Index

A
AAOS. See American Academy of Orthopaedic Surgeons (AAOS)
Abductor pollicis longus (APL) tendon, 34, 73
Acute carpal tunnel syndrome, 93
American Academy of Orthopaedic Surgeons (AAOS), 66, 238
APL. See Abductor pollicis longus (APL) tendon

B
BR. See Brachioradialis (BR) tendon
Brachioradialis (BR) tendon, 34
Bridge plating
adequate and satisfactory reduction, 147
adequate articular reduction, 145 complications, 141
concomitant lower extremity injury, 144
displaced articular fragments, 141
DRUJ stability, 147
early mobilization, 143
ECRL and ECRB, 146
indications, 144
injury radiographs, 135, 136
internal fixator devices, 142
intra-operative fluoroscopy, 137, 138
ligamentotaxis method, 137
metacarpal and radial shafts, 146
metaphyseal and diaphyseal extension, 137
occupational therapy, 147
placement, 145
prolonged immobilization, 142
proximal medial shaft, distal radius, 145
radiographs at 2 and 4 months, 139–141
salvage of, distal radius nonunions, 144
sterile finger traps, 145
supplemental Kirschner wire fixation, 147
surgical techniques, 143

C
Carpal tunnel release (CTR), 238
Carpal tunnel syndrome (CTS)
acute/early and delayed/late, 235
anatomy, 233–235
diagnosis, 235
pathomechanics, 236–238
predisposing risk factors, 233
progressive paresthesias, 236

© Springer International Publishing Switzerland 2016
J.N. Lawton (ed.), Distal Radius Fractures,
DOI 10.1007/978-3-319-27489-8
Carpal tunnel syndrome (CTS) (cont.)
risk factors, 236
treatment, 238–239
Chauffer’s fractures, 107
Chronic regional pain syndrome, 235
Comminuted radial styloid fractures, 114–117
Comminuted ulnar fractures, 179
Commination metaphyseal and diaphyseal, 142
Complex regional pain syndrome (CRPS), 64
CRPS. See Complex regional pain syndrome (CRPS)
CTR. See Carpal tunnel release (CTR)
CTS. See Carpal tunnel syndrome (CTS)

