151  
 posterior urethral disruption and, 120–121, 125–127, 131, 134, 226  
 rectal wounds, 21, 22  
 scrotal-testicular injuries, 165, 173  
 sump drains, 20, 25, 82, 110  
 suprapubic, 88–89, 96, 110, 150–151, 195, 205  
 ureteral injuries and, 69, 82  
 Drug use and addiction, 209  
 Duodenal wounds  
 surgery and postoperative complications, 20  
 E  
 Emergency War Surgery, 222  
 Epididymal injuries  
 causes, 164  
 complications, 166  
 Epididymitis  
 cause and treatment, 213–214  
 External genitalia  
 See penetrating and blunt injuries of the external genitalia; specific organs and structures  
 F  
 Fat emboli  
 causes and treatment, 29–30  
 posterior urethral disruption associated with pelvic fracture and, 123  
 prevention, 17  
 Fevers  
 management of patients with coexisting medical diseases, 34  
 undetermined origin, 207–208  
 FFP  
 See fresh frozen plasma  
 Fifth Conference on War Surgery, 9  
 First Conference on War Surgery, 8  
 Fitzgerald, Capt. Charles E., Jr.  
 bacteremic shock treatment, 25
Fixed military hospitals
advantages of, 12
“corridor concept,” 14
organization and construction of, 13–14
Flak jackets
renal injuries and, 60
Foley catheters
anterior urethral injuries and, 194, 195, 197, 205, 228
bladder infections and, 210
bladder wounds and, 88–89, 110, 114, 117
posterior urethra and prostate wounds and, 150
urethral injuries and, 120, 131
Fourth Conference on War Surgery
criteria for medical evaluation, 9
Fragment wounds
See missile fragments
Fresh frozen plasma, 17
Freund, Col. B.L.
wound research, 12

G
G-suits
pelvic hemorrhage and, 25–26
Gallbladder injuries
bladder wounds and, 91, 92, 107
Gallup, Col. Samuel C.
USARV Medical Bulletin and, 10
Gamma globulin
hepatitis treatment, 32
Gangrene, 28
Gastric wounds
surgery and postoperative complications, 20
Gastrostomies
bladder wounds and, 96
Genitourinary wounds
See also specific organs and structures
managed at US Army Hospital, Camp Zama, Japan, 39, 40
war injuries (table), 191
Germ cell tumors of the testis
staging and management, 215–216
Gonococcal urethritis, 212
Gonorrhea, 15
Gorton, Lt. Col. John M.
USARV Medical Bulletin editor, 10
Granuloma inguinale, 15
GSWs
See gunshot wounds
GU
See gonococcal urethritis
Gunshot wounds
anterior urethral injuries and, 205
bladder wounds and, 85, 89
blunt renal injuries and, 42
fatality rate, 5
penetrating and blunt injuries of the external genitalia, 160
penetrating renal injuries and, 44–45, 51
posterior urethra and prostate wounds, 137, 139, 141, 144–149, 151, 153, 156, 226

