

Contents

SECTION 1: TRICHOLOGY

PART A: Basic Sciences

CHAPTER 1:	Evolution of Baldness	3
	<i>Prashant K Palwade</i>	
	Evolution of Life on Earth and Human Evolution	3
	Evolution of Hair	4
	Loss of Hair in Human Evolution	5
	Evolution of Hair in Humans	5
	What's Next?	6
CHAPTER 2:	Naked Ape	8
	<i>Anvitha C, Venkataram Mysore</i>	
CHAPTER 3:	Hair Anatomy	13
	<i>Kumaresan M</i>	
	Embryology	13
	Types of Hair	16
CHAPTER 4:	Follicular Melanocyte	23
	<i>TP Afra, Venkataram Mysore</i>	
	Follicular Melanocyte—Embryology	23
	Follicular and Epidermal Melanocytes—Distinct Population	23
	Functions of Follicular Melanocyte	24
	Androgens and Hair Follicle Pigmentation	25
	Clinical Significance and Applications	25
CHAPTER 5:	Hair Physiology	27
	<i>Pooja Kanumur, Venkataram Mysore</i>	
	Hair Cycle	27
	Relevant Genetics of Androgenetic Alopecia	29
CHAPTER 6:	Hormones and Hair	31
	<i>Ruhi Uttamani-Sangle, Venkataram Mysore</i>	
	Effects of Hormones on Hair	31

PART B: Clinical Trichology

CHAPTER 7:	Hair Loss and Causes: An Overview <i>Pooja Kanumuru, Venkataram Mysore</i> Telogen Effluvium 37 Alopecia Areata 38	37
CHAPTER 8:	Telogen Effluvium <i>Deepthi M</i> Epidemiology 41 Etiopathogenesis 41 Clinical Presentation 42 Diagnosis 42 Differential Diagnosis 43 Management 44	41
CHAPTER 9:	Alopecia Areata <i>Radhika V Kaujalgi</i> Epidemiology 46 Etiopathogenesis 46 Associated Conditions 47 Clinical Presentation 48 Clinical Subtypes 48 Investigations 48 Treatment 49	46
CHAPTER 10:	Scarring Alopecia <i>Madhulika Mhatre, Bhavni Oberoi</i> Common Primary Cicatricial Alopecias 52 Dermoscopy 53 Management of Cicatricial Alopecia 56	52

PART C: Investigations

CHAPTER 11:	Investigations in Hair Loss <i>Dhanashree Bhide, Pravin Bharatia, Mukta Tulpule, Ruhi Uttamani-Sangle</i> Clinical Tests 59	59
CHAPTER 12:	Histopathology of Hair Loss <i>Venkataram Mysore</i> Biopsy 68 Definition of the Follicular Unit 69 Classification 69 Approach to Diagnosis of Alopecias 72	68

CHAPTER 13: Trichoscopy for the Hair Transplant Surgeon	74
<i>Balachandra S Ankad</i>	
Instrument	74
Stepwise Approach to Trichoscopy	75
Trichoscopy in the Perspective of Hair Transplantation	77
PART D: Pattern Hair Loss	
CHAPTER 14: Classification of Pattern Hair Loss	81
<i>Mrinal Gupta, Venkataram Mysore</i>	
Classifications of Male Pattern Hair Loss	81
Classifications of Female Pattern Hair Loss	86
Classification for Pattern Hair Loss: Irrespective of Sex	88
Basic and Specific Classification (2007)	89
CHAPTER 15: Female Pattern Hair Loss	92
<i>Aman Dua, Kapil Dua, R Sri Satya</i>	
Epidemiology	92
Pathogenesis	92
Classification	94
Clinical Manifestations	96
Diagnosis	97
Differential Diagnosis	98
Laboratory Investigations	98
Associations	99
CHAPTER 16: Pathophysiology of Androgenetic Alopecia	102
<i>Sandeep Sattur, Indu S Sattur</i>	
Etiological Basis of Pattern Hair Loss	102
Connecting the Dots	114
CHAPTER 17: Genetics of Androgenetic Alopecia	118
<i>Manjot Marwah, Venkataram Mysore</i>	
Genes Affecting Androgenetic Alopecia	118
Androgen Receptor Gene	119
Application in Diagnostics and Treatment	120
CHAPTER 18: Smoking and Hair Loss	121
<i>Nivedita Sashidhar, Yatra Kavadya Jain, Venkataram Mysore</i>	
Composition of Tobacco Smoke	121
Hair as a Biomarker of Nicotine Exposure	121
Mechanisms of Smoking Leading to Hair Loss	122
Effects of Smoking on Hair Loss	123