D
Darrach procedure, 198
Darrach–Hughston–Milch fracture, 196
Displaced fractures
cast-application technique, 207
factors, loss of reduction, 207, 208
remanipulation, loss of reduction, 207
treatment of, 206
Distal AO C3 osteotomy model, 42
Distal radioulnar joint (DRUJ) instability, 13, 37, 91, 177
bony anatomy and soft tissue stabilizers, 169
comminuted distal radius fracture with articular extension, 165, 166
near anatomic reduction and volar plate fixation, 165, 168
TFCC, 169
ulnar styloid fractures, 166, 170, 171 (see also Ulnar styloid nonunion)
with mild volar angulation, 165, 167
Distal radius extra-articular fracture biomechanics in, 4
clinical and radiographic evaluation. , 8
closed reduction and percutaneous fixation, 6
DRUJ penetration, 7
extensor indicis proprius tendon, 5, 6
fracture characteristics, patient factors and surgeon preference, 2
intra- and post-operative pain control. , 7
motion exercises, 7
open reduction and internal fixation, 4
operative and nonoperative treatment guides, 7
osteopenic/osteoporotic bone, 3
patient factors, 3
postoperative treatment, 6
prolonged immobilization, 7
reported risks, 5
status post-ORIF, 2, 3
with poor alignment, 1, 2
Distal radius fracture (DRF), 232
CTS (see Carpal tunnel syndrome (CTS))
emergency department, 230
flexion, extension, supination and pronation, 229, 234
minimally impacted with neutral palmar tilt, 229, 230
palmar tilt, loss of, 229, 231, 232
stable volar plate fixation, 229, 233
Distal radius fractures “acceptable” alignment of, 207
displaced fractures, 206–209
emergency room, 155
external fixation and pinning, 152–155
external fixation device, 157, 158
FCR and radial artery, 209
healed fracture and adequate alignment, 155, 156
Kapandji pinning, 160
left wrist hyperextension injury, 201–204
metaphyseal fractures, 203
minimally displaced fractures, 206
non-displaced fractures, 205–206
open reduction and volar plating, 208
ORIF, 159
periosteum/pronator quadratus entrapment, 205
physical assessment, 151
physijs/epiphysis span, 209
pronator quadratus, 203
radial styloid pinning, 160
treatment, 152
uniplanar and multiplanar devices, 157
volar plate fixation, 208
volarly angulated fractures, 157
with dorsal angulation, 152, 153
Distal volar Henry approach, 81
Distraction plating technique, 137, 141–143
Dorsal angulation
after percutaneous pinning, 220
and radial shortening, 220
and ulnar variance, 217
Dorsal Barton’s/dorsal shear type fractures, 66
Dorsal plate fixation
advantages, 64, 65
AAOS, 66
AO type A, B and C, 67
apparent loss, radial length, 57, 58
comminuted fractures, 67
CRPS, 64
dorsal angulation with intra-articular comminution, 57, 58
EPL tendon, 59
extensor tendon complications, 63
improved angulation, 57
plate/extensor tendon reconstruction, 63
post-op lateral, 60, 61
post-op PA, 60, 61
post-reduction PA, 57, 59
right side fixation, 62, 63
Dorsal plating
AO type C3 fractures, 222
articular surface visualization, 221
fragile flexor tendons, 222
Dorsal tilt, 216, 218
Dorsal wall, 71, 81, 83
Dorsal-ulnar corner, 71, 72, 74, 75, 81, 83
Dorsal-ulnar fragment
APL and EPB tendons, 34
bipolar electrocautery, 33
bone grafting, 35
brachioradialis (BR) tendon, 34
combined fixation, 31
comminuted right distal radius fracture, 23, 24
DRUJ stability, 36
EPL, EDC and EIP, 35
galvanic corrosion, 35
healed fracture status-post revision fixation, 26, 32
intraoperative fluoroscopy, 33
intraoperative PA and lateral radiographs, 26, 30
intraoperative stressing, 33
Kirschner wires (K-wires), 34
placement of, 23, 28
postoperative CT scan slices, 23, 27
postoperative lateral radiograph, 23, 26, 31
preoperative axial and sagittal CT scans, 26, 29
subcutaneous pulley, 35
volar locking plate fixation, 23, 25
DRF. See Distal radius fracture (DRF)
DRUJ. See Distal radioulnar joint (DRUJ)
ECRB. See Extensor carpi radialis brevis (ECRB)
ECRL. See Extensor carpi radialis longus (ECRL)
EDC. See Extensor digitorum communis (EDC)
EPLIndex, 249
EIP. See Extensor indicis proprius (EIP)
EPB. See Extensor pollicis brevis tendon (EPB)
EPL. See Extensor pollicis longus (EPL)
Extensor carpi radialis brevis (ECRB), 143
Extensor carpi radialis longus (ECRL), 146
Extensor digitorum communis (EDC), 35
Extensor indicis proprius (EIP), 35
Extensor pollicis brevis (EPB) tendon, 34, 73
Extensor pollicis longus (EPL) tendon, 35, 59, 68
diagnosis, 245
etiology, 244–245
Lister’s tubercle, 242
prevention, 246
spontaneous rupture, 242, 243
treatment, 244, 246–249

G
Galeazzi fracture-dislocation
anatomic reduction and stable fixation, 196
bony architecture and soft tissue constraints, 191
classification, 192–193
closed reduction and immobilization, 196
complications, 197, 198
displacement, radial shortening and disruption, 187, 188
DRUJ instability, 189
false and true lateral, DRUJ, 193, 194
forearm supination and pronation with decreased pain, 187, 190
IOM, 192
K-wires, 197
loss of reduction, 196
neurovascular exam and forearm evaluation, 195
non-operative treatment, 195
osteotomy, 195
plate fixation method, 196
pronator quadratus, 191
radial shaft fracture with compression plating, 187, 189
TFCC, 191

