

TECHNIQUES IN HAND SURGERY



William F. Blair

■ CONTENTS

SECTION ONE: TRAUMA

Part I: Skin Coverage and Nail Repair

- | | |
|---|----|
| 1. Split Thickness Skin Grafts
Albert E. Cram | 5 |
| 2. Full Thickness Skin Grafts to the Hand
Robert R. Schenck | 13 |
| 3. V-Y Closure Fingertip Injuries
Forst E. Brown | 19 |
| 4. Transposition Flaps
Richard J. Zienowicz, Lee E. Edstrom | 26 |
| 5. Rotation Flaps of the Hand
Michael L. Jones | 35 |
| 6. Volar Advancement Flaps
Rod J. Rohrich, Steve D. Antrobus | 39 |
| 7. The Cross-Finger Flap
Edward R. Calkins, David J. Smith | 48 |
| 8. Thenar Flaps
Robert C. Russell | 55 |
| 9. Neurovascular Island Flaps
Don A. Coleman, Stan M. Valnicek | 60 |
| 10. Radial Forearm Flap
William M. Swartz | 68 |
| 11. Groin Flaps
Bruce G. Peat, Graham D. Lister | 75 |
| 12. Nail Bed Repair
Phyllis Chang | 82 |

Part II: Tendon Repairs

- | | |
|--|-----|
| 13. Extensor Tendon Repairs in Zones 1–2
Phyllis Chang | 91 |
| 14. Extensor Tendon Repairs in Zones 3–4
Dennis J. Andersen | 96 |
| 15. Extensor Tendon Repairs in Zones 5–6
Mary Lynn Newport | 104 |
| 16. Extensor Tendon Repairs in Zones 7–8
Lawrence M. Lubbers, Paul A. Cook | 112 |
| 17. Flexor Tendon Avulsion from the Distal Phalanx
Joseph P. Leddy, Jeffrey Bechler | 120 |
| 18. Flexor Tendon Repairs in Zone 1
Thomas R. Kiefhaber | 129 |
| 19. Flexor Tendon Repairs in Zone 2
Lars Hagberg | 137 |
| 20. Flexor Tendon Repairs in Zones 3–5
Robert Falender, Daniel P. Mass | 147 |

Part III: Irreducible Dislocations

- | | | |
|-----|---|-----|
| 21. | Irreducible Volar Dislocations of the PIP Joint
Gregory J. Dray | 157 |
| 22. | Irreducible Dorsal Dislocations of the MP Joint
Richard S. Idler | 163 |
| 23. | Irreducible Perilunate Dislocations
Steven F. Viegas | 170 |

Part IV: Fracture Fixation of the Phalanges

- | | | |
|-----|---|-----|
| 24. | Percutaneous Pin Fixation of the Diaphysis of the Phalanges
Nina Njus | 179 |
| 25. | Open Pin Fixation of the Diaphysis for Phalangeal Fractures
Thomas L. Greene | 187 |
| 26. | Screw Fixation of the Diaphysis for Phalangeal Fractures
Alan E. Freeland, Michael E. Jabaley | 192 |
| 27. | Plate Fixation of the Diaphysis for Phalangeal Fractures
William F. Blair | 202 |
| 28. | Pin Fixation of a Mallet Fracture
John D. Lubahn | 207 |
| 29. | Screw Fixation for Unicondylar Fracture of the Phalanges
Arnold-Peter C. Weiss | 214 |
| 30. | Open Reduction and Internal Fixation of Proximal Interphalangeal Joint
Fracture Dislocations
Richard L. Uhl, William F. Blair | 220 |

Part V: Fracture Fixation of the Metacarpals

- | | | |
|-----|--|-----|
| 31. | Percutaneous Pin Fixation of the Diaphysis of the Metacarpals
Nina Njus | 229 |
| 32. | Open Pin Fixation of the Diaphysis of the Metacarpals
Charles D. Jennings | 239 |
| 33. | Screw Fixation of the Diaphysis of the Metacarpals
Hill Hastings, II, Mark S. Cohen | 246 |
| 34. | Plate Fixation of Metacarpal Shaft Fractures
Alan E. Freeland, William B. Geissler | 255 |
| 35. | Screw Fixation of Bennett's Fracture
Thomas F. DeBartolo | 265 |
| 36. | Pin Fixation of the Fifth Carpometacarpal Joint
Allen T. Bishop, Michael E. Rettig | 274 |
| 37. | External Fixation of the Metacarpals
Gary K. Frykman | 284 |

