
FRACTURES DISLOCATIONS AND SPRAINS

KEY AND CONWELL

FIFTH EDITION

CONTENTS

PART I

PRINCIPLES AND GENERAL ASPECTS

CHAPTER 1

	PAGE
GENERAL CONSIDERATIONS - - - - -	21
Fracture Equipment, 21; Plaster-of-Paris Technic, 27; Definitions, 33; Etiology of Fractures, 33; Classification of Fractures, 35; Epiphyseal Separations, 39; Symptoms of Fractures, 42; The X-ray in the Diagnosis and Treatment of Fractures and Dislocations of the Extremities, 48.	

CHAPTER 2

REPAIR OF FRACTURES - - - - -	54
Histological Studies, 54; Factors Tending to Cause Nonunion, 60; Clinical Delayed Union and Nonunion, 64.	

CHAPTER 3

PRINCIPLES OF TREATMENT OF FRACTURES - - - - -	72
Anatomic and Functional Reduction, 72; Methods of Obtaining Reduction, 78; Physiotherapy in the Treatment of Injuries of Bones and Joints, 96.	

CHAPTER 4

FIRST AID IN FRACTURES AND AUTOMOBILE INJURIES - - - - -	102
Examination, 102; Emergency Treatment, 102; Emergency Splinting of Fractures, 103.	

CHAPTER 5

COMPLICATIONS OF FRACTURES - - - - -	109
Fractures of Other Bones, 109; Injuries to the Overlying Soft Parts, 109; Infection, 110; Injuries to Muscles, 110; Injuries of Important Blood Vessels, 111; Injuries to Nerves, 114; Injury to a Neighboring Joint, 117; Traumatic Arthritis, 118; Acute Traumatic Bone Atrophy (Sudeck), 120; Fat Embolism, 121; Pulmonary Complications After Fractures, 122; Delirium, 123; Malunion of Fractures, 123; Pressure Sores and Bed Sores, 125.	

CHAPTER 6

PATHOLOGIC FRACTURES - - - - -	129
Pathologic Fractures Due to Local Bone Changes, 129; Pathologic Fractures Due to General Conditions, 132; Diagnosis of Pathologic Fractures, 139; Prognosis of Pathologic Fractures, 141; Treatment of Pathologic Fractures, 143.	

CHAPTER 7

PAGE

COMPOUND (OPEN) FRACTURES AND WAR WOUNDS - - - - -	144
The Treatment of Compound (Open) Fractures, 144; Antitetanic Serum and Gas Gangrene Antitoxin, 149; Débridement, 152; Immobilization, 157; Aftertreatment, 157; Treatment of Infected Compound (Open) Fractures, 158; Treatment of Gas Gangrene, 165; The Treatment of Infected Compound (Open) Fractures Without Gas Gangrene, 166; Treatment of Old Infected Compound (Open) Fractures, 168; Gunshot Fractures, 171; Treatment of Compound (Open) Fractures and Wounds in War, 174.	

CHAPTER 8

DISLOCATIONS - - - - -	183
Pathology of Recent Dislocations, 183; Complications of Dislocations, 184; Repair of Dislocations, 186; Signs and Symptoms of Dislocations, 186; Pathologic Dislocations, 191; Diagnosis of Fractures and Dislocations, 191.	

PART II

DIAGNOSIS AND TREATMENT OF SPECIFIC INJURIES

CHAPTER 9

FRACTURES OF THE SKULL AND BRAIN TRAUMA - - - - -	193
By Edgar F. Fincher, M.D., Atlanta, Ga.	
Fractures of the Skull, 194; Injuries to the Intracranial Structures, 197; History, Examination, Diagnosis, and Treatment, 202; General Measures, 226; Prognosis, 229.	

CHAPTER 10

FRACTURES OF THE JAWS AND RELATED BONES OF THE FACE - - - - -	231
By James Barrett Brown, M.D., St. Louis, Mo.	
Fractures of the Lower Jaw, 231; Fractures of the Teeth and Alveolar Processes, 267; Fractures of the Upper Jaw, 268; Internal Wire Fixation for Fractures of Jaw, 285; Antibiotics and Chemotherapy in Compound Facial Injuries and Jaw Fractures, 288; Fracture of the Nasal Bones, 289; Dislocation of the Lower Jaw, 294; Ankylosis, 298.	

CHAPTER 11

INJURIES OF THE SPINE - - - - -	304
Surgical Anatomy, 304; Injuries of the Spine—General Considerations, 309; Compression Fractures of the Spine, 310; Compression Fractures of the Midthoracic Region, 333; Posterior Dislocation of Lumbar Vertebrae, 343; Injuries of the Spinal Cord and Nerve Roots Associated With Injuries of the Spine, 343; Isolated Fractures of the Transverse Processes, 352; Isolated Fractures of the Spinous Processes and Laminae, 356; Isolated Fractures of the Articular Facets, 359; Schmorl's Nodes, 359; Injuries of the Cervical Spine, 359; Dislocations of the Cervical Vertebrae, 362; Fractures and Dislocations of the Atlas and Axis, 379; Spondylolisthesis, 383; Technic of Spinal Fusion, 386; Low Back Strains, 388; Lesions of the Intervertebral Discs, 395.	