H
Halothane
advantages, 18
Hamilton-Russell urethroplasty
anterior urethral injuries, 195, 205
Hardaway, R.M., III
penetrating and blunt injuries of the external genitalia analysis, 160
Hearing loss.
See ototoxicity
Heaton, Gen. Leonard, 11
Helicopter evacuation
“dust off” pilots and crews, 14
mortality rate and, 222
number of casualties evacuated, 6
seriously wounded soldiers, 16
time issue, 1, 86
Hematomas
posterior urethral disruption associated with pelvic fracture and, 123
Hematuria
 crush injuries of the bladder and, 115, 116, 117
renal injuries and, 43, 58
Hemodialysis
acute renal failure and, 31
Hemorrhage
abdominal wound postoperative complication, 22
bladder wounds, 225
initial treatment, 222
pelvic hemorrhage management, 25–26
posterior urethra and prostate wounds, 151–152, 153–154, 156
Hemorrhagic shock
acute renal insufficiency and, 31
treatment, 17–18
Heparin
couagulopathy treatment, 17
Hepatitis
forms, 32
gamma globulin treatment, 32
occurrence, 16
Heroin use and addiction, 209
High-velocity missiles
  wound types, 4–5
Historical, medical, and surgical
  considerations
  abdominal wounds, 19–23
  aeromedical evacuation, 5–7
  anesthesia, 18
  battalion surgeons, 15–16
  conferences on war surgery, 8–9
  general measures for initial treatment, 2–3
  medical command, staffing, and treatment
  facilities, 10–13
  nontraumatic conditions, 32–34
  organization and construction of fixed
  military hospitals in the Republic of
  Vietnam, 13–14
  organization of medical treatment facilities
  in Japan, 7–8
  pelvic bleeding control, 25–26
  penetrating chest wounds, 26
  postoperative complications of abdominal
  wounds, 23–25
  posttraumatic conditions, 28–31
  resuscitation of the seriously wounded
  soldier, 16–18
  the USARV Medical Bulletin, 10
  wound analysis, 3–5
  wound debridement, 27–28
Hydronephrosis, 209–210
Hyperfibrinolysis, 17
Hyperkalemia
  acute renal failure and, 33
  treatment, 33
Hypovolemic shock
  treatment, 16

Impotence
  penile injuries and, 179, 189
  posterior urethra and prostate wounds and,
  155, 157
  posterior urethral disruption associated
  with pelvic fracture and, 132–133, 134
Infusion or high-dose excretory urography
  renal injuries, 43
Initial treatment
  anterior urethral injuries, 195–196, 204–
  205, 228–229
  antibiotic treatment, 223
  casualty evaluation and resuscitation, 222
  debridment, 223
  delayed primary closure, 223
  general measures, 2–3
  injury assessment, 223
  lessons learned, 222–223
  penile injuries, 177, 187
Insect bites, 16
Intraabdominal sepsis
  culture results, 24
  management, 24–25
Intravenous pyelograms
  high-dose, rapid-infusion, 60–61, 224
  limitations, 54, 59
  penetrating renal wounds, 23, 42, 44, 60–
  61, 224
  renal injuries, 23, 42, 44, 54, 59, 224
  ureteral injuries, 82–83
IVPs
  See intravenous pyelograms

J
Japan
  See also US Army Hospital, Camp
  Zama, Japan
  aeromedical evacuation of wounded to, 6
  medical treatment facilities' organization,
  7–8
  Johanson urethroplasty, 198

K
Kelly, Maj. Charles L.
  helicopter pilot, 14
Kidney wounds
  See acute renal failure; acute renal
  insufficiency; nonoliguric renal failure;
  renal injuries
Kimbrough, J.C.
  bladder injury diagnosis, 87
  penile injuries, 175
  scrotal-testicular injuries, 163
  urethral injuries, 191
Knepley, Maj. James H.
  posttraumatic acute renal insufficiency
  review, 31
Korean War
  abdominal wound mortality, 87
  bladder wounds comparison, 86
  comparative abdominal wound statistics
  and mortality, 19
  mortality compared with the Vietnam War
  and World War II, 2, 11–12
  renal injury mortality rate comparison, 39

L
Leary, F.A.
  bladder injury mortality, 108–109
Lessons learned
  anterior urethral injuries, 228–229
3rd Field Hospital, 11, 13
Melioidosis of the prostate
cause and treatment, 211–212
Microhematuria
shock and, 43, 58
Missile fragments
anterior urethral injuries, 192
fatality rate, 5
penetrating and blunt injuries of the
external genitalia, 160
penetrating renal injuries, 44, 45, 50
penile injuries and, 176
posterior urethra and prostate wounds,
139, 144–149, 156, 226
MTFs
See medical treatment facilities