CHAPTER 19: Psychological Aspects of Hair Loss	127
<i>Manjot Marwah, Venkataram Mysore, Pooja Kanumuru</i>	
Current Scenario	128
Assessment of the Psychology of a Hair Loss Patient	128
Types of Emotions in Alopecia	129
Understanding the Psychology Behind the Emotion	130
Body Dysmorphic Disorder	130
CHAPTER 20: Nutrition and Androgenetic Alopecia	134
<i>Rajesh Rajput</i>	
Nutrients Essential for Cellular Function	134
Nutrients, Cell Systems, and Deoxyribonucleic Acid Damage	134
Lifestyle, Epigenetic Deoxyribonucleic Acid Methylation, and Nutrients	135
Acquired Androgen Sensitivity from Continued Exposure to Nonandrogenic Factors	135
Gap Theory of Metabolic Steps	136
Triage and Marginal Micronutrient Deficiency	136
Role of Mitochondrial Metabolism	136
Role of Autophagy	137
Specific Nutrients have a Direct Role in Hair Growth	137
Clinical Trials	137
PART E: Pharmacological Treatments	
CHAPTER 21: Topical Minoxidil	146
<i>Sajin Alexander, Venkataram Mysore</i>	
Discussion	146
Topical Minoxidil	146
Pharmacokinetics	147
Indications	149
Adverse Effects	150
Contraindications	150
CHAPTER 22: Oral Minoxidil	152
<i>Sajin Alexander, Venkataram Mysore</i>	
Discussion	152
Hemodynamic Effects	153
Efficacy	153
Indications	154
Adverse Effects	155
Contraindications	156
Precautions	156

CHAPTER 23: Finasteride	159
<i>Anuradha Jindal, Madhulika Mhatre, Venkataram Mysore</i>	
Mechanism of Action or Pharmacology	159
Indications	160
Contraindications	161
Adverse Effects	161
Drug Interactions	162
Monitoring Guidelines	162
Topical Finasteride	162
CHAPTER 24: Dutasteride	165
<i>Deepthi M</i>	
Pharmacology	165
Mechanism of Action	165
Indications	166
Contraindications	166
Adverse Effects	166
Drug Interactions	167
Monitoring Guidelines	167
Topical Dutasteride	167
CHAPTER 25: Overview and Approach to Medical Management of Male Pattern Hair Loss	169
<i>BS Chandrashekar, Priya Dsouza, Madura C</i>	
Medical Management	169
Emerging Therapies in the Management of Androgenetic Alopecia	173
Dilemmas and Concerns in the Management of Androgenetic Alopecia	174
CHAPTER 26: Medical Management of Female Pattern Hair Loss	179
<i>Manjot Marwah, Deepthi M</i>	
Counseling	179
Medical Management	179
Miscellaneous Nutritional and Adjuvant Drugs	182
Noninvasive and Semi-Invasive Modalities	182
Surgical Management	183
Cosmetic Camouflage	184
PART F: Nonpharmacological Treatments	
CHAPTER 27: Microneedling in Androgenetic Alopecia	188
<i>Madhulika Mhatre, Pratik Thacker</i>	
Mechanism of Action	188
Patient Selection	189
Practical Guidelines	189
Post-treatment Care	190

CHAPTER 28: Regenerative Treatments in Androgenetic Alopecia: Overview	192
<i>Aniketh Venkataram, Deeksha Rao Venkataram</i>	
Physiology of Hair Loss	192
Adipose-derived Stem Cells	193
Hair Follicle	195
CHAPTER 29: Platelet-rich Plasma in Hair Loss	197
<i>Shuken Dashore</i>	
History	197
Classification of Platelet-rich Plasma	198
Mechanism of Action of Platelet-rich Plasma in Hair Loss	198
Preparation of Platelet-rich Plasma	199
Mathematics of Platelet-rich Plasma	202
Platelet-rich Plasma in Androgenetic Alopecia	202
IADVL Recommendations for Preparation of Platelet-rich Plasma	203
Specific Issues of Debate Regarding Platelet-rich Plasma Preparation and its Use in Androgenetic Alopecia	203
Comparison of Platelet-rich Plasma with Topical Minoxidil Therapy and Finasteride Top of Form	205
Anesthesia	206
Injection of Platelet-rich Plasma in Patients with Androgenetic Alopecia	207
CHAPTER 30: Platelet-rich Plasma in Hair Transplantation	210
<i>Kumaresan M</i>	
Rationale for Platelet-rich Plasma in Hair Transplantation	210
Other Modalities of Utilizing Platelet-rich Plasma in Hair Transplantation	212
Platelet-rich Plasma in Hair Transplantation for Scarring Alopecia	212
CHAPTER 31: Lasers in Androgenetic Alopecia	214
<i>Jisha Pillai, Shivani SR, Venkataram Mysore</i>	
Low-level Light Therapy	214
Other Lasers for Androgenetic Alopecia	216
CHAPTER 32: Synthetic Hair Fibers	219
<i>Indira Potthuri, Venkataram Mysore</i>	
History of Artificial Hair and Regulatory Indications	219
Composition	219
Indications	219
Patient Selection	220
Implantation Technique	220
Postprocedure Care	220
Follow-up Care	220
Disadvantages	220
Complications	221
Are Synthetic Hair Fibers Appropriate to Use?	221