Part VI: Fracture Fixation of the Wrist

- | | | |
|-----|--|-----|
| 38. | Pin Fixation of Scaphoid Fractures
Anton J. Fakhouri, Roy A. Meals | 293 |
| 39. | Surgical Technique Using the Herbert Compression Screw for Scaphoid
Fractures
Charles Hamlin | 300 |
| 40. | External Fixation for Fractures of the Distal Radius
William H. Seitz, Jr. | 309 |

41.	Radial Styloid Fractures Matthew D. Putnam	322
42.	Internal Fixation of Distal Radius Fractures: Volar Approach Charles P. Melone, Jr., Joel L. Frazier	330
43.	Internal Fixation of the Distal Radius: Dorsal Approach Jesse B. Jupiter	341
44.	Combined Internal and External Fixation for Fractures of the Distal Radius William F. Blair	348
45.	Trans-Scaphoid Perilunate Fracture Dislocation Henry H. Lin, Peter J. Stern	356

Part VII: Distal Radioulnar Joint

46.	Dorsal Dislocation of the Ulna Walter H. Short, Andrew K. Palmer	367
47.	Volar Dislocation of the Ulna Fredrik AF Ekenstam	374

Part VIII: Microsurgical Repairs

48.	Neuroorrhaphy at the Digital and Palmar Level John J. Drewniany	381
49.	Neuroorrhaphy at the Forearm Level Paul A. Cook, Lawrence M. Lubbers	386
50.	Arterial Repair at the Digital and Palmar Level John A. McFadden, Leonard Gordon	398
51.	Mechanical Coupling of Vessels Leif T. Östrup, Anders Berggren	407
52.	Replantation of Fingers Phillip E. Wright, II	414
53.	Thumb Replantation John A. McFadden, Leonard Gordon	430
54.	Replantation of the Hand Moheb S. Moneim	439

Part IX: Drainage of Infections

55.	Paronychia Lewis H. Oster, Jr.	453
56.	Felons Robert L. Bass	458
57.	Suppurative Flexor Tenosynovitis Dale R. Wheeler	463
58.	Septic Arthritis of the Wrist Ronald J. Mann, William F. Blair	471

SECTION TWO: RECONSTRUCTION

Part I: Skin and Fascia

59.	Z-Plasty Techniques Richard L. Uhl	483
60.	Four-Flap Transposition for the First Web Space Curtis M. Steyers	490

61.	Dorsal Transposition Flap for the First Web Space Peter E. Bentinegna, Graham D. Lister	495
62.	Butterfly Flaps for the Finger Webs Edward Diao, Osamu Soejima	500
63.	Dupuytren's Fasciectomy: Open Palm Technique John D. Lubahn	508
64.	Dupuytren's Fasciectomy: Zig-Zag Plasty Technique Lawrence Colwyn Hurst	519

Part II: Ligament Reconstruction

65.	Thumb Metacarpophalangeal Ulnar Collateral Ligament Repair with Local Tissues John Wight Durham	533
66.	Thumb Metacarpophalangeal Ulnar Collateral Ligament Repair with Tendon Graft Owen J. Moy	539
67.	Rotary Subluxation of the Scaphoid Marc Garcia-Elias	546
68.	Repair of Chronic Peripheral Tears/Avulsions of the Triangular Fibrocartilage William B. Kleinman	555