N

Nelson, Maj. Donald E.
coagulopathy, 18
Nephrectomies
blunt renal injuries and, 55
delayed, 46–47
partial, 46, 47, 52, 53–54
penetrating renal injuries and, 44–45, 50,
51, 53–54, 224
status of the other kidney and, 23
ureteral injuries and, 66, 71, 74–81, 83
Nephrocutaneous fistulae
penetrating renal injuries and, 53
Nephrostomies
bladder wounds and, 96
ureteral injuries and, 63, 68, 70, 71
Nephrotoxic drugs
acute renal failure and, 30
acute renal insufficiency and, 31
aminoglycosides, 218–219
nonoliguric renal failure and, 32
Nephroureterectomies
bladder wounds and, 96, 107
NGU
See nongonococcal urethritis
Nitrous oxide, 18
Nocturnal enuresis, 210–211
Nongonococcal urethritis, 212
Nonoliguric renal failure
causes, 32–33
diagnostic difficulties, 33
posttraumatic, 31
Nontraumatic urological conditions
See also posttraumatic conditions
aminoglycoside toxicity, 218–219
battalion surgeons and, 15–16
bladder disorders, 210–211
drug use and addiction, 209
epididymitis, 213–214
fever from coexisting medical diseases, 34
fevers of undetermined origin, 207–208
hepatitis, 32
hydronephrosis, 209–210
malaria, 34, 207–208
nonoliguric renal failure, 31, 32–33
parasitic infections, 16, 32
prostatic disease, 211–212
testicular tumors, 215–217
urethral conditions, 212–213
urinary lithiasis, 209
urinary tract calculi, 33–34

Pelvic fractures and crush injuries of the bladder
See also posterior urethral disruption associated with pelvic fracture
associated major organ injuries, 114, 115
causes, 113
classification, 114
clinical findings, 115
complications, 115
contusions, 114
current diagnosis and treatment, 117
cystography and, 116, 117
debridement, 114
drainage, 114
retrograde urethrogram and, 115–116
ruptures, 114, 116–117
stenting, 117
treatment, 114, 115, 116–117

Pelvic hemorrhage
management, 25–26

Penetrating and blunt injuries of the external genitalia.
See also anterior urethral injuries;
posterior urethra and prostate wounds;
posterior urethral disruption associated with pelvic fracture; specific organs and structures
associated organ system wounds, 161, 227
average hospital stay, 160
debridement, 227
fragment wounds, 160, 227
gunshot wounds, 160, 227
incidence, 159–160, 227
male body image and, 161
mortality rate, 160
orchiectomy, 161
organs injured (tables), 163, 175
reconstruction and urethroplasty, 227
World Wars I and II and Vietnam War comparison, 160
wound analysis, 160

Penetrating renal injuries
case reports, 47–50
causes, 44
civilian sector compared with military, 40, 41, 51
complications, 44, 45, 47, 53–54, 59–60
fragment wounds, 44, 45, 50
gunshot wounds, 44–45, 51
management, 44, 46, 50–51, 59
mortality rate, 50–51
multiple organ wounds and, 44
nephrectomy and, 44–45, 50, 51, 53–54
nephrocutaneous fistula and, 53

Pelvic bone injuries
bladder wounds and, 90–92, 107

Penetrating and blunt injuries of the external genitalia. See also anterior urethral injuries;
posterior urethra and prostate wounds;
posterior urethral disruption associated with pelvic fracture; specific organs and structures
associated organ system wounds, 161, 227
average hospital stay, 160
debridement, 227
fragment wounds, 160, 227
gunshot wounds, 160, 227
incidence, 159–160, 227
male body image and, 161
mortality rate, 160
orchiectomy, 161
organs injured (tables), 163, 175
reconstruction and urethroplasty, 227
World Wars I and II and Vietnam War comparison, 160
wound analysis, 160

Penetrating renal injuries
case reports, 47–50
causes, 44
civilian sector compared with military, 40, 41, 51
complications, 44, 45, 47, 53–54, 59–60
fragment wounds, 44, 45, 50
gunshot wounds, 44–45, 51
management, 44, 46, 50–51, 59
mortality rate, 50–51
multiple organ wounds and, 44
nephrectomy and, 44–45, 50, 51, 53–54
nephrocutaneous fistula and, 53

Pelvic bone injuries
bladder wounds and, 90–92, 107
Penrose drain management and, 53
renal bleeding management, 53
renal reconstruction (renorrhaphy), 47, 52–53, 59
renal vascular control technique, 51, 59
wound analysis, 44–47
Penile condyloma acuminata, 214