CHAPTER 33: Hair Camouflage	222
<i>Vrushali Maisekar</i>	
Hair Camouflage 222	
Hair Additions 223	
Hair Camouflaging Agents 226	
Camouflage for the Lash and Brow 228	
Integrating Scalp Camouflaging in Routine Practice 228	
CHAPTER 34: Scalp Micropigmentation and Microblading	229
<i>Aseem Sharma, Ravina Surve, Amit Kerure, Madhulika Mhatre</i>	
Scalp Micropigmentation 230	
Scalp Microblading 234	
CHAPTER 35: Combination Therapies in Androgenetic Alopecia	238
<i>Venkataram Mysore, Kumaresan M, Shuken Dashore, Aniketh Venkataram</i>	

SECTION 2: HAIR TRANSPLANTATION

PART A: Basic Sciences

CHAPTER 36: History of Hair Transplantation	249
<i>Venkataram Mysore, Aniketh Venkataram</i>	
Early Days 249	
Evolution of the Donor Strip 250	
Evolution of Follicular Unit Excision 250	
CHAPTER 37: Follicular Unit: Logic and Relevance	252
<i>Aniketh Venkataram, Venkataram Mysore</i>	
The Logic of Hair Distribution and the Follicular Unit—Donor Area 252	
Other Hair Characters 254	
The Logic of Donor Site 254	
Logic of the Recipient Site 255	
Planning the Hair Transplantation 255	
Logic of Follicular Unit Extraction 255	
Combining Follicular Unit Transplantation and Follicular Unit Extraction 256	
Logic of Body Hair Transplantation 256	
Twelve Commandments of Hair Transplantation 256	
CHAPTER 38: Surgical Anatomy of the Scalp	258
<i>Sandeep Sattur, Indu S Sattur</i>	
Scalp 258	
Vasculature of the Scalp 259	
Applied Anatomy of Scalp in Hair Transplantation 261	
Properties of Mechanical Creep and Stress Relaxation 264	

CHAPTER 39: Case Selection, Counseling, and Surgical Planning	266
<i>Vaishalee Kirane, Narendra Patwardhan</i>	
Case Selection 266	
Examination of Scalp 267	
Contraindications for Hair Restoration Surgery 267	
Vertex or Crown Baldness 268	
Hair Restoration Surgery in Females 268	
Follicular Unit Extraction 268	
Body Hair Transplant 268	
Preoperative Counseling 268	
Informed Consent 269	
CHAPTER 40: Concept of Safe Donor Area	271
<i>Kumaresan M</i>	
Concept of the Safe Donor Area 271	
Concept of Safe Excision Density 273	
Concept of Healthy Hair Follicle Harvesting 275	
To Meet Unrealistic Expectations of the Patient 276	
Pattern of Harvesting 276	
How to Get Optimum Results from a Hair Transplant? 277	
Discussion and Results 277	
CHAPTER 41: Graft Harvesting from Safe Donor Area and Graft Calculation for Recipient Area: Current Concepts	280
<i>Anil Kumar Garg, Seema Garg</i>	
Unger's Safe Area 280	
Alt's Safe Area 281	
Cole's Safe Area 282	
Bernstein and Rassman Definition of Safe Donor Area 282	
Safe Donor Area Definition Based on Parietal Whorl by Park 282	
CHAPTER 42: Antithrombotic Therapy and Hair Transplantation	284
<i>Vaishalee Kirane, Aniketh Venkataram</i>	
Brief Overview of Antithrombotics 284	
Recommendations for Perioperative Management of Antithrombotics 285	
CHAPTER 43: Emergencies and Resuscitation in Transplantation	287
<i>Murali Chakravarthy</i>	
Anaphylaxis 288	
Syncope 288	
Lignocaine-related Issues 289	
Breathlessness 289	
Chest Pain 290	
Bleeding 290	
Acute Stroke 290	
Status Epilepticus 290	

Collapse	290
Hypotension	291
Hypertension	291
Hypoxemia	291
Cardiac Arrest	292
Nerve Injury	292
General Resuscitation Plan at the Dermatologic Office	292
List of Resuscitation Equipment	292
Documentation of the Events	293