H
Hemiresection arthroplasty, 198
Hook plate attachment, 13, 14, 19, 20

I
Iatrogenic injuries, 245
Implant arthroplasty, 198
Interosseous membrane (IOM), 191, 192
Intra-articular distal radius fracture
articulation stepoff and initial dorsal angulation, 53
dorsal tilt improvement, 47, 49
dorsally angulated and displaced distal radius fracture, 47, 48
FCR tendon sheath, 49, 50
fragment elevation and bone grafting wire fixation, 53
length and tilt restoration, 50, 51
median, ulnar and radial nerve distributions, 47
traction technique, 53, 54
volar plate fixation, 52
IOM. See Interosseous membrane (IOM)

K
Kapandji (intrafocal) pinning technique
adult population, 127
alignment and stability evaluation, 129
Colles’ fractures, 127
complications, 130, 131
distal radius fractures with severe deformity, 131
dorsal angulated and displaced fractures, 127
fluoroscopic guidance, 128
history, 123–126
interobserver and intraobserver reliability, 127
Kirschner wires, 128
NYOH scores, 131
ORIF with volar plating, 128
percutaneous pinning, distal radius fractures, 131
wrist injuries, 121–124

L
Ligamentotaxis method, 137
Loss of fixation
AO type B3.2 and B3.3 fractures, 218–219
dorsal angulation and ulnar variance, 216, 217
(see also Dorsal plating)
dorsal tilt, 218
functional consequences, radiographic changes, 216
lunate facet, 218
management, 222–224,
(see also Percutaneous pinning)
revision surgery, 215
short- and long-term complications, 215
subchondral zone, 216
ulnar positive variance, 216
ulnar variance and radial tilt, 216
(see also Volar plating)
volar shearing distal radius fracture, 213–215
Lunate facet
radiographic evaluation, 218
volar shearing-type fractures, 216
Lunate facet fragment
early diagnosis, 17
hook plate attachment, 20
implant selection and fixation, 18
Lunate facet fragment (cont.)
  scaphoid and, 17, 20
  teardrop angle/preoperative CT imaging, 19
  volar radiolunate ligaments, 16
Lunate fossa
  alignment of, 23
  and sigmoid notch, 31

M
Metaphysis
  bicortical transverse fracture, 201
  in children of ages, 209
  torus, unicortical/“buckle” fractures, 205
Minimally displaced fractures, 206
Monteggia fracture, 196

N
Non-displaced fractures
  randomized patients, 205
  torus, unicortical/“buckle” fractures, 205

O
Open reduction and internal fixation (ORIF), 177
Open reduction internal fixation (ORIF), 37
ORIF. See Open reduction internal fixation (ORIF)

P
Patient Rated Wrist Evaluation (PRWE) score, 18
Percutaneous pinning
  comminution/articular shearing, 219
  dorsal angulation, 220
  ulnar variance, 219
Peri-articular fracture
  clinical photograph demonstration, 17
  clinical photographs, 14, 15
  computed tomography (CT) imaging, 17
DRUJ, 13
FCR, 12
fixation techniques, 17
Geminus plates, 19
inadequate stability and failure, 16
intra-articular osteotomy surgery, 19
Kirschner (K) wires, 13
locked volar plating, 16, 17
lunate and carpal subluxation, 16
PA and lateral right wrist radiographs, 14
preoperative lateral wrist radiograph, 12, 13
preoperative radiographs, 12
PRWE score, 18
radial styloid fragment, 18
radiocarpal subluxation, 16
volar lunate facet fragment, 15
Perichondrium
  and physis, 203
  endochondral ossification, 209
Physis
  and perichondrium, 203
  distal radial, 201
Piedmont fracture, 196
Plate fixation method, 196
Pronator quadratus, 191
PRWE. See Patient Rated Wrist Evaluation (PRWE) score