Penile injuries
See also conditions of the penis associated organ injuries, 176
Buck’s fascia and, 176, 187
case reports, 179–187
dehbridement, 176, 187
diagnosis, 176
distribution of, 176
emotional impact, 189
extraurethral complications in deep injuries, 178–179
incidence, 175–176
initial treatment of deep soft-tissue wounds, 177, 187
management philosophy, 187–188
nitrofurazone gauze dressings, 177
open technique management, 177
plastic reconstruction, 178, 179, 181–187
scrotal-tunnel technique, 188
silastic prostheses, 179
skin grafts, 188
superficial injury complications, 178
urethral involvement, 176
World War II and Vietnam War comparison, 175–176

Penis.
See conditions of the penis; penetrating and blunt injuries of the external genitalia; penile injuries

Persian Gulf War
renal injuries, 60

Pierce, J.M.
anterior urethral injuries, 205

Pilcher, Capt. David P.
pelvic bleeding management, 26

Plastic reconstruction
anterior urethral injuries, 198
penetrating and blunt injuries of the external genitalia and, 227
penile injuries, 178, 179, 181–187
scrotal-testicular injuries, 173

Pneumothorax
thoracotomy treatment, 26

Pontes, J.E.
anterior urethral injuries, 205
Posterior urethra and prostate wounds.
See also anterior urethral injuries;
posterior urethral disruption associated with pelvic fracture
associated organ injuries, 137, 139, 140–141, 149, 156
case reports, 142–149
catheter traction and, 150, 226
causes, 137, 139, 226
classification, 137–138
complications, 141–142, 152–157, 226–227
cystostomies, 150
delayed surgery and, 142
destruction of the bladder-posterior urethral sphincteric mechanism and, 141, 153, 156, 227
diagnosis, 149, 156
distribution of urethral wounds (table), 138
fragment wounds, 139, 144–149, 156, 226
gunshot wounds, 137, 139, 141, 144–149, 151, 153, 156, 226
hemorrhage control, 151–152, 153–154, 156, 226
impotence and anejaculation, 155, 157
management, 137, 139, 150–152, 156, 226
nonurological wounds, 140
psychosocial trauma and, 156, 157
punji stick injuries, 139, 141, 142–144
reconstruction techniques, 152
“sling” technique, 152
suprapubic drainage, 150–151
symphysiotomy and, 152
urethral strictures, 137, 142, 154–155, 156
urinary extravasation and, 141
urinary incontinence and, 155–156
World War I, World War II, and Vietnam War comparison, 138
wound analysis, 139–142
wounds of the external genitalia (table), 138
urethral catheterization and, 129, 130, 131, 132, 133
urethral injury classification, 120
urethral strictures and, 132
urinary incontinence and, 132
vehicular accidents and, 119, 121, 128, 133, 225
wound analysis, 121–123

Posttraumatic conditions
See also nontraumatic urological conditions
acute renal failure, 30–31
acute renal insufficiency, 31
acute respiratory failure, 28–30
clostridial infections, 28
tetanus, 28

Prostate wounds
See posterior urethra and prostate wounds

Prostatic diseases
See also posterior urethra and prostate wounds
melioidosis of the prostate, 211–212
prostatitis, 211
rhabdomyosarcoma of the prostate, 212

Prostatitis, 211

Prothrombin time
coagulopathy and, 17
hepatitis screening, 32

Psychosocial trauma
posterior urethra and prostate wounds and, 156, 157

PT
See prothrombin time

PTT
See partial thromboplastin time

Pulmonary disorders
See also chest wounds
corticosteroids, 17
symptoms and treatment, 16–17

Pulmonary failure
as the leading cause of death, 9
postoperative, 28, 29

Punji stick injuries
disability from, 4, 143
hospital admission and, 1
number of surgical admissions due to, 4
posterior urethra and prostate wounds, 139, 141, 142–144

R

Rectal wounds
bladder wounds and, 90, 91
coccygectomies and, 22
pelvic sepsis and, 22
postoperative abscesses, 21
treatment fundamentals, 22