CHAPTER 44: Anesthesia for Hair Transplantation 295

Indu S Sattur, Sandeep Sattur

Pharmacology	296
Mechanism of Action	296
Articaine	298
Delivering Anesthesia Preoperative Preparation/Sedation	299
Blocks for Hair Transplant Procedure	300
Greater Occipital Nerve Block and Donor Area Anesthesia	302
Tumescent Anesthesia	303
Drug Interactions and Coexisting Medical Conditions	304
Monitoring During Hair Transplant Surgery	305

PART B: Donor Area

CHAPTER 45: Donor Strip Harvesting—Planning, Preoperative Assessment and Preparation 310

Mayank Singh, Aparna Acharya

Planning of Follicular Unit Transplantation Surgeries	310
Things to Look Out for in a Consultation	310
Contraindications to Follicular Unit Transplantation	311
Examination	311
Planning of the Surgery	312
Preparation for The Surgery	313

CHAPTER 46: Donor Strip: Surgical Methods 317

Mayank Singh, Aparna Acharya

Preparation of the Surgical Trolley	317
Sterilization of the Instruments	318
Position of the Patient	318
Anesthesia	318
Incisions	319
Strip Dissection	319
Strip Separation	320
Trichophytic Closure	320
Closure Techniques	321
Separation of Follicular Units from the Strip	322

	Graft Storage	322
	Harvesting the Second Strip in Patients with Previous Follicular Unit Transplantation Scar	323
CHAPTER 47:	Donor Strip: Suturing Techniques	325
	<i>Manoj Khanna</i>	
	Patient Positioning	325
	Suture Materials	326
	Points to Remember while Harvesting Donor Strip	326
CHAPTER 48:	Trichophytic Closure	333
	<i>Sandeep Sattur, Indu S Sattur</i>	
	Trichophytic Closure	333
	Rationale of Trichophytic Closure	333
	Anatomical Considerations and Prerequisites for Trichophytic Closure	333
	Anatomical Considerations For Deepithelializing of Wound Edges	334
CHAPTER 49:	Follicular Unit Extraction: Logic, Case Selection, and Indications	337
	<i>Kuldeep Saxena</i>	
	Basic Logic of Follicular Unit Extraction	337
	Principle of Follicular Unit Extraction	338
	Indications of Follicular Unit Extraction	338
	Indications Other than Androgenetic Alopecia	341
	Contraindication	341
CHAPTER 50:	Physics of Follicular Unit Excision	343
	<i>Aniketh Venkataram, Deeksha Rao Venkataram</i>	
	Basics of Drill Physics	343
	Graft Characteristics	344
	Study	344
	Follicular Unit Excision Harvest	344
	Outcomes	344
	Results	344
	Other Findings	345
	Discussion	345
	Applications	348
CHAPTER 51:	Follicular Unit Excision: Instrumentation and Technique	350
	<i>Kuldeep Saxena</i>	
	Important Instruments Used in Follicular Unit Excision	351
	Techniques of Follicular Unit Excision	354
CHAPTER 52:	Punches in Follicular Unit Extraction	359
	<i>Sukhbir Singh</i>	
	Dynamics of Follicular Unit Extraction	359

Historical Perspective	359
Punch Metallurgy	359
Punch Variables	359
CHAPTER 53: Different Machines in Follicular Unit Excision	363
<i>Kavish Chouhan, Megha Tandon</i>	
Evolution of Motorized Devices	363
Toward the Newer Avenues	367
CHAPTER 54: Comparison of Follicular Unit Excision and Follicular Unit Transplantation (Strip): A Critique	371
<i>Kumaresan M</i>	
Donor Region Scarring	371
Quality of Grafts	373
Transection Rates	373
Graft Yield	373
Technical Expertise	373
Complications	373
Team and Setup	374
CHAPTER 55: Long Hair Follicular Unit Extraction	376
<i>Kavish Chouhan, Sayyad Ajara T Hamid</i>	
Advantages of Long Hair Follicular Unit Extraction Over Conventional Follicular Unit Extraction	376
History of Long Hair Follicular Unit Extraction	376
Challenges in Long Hair Follicular Unit Extraction	377
Physics of Long Hair Follicular Unit Extraction	378
Devices Available for Long Hair Follicular Unit Extraction	379
Indications	380
Future of Long Hair Follicular Unit Extraction	380
CHAPTER 56: Follicular Unit Extraction Mega and Giga Sessions	382
<i>Aman Dua, Kapil Dua, R Sri Satya</i>	
Definition	382
Indications for Mega Sessions	382
Selecting the Right Candidate	383
Planning of Mega and Giga Sessions	383
Initial Consultation with the Patient	383
Donor Supply of Grafts	383
Mathematics of the Donor Area	383
Pearls for Conducting Mega and Giga Sessions	385
Local Anesthesia	386
Complications	386
Results	387

