

Contents

Part One

General Overview of Groin Hernia

1

Historical Survey of the Treatment of Hernia 3

Raymond C. Read

The Ancients 3

The Barber-Surgeons 3

The Surgeon-Anatomists 4

Lister and Antisepsis 4

Bassini 5

Controversy over the Approach to Inguinal
Hernia 8

Theories on the Origin of Hernias and Their
Influence on Repair 10

Editor's Comment: 14

L.M. Nyhus

2

The Anatomy of the Inguinal Region and Its Relation to Groin Hernia 18

Robert E. Condon

Individual Anatomic Structures in the Groin 19

Pathogenesis of Groin Hernias and Principles of
Their Repair 51

Method for Demonstrating Surgical Anatomy of
the Groin in the Autopsy Room 55

Special Comment:

Transversalis Fascia 60

Ernest W. Lampe

Editors' Comment: 63

L.M. Nyhus and R.E. Condon

3

Theoretic Aspects of Hernia 65

Philip E. Donahue

Groin Hernia 65

Hernias of the Abdominal Wall 66

Biological Factors in the Genesis of Herniation 67

Diagnosis of Hernias 70

Special Comment:

Nonpalpable Inguinal Hernia in Women 74

Leif Spangen, Rolf Andersson, and Lars Ohlsson

Part Two

Clinical Aspects of Groin Hernia

4

Groin Hernia in Infants and Children 81

Jay L. Grosfeld

Historical Background 81

Embryology of Hernia and Hydrocele 81

Clinical Presentation 83

Physical Examination and Management 84

Incarcerated Hernia 85

Management of Premature Infants 87

The Role of Herniography 88

Treatment 88

Sliding Hernia 93

Contralateral Inguinal Exploration 94

Complications 94

Editor's Comment: 97

L.M. Nyhus

Special Comment:

Operative Technique for the Repair of Inguinal
Hernias in Infants 98

Kevin C. Pringle

5

The Marcy Repair of Indirect Inguinal Hernia: 1870 to Present 106

Charles A. Griffith

Henry Orlando Marcy (1837–1924) 106

Closing the Internal Ring Versus Repairing the Inguinal Canal 106

Author's and Editor's Experience 107

The Internal Ring 107

Repair From Above: The Transabdominal and Preperitoneal Approaches 108

Repair From Below: The Inguinal Approach or Marcy Operation 109

Indirect Recurrence 116

Editor's Comment: 118

L.M. Nyhus

6

Groin Hernia: Cooper Ligament Repair 119

Chester B. McVay

Anatomy 119

Surgical Technique: Cooper Ligament Hernioplasty 127

Editor's Comment: 131

L.M. Nyhus

Special Comment:

A Personal Experience with Cooper Ligament Repair 131

Robb H. Rutledge

7

Anterior Iliopubic Tract Repair 137

Robert E. Condon

Repair of Indirect Inguinal Hernias 137

Repair of Direct Inguinal Hernias 147

Editors' Comment: 153

L.M. Nyhus

8

The Preperitoneal Approach and Iliopubic Tract Repair of Inguinal Hernia 154

Lloyd M. Nyhus

History 154

Surgical Anatomy 157

The Operation—Preperitoneal Approach and the Iliopubic Tract Repair 160

Editor's Comment: 177

R.E. Condon

Special Comment:

Experiences with Preperitoneal Hernioplasty 178

Ernest W. Lampe

Editor's Comment: 184

L.M. Nyhus

Special Comment:

Expanded Indications for the Posterior Hernia Repair: The High Risk Patient 184

A. Gerson Greenburg

Special Comment:

The Yo-Yo Operation for Hernia in Men 186

Douglas R. Leslie

Editor's Comment: 188

L.M. Nyhus

9

The Preperitoneal Approach and Iliopubic Tract Repair of Femoral Hernia 189

Lloyd M. Nyhus

Normal Anatomy 189

Etiology of Femoral Hernia 189

Diagnosis 190

Treatment 190

Surgical Technique 191

Special Comment:

The Extraperitoneal Approach in Femoral Hernia 195

Arnold K. Henry

Editor's Comment: 198

L.M. Nyhus

10

The Preperitoneal Approach and Prosthetic Repair of Groin Hernia 199

Rene F. Stoppa and Christian R. Warlaumont

The Purposes of Prostheses 199

The Purpose of the Preperitoneal Approach 203

How to Use Prostheses 204

Technical Aspects of Prosthetic Repair 206

Do Preperitoneal Prostheses Carry Special Risks? 213

Results 214

Patient Selection for Preperitoneal Prosthetic Repair 215

Recurrences 216

Editor's Comment: 221

L.M. Nyhus

Special Comment:

Personal Experience with the Stoppa Technique 221

George E. Wantz

11

Groin Hernia: Current Personal Approach 226

Joseph L. Ponka

Indirect Inguinal Hernias 226

Indirect Sliding Inguinal Hernias 227

Direct Inguinal Hernias 230
Femoral Hernias 231

Editor's Comment: 233

R.E. Condon

12

The Canadian Repair of Inguinal Hernia 236

George E. Wantz

Anesthesia 236

Technique 236

Convalescence 241

Morbidity 242

Recurrence 244

Editor's Comment: 248

R.E. Condon

Special Comment:

Experience with the Shouldice Repair 248

Franck Lazorthes and Patrick Chiotasso

13

Complications of Groin Hernia 253

Robert E. Condon and Lloyd M. Nyhus

Preoperative Complications 253

Surgical Complications 255

Postoperative Complications 261

Special Comment:

Arterial Injuries During Inguinal Hernia Repair 265

Ronald A. Malt and Leslie W. Ottinger

Special Comment:

Genitofemoral Neuralgia 266

James R. Starling

Part Three

Special Problems

14

Strangulating External Hernia 273

Raymond Pollak

Definition 273

Incidence 273

Etiology 273

Pathology 274

Clinical Findings and Diagnosis 274

Treatment 275

Prognosis, Morbidity, and Mortality 282

Editor's Comment: 284

R.E. Condon

15

Sliding Inguinal Hernia 285

Julius A. Mackie, Jr. and Henry D. Berkowitz

Incidence 285

Diagnosis 286

Repair of Sliding Inguinal Hernia 287

Results of Repair of Sliding Inguinal Hernia 291

Special Comment:

The Mechanism of the Slide 299

Sidney Black

Editor's Comment: 301

R.E. Condon

16

Prevascular and Other Special Varieties of Femoral Hernia 302

Henry N. Harkins

Definition 302

Discussion 302

Other Related Rare Varieties of Femoral Hernia 303

Editors' Comment: 304

R.E. Condon and L.M. Nyhus

17

Richter and Littre Hernia 305

William A. Tito and William C. Allen

History 305

Richter Hernia 306

Littre Hernia 308

Editor's Comment: 310

R.E. Condon

18

Hernia of the Broad Ligament of the Uterus 311

Frederick A. Slezak and Thomas M. Schlueter

Anatomy 311

Secondary Hernia of the Broad Ligament 311

Primary Hernia of the Broad Ligament 312

Part Four

Hernias of the Anterior Abdominal Wall

19

Incisional Hernia 301

Robert J. Baker

Controllable Etiologic Factors 321

Uncontrollable Factors 325

Manifestations of Incisional Hernia 326

Preoperative Preparation 327

Operative Technique 329

Special Comment:

Parastomal Hernia 333

Douglas R. Leslie

Editor's Comment: 337

R.E. Condon

20

Omphalocele 338

Timothy G. Canty

Embryology and Pathogenesis 338

Incidence 338

Associated Anomalies 339

Clinical Features 340

Management 340

Clinical Results 347

Editor's Comment: 348

L.M. Nyhus

21

Gastroschisis 349

Eric W. Fonkalsrud

Preoperative Management 350

Operative Management 351

Postoperative Care 352

Editor's Comment: 353

L.M. Nyhus

22

Umbilical Hernia 354

Richard P. Harmel, Jr.