Regional anesthetics, 18
Renal injuries
association with other intraabdominal injuries, 41
blunt, 39, 41, 43, 54–60, 61
bullet velocity and, 41
casualty flow chart, 40
causes and mechanisms, 39–41, 224
classification and staging, 41–43, 58
complications, 52, 53–54, 58, 59–60
contrast-enhanced computed tomography and, 42–43, 51, 58, 60
“flak jackets” and, 60
hematuria and, 43, 58
intravenous pyelograms and, 23, 42, 44, 60–61
management, 46, 50–51, 60, 224
monitoring and reimaging of patients treated with observation, 61
mortality rates, 39, 50–51, 60, 224
nephrectomy and, 23, 44–45, 50, 224
nonoperative treatment, 42, 51, 61
penetrating wounds, 39, 41–42, 44–54, 59
percentage of all abdominal wounds, 39, 60
posttraumatic indications for renal surgery, 59
Renal Trauma Group at San Francisco General Hospital data, 58
unstable patients, 61
World Wars I and II mortality rate, 19

Renorrhaphy
delayed complications, 52
penetrating renal injuries and, 47, 52–53, 59
surgical techniques, 52

Resuscitation of seriously wounded soldiers
basic considerations, 16
blood typing and transfusions, 17
couagulopathy, 17–18
helicopter evacuation and, 16
hypovolemic shock and, 16
pulmonary problems, 16–17

Rhabdomyosarcoma of the prostate, 212

Ricks, Capt. Richard K.
“wet lung” syndrome description, 29

Robinson, J.N.
ureteral injury recognition, 63

Rohner, T.J.
urethral injuries, 192, 194, 195, 198

Rosenblatt, Capt. John E.
amoebic problem management, 34
Salvatierra, O., Jr.
orchiectomy rate, 165
penile injuries, 175, 176
posterior urethral disruption, 119
scrotal-testicular injuries, 163
urethral injuries, 191, 195, 198
San Francisco General Hospital
Renal Trauma Group data, 58
Scott, Capt. Neel R.
urinary tract calculi, 33–34
Scrotal-testicular injuries
See also testicular tumors
anterior urethral injuries and, 194
bladder wounds and, 90
case reports, 168–172
castration incidence, 173
causes, 164
complications, 166–167, 172
conservative treatment, 164, 172
debridement, 164, 173
drainage, 164–165, 173
epididymal injuries, 164, 165, 166
goals of treatment, 172
heroic attempts at sliding scrotal skin from
one side to the other, 165, 172
incidence, 163
orchiectomy and, 164–166, 167, 172, 173
plastic reconstruction, 173
repair techniques, 172–173
spermatic cord injuries, 164, 166, 167
unilateral and bilateral testicular wounds,
165–166
wound analysis, 163–167
Scrub typhus
fever and, 34, 207
treatment, 208
Sebesta, Maj. Donald
rectal wound treatment, 22
Second Conference on War Surgery, 8–9
Selikowitz, S.M.
orchiectomy rate, 165
scrotal-testicular injuries, 163
symphysiectomy for posterior urethra and
prostate wounds, 152
urethral injuries, 191, 195
Sepsis
bladder wounds and, 87, 89, 93–94, 99–
102, 107, 110, 225
intraabdominal, 24–25
rectal wounds and, 22
renal injuries and, 47
scrotal-testicular injuries and, 172, 173
ureteral injuries and, 66, 71, 224
Septic shock
See bacteremic shock
Sexually transmitted diseases
epididymitis, 213–214
gonococcal urethritis, 212
nongonococcal urethritis, 212
types, 15
Sheehy, Lt. Col. Thomas W.
amoebic problem management, 34
Shimozu, Gen. Kiyoshi, 7–8
Shock
See also specific types of shock
microhematuria and, 43, 58
treatment, 16, 25
Simpson-Smith, A.
tension-relaxing technique, 195
Small-bowel fistulae
bladder wounds and, 94
Small-bowel wounds
bladder wounds and, 90, 91
incidence, 21
surgery and postoperative complications, 20
Snakebites, 16
Soft tissue injuries
bladder wounds and, 92
Spermatic cord injuries
causes, 164
complications, 166, 167
Spinal anesthetics, 18
Staghorn calculi
ureteral injuries and, 68, 70, 71
Stenting
 crush injuries of the bladder, 117
ureteral wounds and, 68, 69, 71, 81, 82, 88
Stones
bacteremic shock treatment, 25
Stone, Maj. William J.
posttraumatic acute renal insufficiency
review, 31
Straddle injuries, 192, 228
Stutzman, Lt. Col. Ray L., 9
Symphysiectomy
posterior urethra and prostate wounds and,
152
Syphilis, 15