CHAPTER 57: Follicular Unit Excision: Do's and Don'ts	390
<i>Kapil Dua, Vivek M Pai, Aman Dua</i>	
Preparation of the Donor Area	390
Selection of Instruments	391
Local Anesthesia	392
Infiltration of the Donor Area	392
Traction and Countertraction	392
Alignment	392
Engagement	393
Advancement	394
Transection of Grafts	394
Removal of Grafts	394
Out-of-body Time of Grafts	394

PART C: Graft Handling

CHAPTER 58: Graft Dissection: Techniques	398
<i>Anil Kumar Garg, Seema Garg</i>	
Graft Production	398
CHAPTER 59: Magnification in Hair Restoration	403
<i>Amit Kerure, Komal Ahuja</i>	
History	403
Types of Magnification	403
Use of Magnification in Different Stages of Hair Transplant	407
Benefits of Using Magnification	407
Features of an Ideal Magnification Device	407
Choice of a Magnification Device	407
CHAPTER 60: Graft Preservation	409
<i>Nirmal B</i>	
Possible Stresses Encountered	
By Grafts	409
Graft-holding Solutions	411
Platelet-rich Plasma	412
Histidine–tryptophan–ketoglutarate Solution	413

PART D: Recipient Area

CHAPTER 61: Geometry of Slit Making	416
<i>Aniketh Venkataram, Pradipkumar R Atodaria, Kuldeepsinh P Atodaria</i>	
Anatomy of Scalp Vasculature	416
Shape of the Instrument	417
Angle of Slit	418

Slit Orientation—Coronal versus Sagittal	418
Recommendations	419
CHAPTER 62: Recipient Area: Male and Female Hairline Design	420
<i>Shalini Malhotra, Anchal Shah, Diwaker Sharma</i>	
Anatomical Landmarks	420
Hairline Zones	421
Patient Factors for Deciding Hairline Position	422
Young Patients with Expectations of a Low Hairline	422
Tools Required to Design a Hairline	423
Temporal Area	424
Making the Hairline Look Natural	425
Usage of Sharp Implanters for Hairline Reconstruction	425
Implantation Tips and Tricks	425
V-shaped Hairline Reconstruction	426
Round-shaped Hairline Reconstruction	426
CHAPTER 63: Temporal Triangle and Parietal Hump	429
<i>Anil Kumar Garg, Seema Garg</i>	
Temporal Fringe (Triangle)	429
Case Studies	431
Mid-scalp	432
CHAPTER 64: Recipient Methods: Preformed Slits	438
<i>Manoj Khanna</i>	
Recipient Area Planning	438
Basic Principles of Density	439
Graft Placement	441
Instruments to Make Slits	442
Problems Encountered in Preslits Method	445
Postimplantation Care	447
CHAPTER 65: Recipient Methods: Stick-and-Place	449
<i>Sandeep Sattur, Indu S Sattur</i>	
Graft Placement Techniques	449
CHAPTER 66: Implanters	453
<i>Syed Mubashir</i>	
Implanter Body	453
Implanters	453
Advantage	454
CHAPTER 67: Overview of Different Methods of Recipient Site Implantation	458
<i>Venkataram Mysore</i>	
Method 1: Preformed Slits and Place	458
Method 2: Implantation by Stick and Place	459

Implanters 460
 Direct Hair Transplantation 460

PART E: Postoperative Care and Complications

CHAPTER 68: Immediate Postoperative Care	463
<i>Venkataram Mysore</i>	
Natural Course of Events	463
Postoperative Wound Care	464
Postoperative Edema	466
CHAPTER 69: Complications of Hair Transplantation: An Overview	469
<i>Narendra Patwardhan, Vaishalee Kirane, Venkataram Mysore</i>	
General Complications	469
Donor Site Complications in Strip Harvesting	470
Complications of Follicular Unit Extraction	471
Recipient Area Complications	471
CHAPTER 70: Donor Area Complications	475
<i>Mayank Singh, Aparna Acharya</i>	
Intraoperative Complications	475
Immediate Postoperative Complications	475
Late Postoperative Complications	475
Delayed Complications	475
Prevention and Management of Complications	475
CHAPTER 71: Complications of Follicular Unit Extraction	481
<i>Kapil Dua, Bhawna Bhardwaj, Aman Dua</i>	
Complications	481