Part III: Tendon Reconstruction

69.	Trigger Thumb and Finger Release Jack L. Greider, Jr.	567
70.	De Quervain's Release John T. Bolger	574
71.	Extensor Tendon Grafts in Zones 1–4 Gary R. Kuzma	579
72.	Primary Extensor Grafts in Zones 5–7 Miguel J. Saldana	586
73.	Staged Extensor Grafts in Zones 5–8 Mary Lynn Newport	592
74.	Conjoint Tendon Advancement for Mallet Deformity Guy D. Foulkes	599
75.	Central Slip Advancement for Mobile Boutonniere Deformity Edward C. McElfresh	605
76.	Conjoined Tendon Release for Boutonniere Deformity Thomas R. Kiefhaber	610
77.	Oblique Retinacular Ligament Transfer for Swan Neck Deformity Steven Z. Glickel	615
78.	Primary Flexor Tendon Grafts of the Fingers Duffield Ashmead, IV, O. Allen Guinn, III, H. Kirk Watson	622
79.	Staged Flexor Tendon Grafts Marwan A. Wehbé	628

Part IV: Tendon Transfers in Rheumatoid Arthritis

80.	Extensor Carpi Radialis Longus to Extensor Carpi Ulnaris Transfer for Radial Deviation of the Wrist Richard A. Berger	637
-----	---	-----

81.	Extensor Indicis Proprius Transfer for Extensor Digitorum Communis and Extensor Digiti Quinti Minimi Rupture Harris Gellman, Myles J. Cohen	643
82.	Extensor Indicis Proprius Pollicis Transfer for Extensor Pollicis Longus Rupture Donald C. Ferlic	649
83.	Flexor Digitorum Superficialis to Flexor Pollicis Longus Tendon Transfer for Flexor Pollicis Longus Rupture Gail Mattson-Gates, Bradford W. Edgerton	654
84.	Crossed Intrinsic Transfers William F. Blair	660
<i>Part V: Tendon Transfers in Nerve Palsy</i>		
85.	Abductorplasty with Palmaris Longus to Abductor Pollicis Brevis Allen T. Bishop, Julie A. Katarincic	669
86.	Opponensplasty with Ring Finger Flexor Digitorum Superficialis Tendon Michael Jablon	675
87.	Adductorplasty with the Extensor Carpi Radialis Brevis Peter J. L. Jebson, Curtis M. Steyers	682
88.	Intrinsic Transfers with the Extensor Indicis Proprius and Extensor Digiti Minimi Tendons George E. Omer, Jr.	688
89.	Flexor Digitorum Sublimis Transfer to A1 Pulley for Claw Hand Amit Gupta, Thomas W. Wolff	695
<i>Part VI: Compression Neuropathy</i>		
90.	Carpal Tunnel Release: Open Technique Richard A. Brown, Richard H. Gelberman	703
91.	Carpal Tunnel Release with the Agee Endoscope John M. Agee	711
92.	Carpal Tunnel Release with the Chow Endoscope James C. Y. Chow	719
93.	Guyon's Canal Release Dean S. Louis	728
94.	Cubital Tunnel Release with Subcutaneous Transposition Lacy E. Thornburg	733
95.	Cubital Tunnel Release: Deep Transposition Peter C. Amadio	739
96.	Radial Tunnel Syndrome: Decompression by a Posterior Lateral Approach Robert J. Foster	746
97.	Median Nerve Release: Proximal Forearm Robert M. Szabo	754
<i>Part VII: Interpositional Nerve Grafting</i>		
98.	Grafting of Digital Nerves David M. Lamey	767
99.	Median Nerve Grafting in the Forearm Douglas P. Hanel, James W. Vahey	775

100.	Ulnar Nerve Grafting in the Forearm Don A. Coleman, Paul A. Binhammer	789
101.	Radial Nerve Grafting in the Arm Vincent R. Hentz, Brett J. Snyder	797

Part VIII: Arthrodesis

102.	Arthrodesis of the Distal Interphalangeal Joint with K-Wire Technique James L. Gluck	809
103.	Arthrodesis of the Proximal Interphalangeal Joint with K-Wire Technique A. George Dass, Mark R. Belsky	816
104.	Tension-Band Arthrodesis of the Proximal Interphalangeal Joint Richard A. Ruffin	824
105.	Arthrodesis of the Thumb Metacarpophalangeal Joint with Tension Band Technique Lewis H. Oster, Jr.	829
106.	Scapho-Trapezio-Trapezoid Joint Arthrodesis William B. Kleinman	835
107.	Scaphocapitate Arthrodesis Mitchell B. Rotman, Timothy S. Loth	849
108.	Lunotriquetral Arthrodesis David L. Nelson, Paul R. Manske	855
109.	Four-Corner Arthrodesis Joseph E. Imbriglia	865
110.	Radioscaphoid Arthrodesis Jeffrey J. Tiedeman	872
111.	Radiolunate Arthrodesis Julio Taleisnik	879
112.	Wrist Arthrodesis with an Intramedullary Rod Edward Diao, Jayaram S. Hariharan	887
113.	Wrist Arthrodesis with Plate Fixation Arnold-Peter C. Weiss	898