Testicular tumors
assessment-based conclusions, 217
delay in diagnosis, 215
germ cell tumors, 215–216
lymph node dissection and, 216, 217
management, 215–216
metastases, 215, 217
survival rate factors, 215

Tetanus
in the native population, 28
treatment, 28

Thiopental sodium, 18

Third Conference on War Surgery, 9
3rd Field Hospital, 11, 13

Thoracotomy
pneumothorax treatment, 26

Tuberculosis
incidence in the native population, 16

Umhey, C.E.
penile injuries, 175, 176

Ureteral fistulae
ureteral injuries and, 70–71

Ureteral wounds
agents of injury, 63, 64, 66, 82, 224
associated organ wounds, 63–64, 65, 82, 224
bladder wounds and, 90, 92, 99–102
case reports, 71–81
civilian and military sector comparison, 82
complications, 66, 67, 68, 69, 70–71, 82–83, 90, 224
debridement, 69, 82, 83, 224
drainage, 69, 82, 224
high-dose intravenous pyelograms and, 82–83
location classification, 65–66, 82
management, 63, 64
missed diagnoses, 63, 67, 70, 82, 83, 224–225
mortality rate, 66, 72–74, 82, 224
nephrectomy and, 66, 71, 74–81, 83
nephrostomy and, 63, 68, 70, 71
percentage of genitourinary injuries, 63
poor results, 71, 72
reimplantation, 68, 69, 83, 88, 107
results of treatment at time of evacuation to CONUS (table), 67
stenting, 63, 68, 69, 71, 81, 82
surgical repair, 23, 82–83
ureteral fistulae and, 70–71, 81
ureterocolic fistula, 81
ureteroureterostomy, 69, 70, 71, 83
urinary ascites and, 71, 81
World War II mortality rate, 19
wound analysis, 63–71

Ureterocolic fistula, 81

Ureteroureterostomy
ureteral injuries and, 69, 70, 71, 83, 224

Urethral catheterization
posterior urethral disruption associated with pelvic fracture and, 129, 130, 131, 132, 133

Urethral conditions
catheter-induced infections, 213
gonococcal and nongonococcal urethritis, 212
intraurethral “swizzle sticks,” 213
latex catheters and, 213
postcatheterization strictures, 213

Urethral injuries
See also anterior urethral injuries;
posterior urethra and prostate wounds;
posterior urethral disruption associated with pelvic fracture
bladder wounds and, 90
incidence, 191–192
location and nature of (tables), 192
straddle injuries, 192, 228

Urethral strictures
anterior urethral injuries, 196, 197, 205, 228
postcatheterization, 213
posterior urethra and prostate wounds, 137, 142, 154–155, 156, 227
posterior urethral disruption associated with pelvic fracture and, 132, 134, 226

Urethritis
anterior urethral injuries and, 228
gonococcal and nongonococcal, 212

Urethrocutaneous fistulae
anterior urethral injuries and, 197
posterior urethra and prostate wounds and, 141, 156
posterior urethral disruption associated with pelvic fracture and, 123

Urethroplasty
anterior urethral injuries, 194, 204
penetrating and blunt injuries of the external genitalia and, 227

Urethrococcal fistulae
posterior urethra and prostate wounds and, 141

Uric acid stones, 209
Urinary ascites
ureteral injuries and, 71, 81, 224

Urinary diversion
anterior urethral injuries, 196, 205
bladder wounds, 96, 102–103