History 354

Anatomy and Embryology 354

Incidence 355

Diagnosis 355

Complications 355

Therapy 356

Operative Technique 356

Surgical Complications 356

23

Epigastric Hernia 360

Arnold P. Robin

Historical Perspective 360

Demographics 361

Anatomy and Pathology 361

Etiology and Pathogenesis 364

Clinical Presentation 364

Diagnosis 364

Treatment 365

Results 366

Editor's Comment: 368

L.M. Nyhus

24

Spigelian Hernia 369

Leif Spangen

Definitions 369

Historical Review 369

Incidence 369

Anatomy 370

Etiology 372

Diagnosis 373

Surgical Treatment 375

Low Spigelian Hernia 376

Editor's Comment: 379

L.M. Nyhus

25

Interparietal Hernia 380

Barry Altman

Definition 380

History 380

Classification 380

Etiology 382

Incidence 384

Diagnosis 385

Treatment 386

26

Supravesical Hernia 388

Stephen W. Gray and John E. Skandalakis

History 388

Anatomy of the Anterior Abdominal Wall and
Supravesical Fossa 388

External Supravesical Hernia 390

Internal Supravesical Hernia 391

The Retropubic Space (Prevesical Space; Space of
Retzius) 393

The Retrovesical Space 395

Incidence 396

Etiology 396

Symptoms 397

Diagnosis and Treatment 397

Mortality 397

Editor's Comment: 398

L.M. Nyhus

Part Five

Lumbar and Pelvic Hernias

27

Lumbar Hernia 401

W. Peter Geis and John D. Saletta

Historical Aspects 401

Symptoms and Diagnosis 402

Differential Diagnosis of Lumbar Hernia 402

Anatomic Considerations 403

Classification of Lumbar Hernias 407

Treatment 408

Patient Experience 412

Editor's Comment: 415

L.M. Nyhus

28**Strangulated Obturator Hernia 416***John E. Skandalakis and Stephen W. Gray*

History 416

Anatomic Considerations 417

Formation of Obturator Hernia 421

Analysis of Reported Instances 422

Treatment 426

Mortality 428

Editor's Comment: 430*L.M. Nyhus***29****Sciatic Hernia 432***Sidney Black*

History 432

Incidence 432

Contents of the Sac 432

Etiology 432

Anatomy 433

Symptoms and Diagnosis 435

Treatment 436

Editor's Comment: 440*L.M. Nyhus***30****Perineal Hernia 442***Russell K. Pearl*

Primary Perineal Hernia 442

Secondary Perineal Hernia 443

31**Prolapse of the Rectum 447***Richard L. Nelson and Russell K. Pearl*

Epidemiology 447

Etiology 448

Presentation and Associated Conditions 449

Consequences of Prolapse 449

Treatment 450

Preoperative and Postoperative Care 457

Surgical Choice 457

Editor's Comment: 458*R.E. Condon***Part Six****Intra-abdominal Hernia****32****Mesenteric Hernia 461***Yves Janin, Alex M. Stone, and Leslie Wise*

Pathogenesis 462

Incidence and Location 463

Complications 464

Associated Anomalies of the Gastrointestinal Tract 464

Signs and Symptoms 465

Laboratory Findings 465

Preoperative Diagnosis 466

Surgical Management 466

Postoperative Complications 466

Editor's Comment: 469*L.M. Nyhus***33****Retroanastomotic Hernia 470***Robb H. Rutledge*

Retroanastomotic Hernias after Gastrojejunal Anastomoses 470

Other Retroanastomotic Hernias 476

Editor's Comment: 480*L.M. Nyhus***34****Paraduodenal Hernia 481***Robert A. Brigham and Juan C. d'Avis*

Normal Gut Rotation and Reduction 481

Pathogenesis of Paraduodenal Hernia 482

Clinical Presentation and Diagnosis 482

Treatment 484

Part Seven**General Aids to Repair****35****Anesthesia for Herniorrhaphy 487***Alon P. Winnie and Elemer K. Zsigmond*

Factors that Determine Operative Risk 487

Preanesthetic Medication 499

Selection and Management of Anesthesia 499

Anesthesia for Repair of Inguinal Hernia in Adults 503

Techniques of Regional Anesthesia 506

Anesthesia for Inguinal Hernial Repair in Children 514

Anesthesia for Outpatient Herniorrhaphy 515

Special Comment:

Outpatient Inguinal Herniorrhaphy: Short-Acting Regional Anesthesia and Long-Acting Local Anesthesia 516

*John A. Ryan, Jr.***Special Comment:**

Local Anesthesia for Hernial Repair: An Aid or a Hindrance to Cure? 518

B.J. Britton

36

Pneumoperitoneum in Giant Hernia 521
Edward E. Mason and Merril T. Dayton

Abdominal Room 522

Indications 522

Decision Trees 523

Technique 527

Risks 529

Results 529

Editor's Comment: 530

L.M. Nyhus

37

Herniography 531

Sam G.G. Smedberg and Albert E.A. Broomé

Indications 531

Technique 532

Interpretation 532

Complications 537

Clinical Experience 538

Comments 539

38

Biomaterials in Hernia Repair 541

Stanley D. Berliner

Graft Materials 541

Clinical Material 544

Editor's Comment: 554

R.E. Condon

Special Comment:

A Femoral Umbrella for Repair of Femoral
Hernia 555

Robert Bendavid

39

Prosthetic Repair of Abdominal Hernia 559

Robert E. Condon

Prosthetic Materials 559

General Principles in Prosthetic Repair 560

Ventral and Incisional Hernia 561

Peristomal Hernia 567

Groin Hernia 570

Hiatal Hernia (Intrathoracic Stomach) 572

Special Comment:

The Fletching: A New Implant for the Treatment
of Inguinofemoral Hernias 577

Robert Bendavid

Editor's Comment: 583

L.M. Nyhus

Part Eight

Diaphragmatic Hernia and Reflux
Peptic Esophagitis

40

Esophageal Hiatal Hernia and
Gastroesophageal Reflux 584

C. Thomas Bombeck

The Role of Sliding Hiatal Hernia 584

Definition of the Process 584

Etiology of Reflux 584

Causes of LES Failure 585

Pathophysiology of Reflux Esophagitis 588

Pathology of Reflux Esophagitis 588

Diagnosis of Reflux Esophagitis 590

The Approach to Patients with Esophagitis 593

Editor's Comment: 599

L.M. Nyhus

Special Comment:

The Angelchik Prosthesis 599

C. Thomas Bombeck

41

Treatment of Peptic Esophagitis: Nissen
Repair 604

J. Rüdiger Siewert and Hubertus Feussner

Historical Review 604

Mechanisms of Action 604

Indications for a Nissen Repair 605

Operative Technique 606

Operative Results 606

Side-effects 609

Complications 610

Editor's Comment: 613

R.E. Condon

42

Gastroesophageal Reflux in Infants and
Children 614

*Thomas M. Rouse, Philip C. Guzzetta, Jr.,
and Judson Randolph*

Diagnosis 614

Medical Management 617

Surgical Treatment 618

43

Intrathoracic Fundoplication 623

James W. Maher

Patients 623

Technique 624

Results 626

Complications 626

Discussion 627

Editor's Comment: 629

R.E. Condon

44

Transthoracic Treatment of Gastroesophageal Reflux and Peptic Esophagitis 630

Alex G. Little, Mark K. Ferguson, and David B. Skinner

Indications for Operation and for the Transthoracic Approach 630

The Transthoracic Approach 631

Surgical Results 636

45

Posterior (Median Arcuate Ligament) Gastropexy 637

Lucius D. Hill and Kjell Thor

Indications 637

Coexisting Problems 638

Preoperative Evaluation 638

Rationale for Surgical Treatment 639

Technique 640

Reflux Strictures 643

Recurrent Reflux and Failures After Antireflux Operations 646

Reproducibility 647

Discussion 650

Editor's Comment: 652

L.M. Nyhus

46

The Collis–Nissen Operation for Reflux Esophagitis 653

Mark B. Orringer

Surgical Technique 654

Results 665

47

The Sling Approach to the Treatment of Reflux Peptic Esophagitis 668

Benjamin Narbona

Physiologic Basis for the Approach 668

Indications for Surgical Treatment 673

Surgical Technique 674

Results 676

Benefits of the Sling Approach 679

The Sling Approach to the Surgical Treatment of Peptic Stenosis 681

Editor's Comment: 682

L.M. Nyhus

48

Paraesophageal Hiatal Hernia 684

Tom R. DeMeester and Luigi Bonavina

Incidence and Etiology 684

Symptoms 686

Diagnosis 687

Pathophysiology 688

Therapy 692

Editor's Comment: 693

L.M. Nyhus

49

Congenital Diaphragmatic Hernia 694

Frank M. Guttman and Jean-Martin Laberge

History 694

Posterolateral Congenital Diaphragmatic Hernia of Bochdalek 694

Hernia of Morgagni 705

50

Traumatic Diaphragmatic Hernia 708

Henrik C. Arendrup and Kristian D. Arendrup

Occurrence and Frequency 709

Methods of Injury 709

Pathophysiology 710

Clinical Symptoms 710

Diagnosis 710

Causes of Erroneous Diagnoses 713

Treatment and Results 715

Editor's Comment: 716

R.E. Condon

Part Nine

Medicolegal Aspects of Hernia

51

The Medicolegal Aspects of Hernia 717

Melvin E. Ehrhardt, Raymond Fish, Carol Ann Smith, and Richard Scott Stuart

Surgical Consent 717

Malpractice 721

Alternatives to Malpractice Actions 723

Patient Abandonment 724

Delegation of Responsibilities in the Hospital 725

Physician–Patient Privilege 727

The Physician as Witness 727

Conclusions—A Statutory Examination 728

Editors' Comment: 731

L.M. Nyhus and R.E. Condon

Supplementary Reading 734

Index 743