SECTION 3: SPECIAL ISSUES IN HAIR TRANSPLANTATION

CHAPTER 72: Repeat Hair Transplantation	491
<i>Kapil Dua, Bhawna Bhardwaj, Aman Dua</i>	
Indications	491
Sequelae of Primary Surgery	493
Donor Area Issues	493
Dealing with the Recipient Area	500
CHAPTER 73: Automation in Follicular Unit Excision	506
<i>Kuldeep Saxena</i>	
Automation in Follicular Unit Harvesting	506
Role of Automation During Local Anesthesia	506
Role of Automation in Graft Hydration	507

	Role of Automation During Slit Creation	507
	Role of Automation in Implantation	509
	How does Automated Arm Works?	509
	Operating Steps	510
CHAPTER 74:	Robotic Hair Transplantation	512
	<i>Sanjay Parashar</i>	
	Introducing the ARTAS Robotic System	512
	Understanding ARTAS Robotic Hair Transplantation	513
	Review of Literature	516
CHAPTER 75:	Body Hair as a Donor	518
	<i>Aman Dua, Bishan Mahadevia</i>	
	History	518
	Body Hair Characteristics	518
	Indications for Body Hair Transplantation	520
	Preoperative Preparation in Body Hair Transplantation	521
	Dihydrotestosterone Inhibitors and Body Hair Transplantation	521
	Surgical Pearls	521
	Postoperative Phase	522
	Limitations	523
CHAPTER 76:	Beard as a Donor	524
	<i>Kavish Chouhan, Neha Taneja</i>	
	Understanding Beard Hair	525
	Beard as a First Choice in Body Hair as Donor	525
	Long-term Planning of the Results of Hair Transplant using Beard Hair Transplantation by Follicular Unit Excision	526
	Beard Hair Extraction	527
	Postoperative Care for Beard Hair Extraction	528
	Complications in Nonscalp Follicular Unit Excision	528
	Achieving Success in Nonscalp Hair Transplantation	529
	Applications of Beard Hair Transplantation	530
	Limitations of Using Beard Hair as a Donor Site	531
CHAPTER 77:	Facial Hair Transplantation	533
	<i>Kapil Dua, Navjot Kaur, Aman Dua</i>	
	Beard and Mustache Transplantation	533
	Eyebrow Transplantation	537
CHAPTER 78:	Eyebrows Transplantation	541
	<i>Rajesh Rajput</i>	
	Indications for Eyebrow Transplantation	541
	Characteristics of a Natural Eyebrow	541
	Technique of Eyebrow Restoration	542
	Results	544

CHAPTER 79: Eyelash Transplantation	546
<i>Sukhbir Singh</i>	
Historical Background of the Procedure	546
Eyelash Anatomy and Comparison with Scalp Hair	546
Etiology of Eyelash Loss	547
Patient Expectations and Examination	547
Eyelash Transplant	547
Points	548
CHAPTER 80: Vertex Transplantation	550
<i>Suneet Soni</i>	
Anatomy	550
Counseling Challenges in Vertex Baldness	551
Treatment Plan for Vertex Baldness	552
Surgical Tips in Vertex Area	552
Postoperative Instructions And Protocol	557
Complications	557
CHAPTER 81: Designing the Vertex	561
<i>Anil Kumar Garg, Seema Garg</i>	
Hair Arrangement in Vertex	562
CHAPTER 82: Approach to a Patient with Early Hair Loss and Long-term Planning	566
<i>Sandeep Sattur, Indu S Sattur</i>	
Management of Male Pattern Hair Loss	566
Indication for Surgery in Early Baldness	568
Indications for Hair Transplantation in Early Baldness	570
Planning in Early Baldness	570
Donor Harvest Technique	571
CHAPTER 83: Hair Transplantation in Female Pattern Hair Loss	574
<i>Madura C, Venkataram Mysore, Nitin Barde</i>	
Special Characters of Female Pattern Hair Loss	575
Preoperative Evaluation	575
Operative Steps	576
Postoperative Care	581
CHAPTER 84: Hair Transplantation in Scarring Alopecia	584
<i>Syed Mubashir</i>	
Treatment Options	585
Challenges for Hair Transplantation in Scarring Alopecia	585
Practical Tips in Hair Transplantation	585
Planning Hair Transplantation in Cicatricial Alopecia	586