Part IX: Arthroplasty

114.	Capsulectomy of the Proximal Interphalangeal Joint Michael E. Jabaley, Alan E. Freeland	909
115.	Volar Plate Arthroplasty of the Proximal Interphalangeal Joint Richard G. Eaton	915
116.	Dorsal Capsulectomy of the Metacarpophalangeal Joint Leonard S. Bodell, Marc E. Gottlieb	923
117.	Silicone Arthroplasty of the Proximal Interphalangeal Joint Lewis H. Millender, Andrew L. Terrono	930
118.	Silicone Arthroplasty of the Metacarpophalangeal Joint Edward A. Nalebuff	936
119.	Ligament Reconstruction of the Thumb Carpometacarpal Joint Lewis B. Lane	947
120.	Ligament Reconstruction with Tendon Interposition Arthroplasty for the Thumb Carpometacarpal Joint Matthew M. Tomaino, Richard J. Burton	952
121.	Proximal Row Carpectomy David M. Lichtman, Gregory G. Degnan	961

122.	Shelf Arthroplasty of the Radiocarpal Joint Robert H. Brumfield	967
123.	Wrist Arthroplasty with a Silastic Implant Michel Y. Benoit, John F. Fatti	971
124.	Wrist Arthroplasty with the Biaxial Prosthesis Mary Lynn Brown, Robert Beckenbaugh	979
125.	Hemiresection Arthroplasty of the Distal Radioulnar Joint Larry K. Chidgey	985

Part X: Skeletal Reconstruction

126.	Phalangeal Derotational Osteotomy Teri S. Formanek, Barry P. Simmons	997
127.	Angulatory Osteotomy of Phalanges Jefferson J. Kaye	1003
128.	Derotation Osteotomy of the Metacarpals H. George Dass, Mark R. Belsky	1013
129.	Angular Osteotomy of Metacarpals George L. Lucas	1019
130.	Bone Grafting for Metacarpal Diaphyseal Defects Brian D. Adams	1025
131.	Metacarpal Lengthening by Distraction Osteosynthesis Richard L. Uhl, Raymond J. Kobus	1032
132.	Transposition of the Index Ray Martin A. Posner	1038
133.	Transposition of the Small Ray Martin A. Posner	1046
134.	Bone Grafting for Scaphoid Nonunion Norman P. Zemel	1052
135.	Anterior Wedge Grafting for Scaphoid Nonunions Robert J. Belsole	1059
136.	Capitate Shortening Osteotomy Edward E. Almquist	1067
137.	Ulnar Lengthening Osteotomy Michael E. Rettig, Ronald L. Linscheid	1075
138.	Distal Radial Shortening Osteotomy Edward A. Stokel, Thomas E. Trumble	1080
139.	Osteotomy for Malunion of the Distal Radius Diego L. Fernandez	1085

Part XI: Congenital Anomalies

140.	Syndactyly Reconstruction Brian D. Adams	1099
141.	Constriction Ring Reconstruction James R. Doyle	1106
142.	Trigger Thumb Release Curtis M. Steyers	1112
143.	Bifid Thumb Reconstruction Gary M. Lourie	1117
144.	Pollicization Dieter Buck-Gramcko	1126

145.	Hypoplastic Thumb Reconstruction Paul R. Manske	1135
146.	Centralization for Radial Dysplasia Terry R. Light	1144

Part XII: Vessels

147.	Venous Grafts for Ulnar Artery Thrombosis L. Andrew Koman	1155
148.	Digital Periarterial Sympathectomy E.F. Shaw Wilgis	1164
	Index	1171