R
Radial shortening
  and dorsal angulation, 220
  dorsal tilt, 218
Radial styloid fractures, 111–117
  AO classification, 108, 109
  arc injury, 108
  cadaver dissection, 106, 107
  “chauffer’s fractures”, 107
  complications, 117
  intraoperative x-rays, 101, 103
  nonsurgical treatment, 111
perilunate fracture dislocations, 109
postoperative x-rays, 101, 104
preoperative x-rays, 101, 102
radiology, 107
resultant axial and hyperextension load, 108
SBRN and cephalic vein, 103, 105
with SL ligament injury, 108, 109
surgical treatment
  comminuted radial styloid fractures, 114–117
  radial styloid tip fractures, 111
  simple radial styloid base fractures, 112–115
and treatment options, 110, 111
ulnar carpal translation, 108
variability of, radial column fractures, 102, 105
Radial styloid pinning, 160
Radial styloid plating
  3D motion tracking system, 41
decision making, 43
DeQuervain’s type symptoms, 43
distal AO C3 osteotomy model, 42
distal radius and ulna model, 39
distal radius fracture patterns, 41
dual plating, 41
fractured bones, 39
fragment-specific fixation, 41
ORIF, 37
radial column exposure, 43
volar approach, 42
Radial styloid tip fractures, 111
Radial styloids, 72–74, 77, 81, 83, 85
Radiolunate ligament, 13, 16
Sigmoid notch, 91
Simple radial styloid base fractures, 112–115
SLAC. See Scapholunate advanced collapse (SLAC) arthritis
SLIL. See Scapholunate interosseous ligament (SLIL) injury
Spanning dorsal distraction plate technique, 144
Spontaneous rupture, EPL tendon, 243
Superficial branch of the radial nerve (SBRN), 103, 112, 114, 117

T
TFCC. See Triangular fibrocartilage complex (TFCC)
Traction technique, 53, 54
Triangular fibrocartilage complex (TFCC), 39–41, 180, 191, 192, 197
dorsal and palmar radioulnar ligaments, 169
DRUJ stabilizer, 169

U
Ulnar head and neck fractures
  average DASH scores, 179
  comminuted, extra-articular metadiaphyseal fracture, 175, 176
crossed K-wires, 177, 178
  flexion–extension arcs, 179
  neutral, pronation and supination, 181
  perioperative infection, 181
  periosteal sleeve and TFCC complex, 180
  posttraumatic osteoarthritis, 177
  pronation–supination arc, 180
  soft tissue attachments, 180
  stabilization, 177
  trans-FCR approach, 181

S
Sauvé–Kapandji procedure, 198
SBRN. See Superficial branch of the radial nerve (SBRN)
Scapholunate advanced collapse (SLAC) arthritis, 65
Scapholunate interosseous ligament (SLIL) injury, 65
Ulnar head and neck fractures (cont.)
  transient ulnar sensory neuropraxia, 179
  traumatic laceration, 181
  well-healed, 182
Ulnar positive variance, 216
Ulnar styloid fracture
  DRUJ stabilizers, 169
  non-operative treatment, 171
  radial displacement, 165
  after volar plating, 171
Ulnar styloid nonunion
  functional and radiographic outcomes, 172
  styloid fracture location, 171
  surgical techniques, 172

V
Volar lunate facet fragment, 89, 91–94
Volar plating
  degrees of dorsal comminution, 220
  description, 4 (see also Distal radius extra-articular fracture)
distal radius fracture management, 220
DRUJ injury, 221
lunate facet, 221
percutaneous Kirschner wire fixation, 5
plate fixation, 220
pronator quadratus, 220
short-term clinical outcomes, 5
Volar rim, 81, 82
Volar ulnar fixation
  accurate reduction and secure fixation, 93
  acute carpal tunnel syndrome, 93
  comminuted radial styloid and volar lunate facet, 89–91
  contusions, 92
  dynamic instability, 97
  forearm rotation and DRUJ arthrosis, 92
healed fracture and reduced DRUJ, 91
metacarpophalangeal (MP) joints, 97
posteroanterior (PA) radiograph, 93
volar lunate facet, evaluation, 91
Volarly angulated fractures, 157

W
Wrist injuries, 121–124