CHAPTER 85: Nontransplantation Methods of Hair Transplantation	590
<i>Sandeep Sattur, Indu S Sattur</i>	
Historical Background	590
Surgical Hair Restoration	591
Surgical Considerations of Scalp Anatomy	591
Understanding Scalp Laxity	592
Scalp Flaps	592
Alopecia Reduction or Scalp Reduction	594
Present Status of Nontransplantation Surgical Restoration	598
CHAPTER 86: Hair Transplantation and Dermatological Conditions	601
<i>Ruhi Uttamani-Sangle, Venkataram Mysore</i>	
Papulosquamous Disorders	601
Scalp Folliculitis	603
Alopecia Areata	604
Vitiligo	605
Connective Tissue Diseases	606
Pemphigus	606
Cutis Verticis Gyrate	607
Allergic Contact Dermatitis to Hair Dye	607
Miscellaneous Common Conditions	608
CHAPTER 87: Hair Transplantation and Medical Conditions	611
<i>Sandeep Sattur, Indu S Sattur</i>	
Unique Requirements of Hair Restoration Surgery	611
Routine Preoperative Assessment Practiced by The Authors	617
The Need for Physician Assessment Before Hair Transplant Surgery	617
CHAPTER 88: Unconventional Uses of Follicular Unit Extraction	619
<i>Amit Kerure, Nitika Deshmukh Wagh</i>	
Follicular Unit Extraction in Alopecia Areata	620
Follicular Unit Extraction in Traction Alopecia	620
Follicular Unit Extraction in Scarring Alopecia	621
Follicular Unit Extraction in Stable Focal Vitiligo	623
Follicle Cell Suspension for Vitiligo	623
Follicular Unit Extraction in Hirsutism Associated with White Hair	625
Pubic Hair Restoration	625

SECTION 4: MANAGEMENT ISSUES FOR HAIR TRANSPLANT CLINIC

CHAPTER 89: Setting Up Hair Practice	629
<i>Viral Desai</i>	
The Six Steps to Start up a Hair Transplant Clinic	629

CHAPTER 90: Tips for Beginners Starting a Practice	633
<i>Madura C, Megha Chandrashekar</i>	
How to Learn Hair Transplantation? 633	
Why Train Under these Centers? 633	
Who is an Abhrs Certified Surgeon? 634	
Common Mistakes done by Beginners and Tips for Correction 635	
Tips for Beginners 636	
CHAPTER 91: Guidelines for Hair Transplantation Operation Unit	638
<i>Venkataram Mysore, Sukhbir Singh, HM Omprakash</i>	
Nomenclature 638	
Hair Transplantation Theater	
Unit Types 639	
Operation Theater Etiquettes 646	
Waste Disposal 647	
Ergonomics 647	
CHAPTER 92: Role of Assistants in Hair Transplantation	650
<i>Anil Kumar Garg, Seema Garg</i>	
Role of Assistants 651	
Role of Counselor 651	
Donor Harvesting Assistant 652	
Trichoscan And Assistant 653	
Follow-up Visits 654	
Issues of Quackery and Black Marketing 654	
CHAPTER 93: Training Modules in Hair Transplant	655
<i>Anil Kumar Garg, Seema Garg</i>	
Microsurgery Position 655	
Paper Model 656	
Foam Model 656	
Leaf Model 658	
Implantation 659	
Goat Model 660	
Implantation of Goat Follicles—Helmet Model 661	
Learning and Practice Module for Follicular Unit Excision 661	
Materials for Follicular Unit Excision 662	
CHAPTER 94: Photography in Hair Patient	664
<i>Sanjeev Aurangabadkar</i>	
Ethical Aspects in Medical Photography 664	
Accessories for Digital Photography 665	
Basics of Photography 665	
Photographing Standard Views for Global Assessment 667	
Camera Type 668	
Smartphones 668	

Storage and Security 669
Summary 669
Recommendations for Digital Camera 669

CHAPTER 95: Role of Marketing 670

Viral Desai

The Growing Demand for Hair Transplant Services 670
The Importance of Marketing
 in Setting up a Hair Transplant Clinic 670
Identifying your Target Audience 670
Identifying your Ideal Patient 671
Crafting your Brand Identity 671
Internal Marketing: Cultivating a Strong Organizational Culture 672
External Marketing: Expanding
 The Clinic's Reach 672
Generating Leads 674
Nurturing Leads into Patients 674
Retaining Patients 675
Building Partnerships 675
Analyzing your Marketing Efforts 676
Compliance with Advertising Regulations 676

CHAPTER 96: Website and Search Engine Optimization 678

Aniketh Venkataram

Why do I Need A Website? 678
How do I Build A Website? 678
What are Search Engines? 679
What is Search Engine Optimization? 679
How do Search Engines Work? 679
Why is Google the Biggest Search Engine and How does it Work? 679
What are the Fundamentals of Search Engine Optimization? 679
How to Build Your Website for Search Engine Optimization? 680
How do i use Keywords Effectively? 680

CHAPTER 97: YouTube 682

Suneet Soni

Ethical Issues 682
Creating and Customizing Your Youtube Channel 682
Educating People Through Youtube 682
Utilizing Keywords in Youtube Titles and Descriptions 683
Interact with Your Community 683
Technical Setup For High-Quality Videos 683
Capturing Proper Pre- and Postoperative Images 684
Shooting the Procedure 684
Camera and Lighting Setup 684
Utilizing Croma Shoots for Educational Videos 684