Urinary extravasation
posterior urethra and prostate wounds and, 141, 153, 156
posterior urethral disruption associated with pelvic fracture, 226
ureteral injury complication, 66–67
Urinary incontinence
posterior urethra and prostate wounds and, 155–156
posterior urethral disruption associated with pelvic fracture and, 132
Urinary tract calculi
discussion, 33–34
incidence, 209
treatment, 209
Urinary tract fistulae
bladder wounds and, 94, 107
posterior urethral disruption associated with pelvic fracture and, 123, 132
ureteral injuries and, 66
Urinomas, 53, 58
US Army Hospital, Camp Zama, Japan
establishment and authorization of, 8
128th Station Hospital expansion and, 7
penetrating and blunt injuries of the external genitalia, 160
penile injuries managed, 175
posterior urethra and prostate wound occurrence, 138
scrotal-testicular injuries, 163–164
ureteral injuries treated, 63
urethral injuries, 191–192
USAHCZ
See US Army Hospital, Camp Zama, Japan
USARV Medical Bulletin
publication history, 10
vascular wound management, 26
USARV Surgery Consultant’s Report, 20
V
Van Norman, Maj. R.W.
importance of field Army medical installations, 11–12
Vascular injuries
bladder wounds and, 91, 92, 107
management, 26
Vehicular accidents
pelvic fractures and crush injuries of the bladder and, 113
posterior urethral disruption associated with pelvic fracture and, 119, 121, 128, 133, 225
Venereal disease
See sexually transmitted diseases
Vesicocutaneous fistulae
posterior urethral disruption associated with pelvic fracture and, 123
Vietnam War
abdominal wound mortality, 87
bladder wounds comparison, 85, 86, 105–106
comparative abdominal wound statistics and mortality, 19
lessons learned, 221–229
mortality compared with the Korean War and World War II, 2, 11–12
penetrating and blunt injuries of the external genitalia comparison, 160
penile injury comparison, 175–176
posterior urethra and prostate wounds comparison, 138–139
renal injury mortality rate comparison, 39
W
Walter Reed Army Institute of Research
Trauma Study Section study of acute renal failure, 8–9
War surgery conferences, 8–9
WDMET
See Wound Data and Munitions Effectiveness Team
Weir, Col. James E.
USARV Medical Bulletin and, 10
Well, Lt. Col. Ralph F.
urinary tract calculi, 33–34
“Wet lung” syndrome
description and management, 29
Whelan, Thomas J., Jr.
learning process, 221
Welton, Capt. Andrew
acute renal failure treatment, 30–31
White, M.S.
aeromedical evacuation, 5–6
Wingarner, Maj. Frederick G.
intrabdominal sepsis management, 24
Woodhead, Lt. Col. David, 9
World War I
bladder wounds comparison, 85, 86
comparative abdominal wound statistics and mortality, 19
penetrating and blunt injuries of the external genitalia comparison, 160
posterior urethra and prostate wounds comparison, 138–139
World War II
abdominal wound mortality, 87
anterior urethral injuries comparison, 191, 205
bladder injury treatment, 87, 88, 105–106
bladder wounds comparison, 85, 86, 105–106
comparative abdominal wound statistics and mortality, 19
mortality compared with the Vietnam War and the Korean War, 2
penetrating and blunt injuries of the external genitalia comparison, 160
penile injury comparison, 175–176
posterior urethra and prostate wounds comparison, 138–139
renal injury mortality rate comparison, 39
triage concept, 19

Wound analysis
anterior urethral injuries, 192–194
bladder wounds, 89–92
blunt renal injuries, 54–55
classification, 3
historical, medical, and surgical considerations, 3–5
penetrating and blunt injuries of the external genitalia, 160
penetrating renal injuries, 44–47
posterior urethra and prostate wounds, 139–142
posterior urethral disruption associated with pelvic fracture, 121–123
scrotal-testicular injuries, 163–167
ureteral injuries, 63–71
weapon type and, 3–5

Wound Data and Munitions Effectiveness Team
lightweight body armor research, 12
mine and booby trap injuries, 5

WRAIR
See Walter Reed Army Institute of Research

Young, H.H.
bladder injury mortality, 86