CHAPTER 12

	PAGE
FRACTURES AND DISLOCATIONS OF THE HYOID, LARYNX, AND TRACHEAL CARTILAGES -	408
Fractures of the Hyoid Bone, 408; Dislocation of the Hyoid Bone, 408; Fracture of the Larynx and Tracheal Cartilages, 410.	

CHAPTER 13

INJURIES OF THE THORAX - - - - -	411
Surgical Anatomy, 411; Fractures of the Ribs, 412; Dislocation of the Ribs at the Vertebra, 431; Fractures and Dislocations of the Costal Cartilages, 431; Fractures of the Sternum, 432.	

CHAPTER 14

INJURIES IN THE REGION OF THE SHOULDER GIRDLE AND SHOULDER - - - - -	436
Surgical Anatomy, 436; Examination of the Shoulder Girdle and Shoulder, 439; Fractures of the Clavicle, 442; Sternoclavicular Dislocation, 458; Acromioclavicular Dislocation, 461; Fractures of the Scapula, 467; Dislocation of the Scapula, 476; Dislocation at the Shoulder, 477; Fractures of the Upper End of the Humerus, 501; Traumatic Periarthritis of the Shoulder, 521; Differential Diagnosis of Injuries to the Shoulder and Shoulder Girdle, 524.	

CHAPTER 15

FRACTURES OF THE SHAFT OF THE HUMERUS - - - - -	527
Surgical Anatomy, 527; Fractures of the Shaft of the Humerus, 527.	

CHAPTER 16

FRACTURES IN THE REGION OF THE ELBOW - - - - -	542
Surgical Anatomy, 542; Examination of the Elbow, 546; Position of Optimum Function in Ankylosis of the Elbow, 548; Complete Fractures of the Lower End of the Humerus, 549; Extension Type, 549; Volkmann's Ischemic Contracture, 567; Flexion Type of Supracondylar Fractures of the Humerus, 572; Intercondylar, T, or Comminuted Fractures of the Lower End of the Humerus, 574; Multiple Fractures in the Region of the Elbow, 579; Complications of Fractures and Dislocations at the Elbow, 580; Fractures of Single Condyles and Epicondyles of the Lower End of the Humerus, 581; Fractures of the Upper End of the Ulna, 592; Fractures of the Head and Neck of the Radius, 604; Tennis Elbow, 610; Dislocation at the Elbow, 611; Fractures of the Upper Third of the Shaft of the Ulna With Monteggia and Without Dislocations of the Head of the Radius, 630; Repair of Old Malunited Fractures and Unreduced Dislocations of the Elbow, 635; Differential Diagnosis of Fractures and Dislocations at the Elbow, 640.	

CHAPTER 17

FRACTURES OF THE FOREARM - - - - -	643
Surgical Anatomy, 643; Examination of the Forearm, 647; Fractures of the Shaft of the Ulna Alone, 648; Fractures of the Shaft of the Radius Alone, 653; Fractures of Both Bones of the Forearm, 660.	

CHAPTER 18

PAGE

INJURIES IN THE REGION OF THE WRIST AND HAND - - - - - 682

Surgical Anatomy, 682; Extension and Compression Fractures of the Lower End of the Radius (Colles' Fractures), 686; Flexion and Compression Fractures of the Lower End of the Radius (Smith's Fracture), 711; Flexion Fractures of the Anterior Articular Margin of the Radius, 714; Isolated Fractures of the Styloid of the Ulna, 715; Fractures and Dislocations of the Carpal Bones, 716; Fracture of the Carpal Scaphoid (Navicular), 716; Old Fractures of the Scaphoid, 720; Dislocation of the Carpal Semilunar Bone (Os Lunatum), 724; Sprains at the Wrist Joint, 731; Fractures of the Semilunar Bone, 731; Injuries of the Other Carpal Bones, 734; Differential Diagnosis of Injuries in the Region of the Wrist, 735; Fractures of the Metacarpals, 737; Fibrosis of the Hand, 746; Fractures of the First Metacarpal of the Thumb, 747; Fractures of the Shaft of the First Metacarpal, 750; Fractures of the Phalanges, 751; Compound (Open) Fractures of the Finger, 756; Fracture Dislocations of the Fingers at the Interphalangeal Joints, 757; Fractures of the Terminal Phalanx of the Finger or Severe Contusion Without Fracture, 757; Drop or Mallet Finger (Baseball Finger), 758; Dislocations at the Wrist and in the Hand, 759; Dislocations at the Metacarpophalangeal Joint, 770; Dislocations at the Interphalangeal Joints of the Fingers, 775.

CHAPTER 19

FRACTURES AND DISLOCATIONS OF THE PELVIS - - - - - 779

Anatomical Considerations, 779; Fractures and Dislocations of the Pelvis, 782; Complications of Fractures of the Pelvis, 784; Fractures of Individual Bones Without a Break in the Pelvic Ring, 789; Fracture of the Anterior Superior Spine, 793; Fractures of the Tuberosity of the Ischium, 795; Transverse Fracture of the Sacrum, 795; Fracture and Dislocation of the Coccyx and Coccygodynia, 797; Single Fractures of the Ring of the Pelvis, 799; Separations at and Fractures Near the Symphysis of the Pubis, 803; Displacements at or Fractures Near the Sacroiliac Joints, 805; Double Fractures Through the Pelvic Ring (Malgaigne), 808.

CHAPTER 20

INJURIES IN THE REGION OF THE HIP - - - - - 813

Anatomical Considerations, 813; Examination of the Hip, 816; Posterior Dislocations at the Hip, 819; Anterior Dislocations at the Hip, 828; Complications of Dislocation at the Hip, 833; Old Dislocations at the Hip, 837; Pathologic Dislocations at the Hip, 839; Fracture of the Acetabulum and Central Dislocation at the Hip, 839; Fractures of the Upper End of the Femur, 845; Dislocations at the Hip, 857; Fractures of the Neck of the Femur (Hip), 858; Operative Treatment of Fractures Through the Neck of the Femur, 878.

CHAPTER 21

FRACTURES OF THE SHAFT OF THE FEMUR - - - - - 912
Anatomical Considerations, 912; Fractures of the Shaft of the Femur, 913.

CHAPTER 22

INJURIES IN THE REGION OF THE KNEE JOINT - - - - - 958

Surgical Anatomy, 958; Supracondylar Fractures of the Lower End of the Femur and Intercondylar or T Fractures of the Femur, 962; Fractures of a Single Condyle of the Femur, 970; Pellegrini-Stieda Disease, 975; Separation of the Lower

Epiphysis of the Femur, 975; Fractures of the Patella, 979; Rupture of the Patellar Ligament, 991; Rupture of the Quadriceps Tendon, 992; Dislocation of the Patella, 993; Dislocations at the Knee, 997; Internal Derangements of the Knee, 1001; Sprains and Sprain Fractures of the Knee Joint (Injury of the Lateral Ligaments), 1001; Injuries to the Internal Semilunar Cartilage, 1006; Injury to the External Semilunar Cartilage, 1013; Injuries of the Crucial Ligaments, 1015; Injuries of the Tibial Spine, 1020; Loose Bodies in the Knee Joint, 1023; Fractures of the Upper End of the Tibia, 1029; Separation of the Upper Epiphysis of the Tibia, 1039; Avulsion of the Tibial Tubercle, 1040; Osgood-Schlatter's Disease, 1041; Dislocation of the Upper End of the Fibula, 1044.

CHAPTER 23

FRACTURES OF THE SHAFTS OF THE TIBIA AND FIBULA - - - - -	1045
Surgical Anatomy, 1045; Isolated Fractures of the Shaft of the Tibia, 1048;	
Fractures of the Shaft of the Fibula Unassociated With Injury of the Ankle	
Joint, 1051; Fractures of Both Bones of the Leg, 1052.	

CHAPTER 24

INJURIES IN THE REGION OF THE ANKLE - - - - -	1088
Surgical Anatomy, 1088; Sprains of the Ankle, 1090; Fractures and Fracture Dis-	
locations in the Region of the Ankle, 1095; Fractures and Fracture Dislocations	
at the Ankle, 1097; Fractures by Compression in the Long Axis of the Leg, 1104;	
Dislocations at the Ankle, 1126; Compound (Open) Fractures and Fracture Dis-	
locations at the Ankle, 1134.	

CHAPTER 25

INJURIES OF THE FOOT - - - - -	1137
Surgical Anatomy, 1137; Foot Strain, Flatfoot, or Pronated Foot, 1141; Fractures	
of the Astragalus, 1143; Fractures of the Os Calcis, 1151; Total Dislocation of the	
Astragalus, 1178; Subastragaloid Dislocation, 1180; Dislocation at the Midtarsal	
Joint, 1180; Fractures of the Anterior Tarsal Bones, 1184; Dislocation at the	
Tarsometatarsal Joints, 1188; Fractures of the Metatarsal Bones, 1191; Fractures	
of the Toes, 1199; Dislocation at the Metatarsophalangeal Joints, 1202; Fractures	
of the Sesamoids of the Great Toe, 1205.	