	Croma Shoots	684	
	Steps for Croma Shoots	684	
CHAPTER 98:	Medicolegal Issues: Overview		686
	<i>KH Satyanarayana Rao</i>		
	How is Aesthetic Surgery Different from other Surgeries?	687	
	Hair Transplant Surgeon's Legal Duties to Patients	687	
	Selection of Clients for Hair Transplant Surgery	687	
	What is Consent?	689	
	Importance of Documentation	690	
	Negligence	690	
	What is Standard Care in Hair Transplant Surgery?	691	
	Legal Liability of a Hair Transplant Surgeon	691	
	Medical Malpractice Case Against Hair Transplant Surgeon	691	
	Legal Defense for Hair Transplant Surgeon	692	
CHAPTER 99:	Some Medical–legal Cases in Hair Transplantation		696
	<i>Anuradha Jindal, Manjot Marwah, Venkataram Mysore</i>		
	Case 1: Unmet Advertised Results	697	
	Case 2: Allergic Reaction and Folliculitis as a Complication Post Hair Transplantation	697	
	Case 3: Anaphylactic Shock Leading to Death Post Hair Transplantation	698	
	Case 4: "Bad Job" of Hair Transplantation	699	
	Case 5: Infection Leading to a Wide Scar Post Follicular Unit Transplantation Surgery	700	
	What can be Done to Prevent Lawsuits?	700	
	Summary	701	
	Guidelines Laid Down by National Medical Commission	702	
CHAPTER 100:	Ergonomics and Hair Transplantation		704
	<i>Vaishalee Kirane</i>		
	Anatomy of the Spine	704	
	Posture	705	
	Management of Spinal Problems	706	
	Different Positions and Postures During Steps of Hair Restoration Surgery	706	
	Ergonomics During Hair Transplantation Surgery	706	
	Exercise	706	
	Nutrition	708	
	Yoga And Meditation	708	
CHAPTER 101:	Standard Operating Protocols for Running Hair Transplantation Practice		710
	<i>Madura C, Ruhi Uttamani-Sangle</i>		
	Standard Operating Protocol for Registration, History Taking, and Examination	711	
	Counseling Guidelines	711	

Preoperative Evaluation	712
Preoperative and Intraoperative Patient Preparation	712
Painting and Draping the Area	713
Anesthesia Guidelines	713
Harvesting Guidelines	714
Graft Hydration and Segregation Guidelines	714
Recipient Site Guidelines	715
Dressing Guidelines	715
Miscellaneous	715
Postoperative Instructions	716

CHAPTER 102: List of Instrument Manufacturers **717**

<i>Amit Kerure, Sonia Sabhandasani Nanavati</i>	
International Suppliers of Hair Transplant Instruments	717
Indian Suppliers of Hair Transplant Instruments	717

CHAPTER 103: Hair Transplant Practice Guidelines **721**

<i>Venkatram Mysore, Kumaresan M, Anil Kumar Garg, Aman Dua, Aniketh Venkataram, Kapil Dua, Mayank Singh, Madura C, Ram Chandran, Rajesh Rajput, Sandeep Sattur, Sukhbir Singh</i>	
Hair Transplant Practice Guidelines: Part 1	721
Physician Qualifications, Role of Technicians, and Training of Doctors and Staff	722
Role of Assistants (Technicians)	723
Training	723
Ethical Issues	724
Charges for The Surgery	724
Documentation and Consent	725
Counseling for The Medical Management	726
HT Practice Guidelines: Part 2	726
Lighting	727
Sterilization and Disinfection of Operation Theater and Instruments	727
Fumigation	727
Autoclave	727
Biomedical Waste Management	728
Preoperative Considerations	728
Case Selection with Respect To Age	728
Preoperative Instructions	729
Preoperative Laboratory Workup	729
Investigations in Special Situations	729
Preoperative Evaluation in Hypertensives	729
Evaluation in Diabetics	729
Pre-Op Drug Therapy Blood Thinners	730
Premedication	730
Antimicrobial Prophylaxis	730
Antiseptic Prophylaxis	731

HT Practice Guidelines: Part 3	731
Techniques to Reduce Pain of Anesthesia Injection	732
Local Anesthetics	733
Bupivacaine	733
Levobupivacaine	733
Ropivacaine	733
Mixing Local Anesthetics	733
Combining Local Anesthetics and Adrenaline	733
Systemic Toxicity of Local Anesthetics	734
Emergency Preparedness in Hair Transplantation	734
Resuscitative Equipment Necessary for Hair Transplant Operation Theater	735
Emergency Drugs Necessary for Hair Transplant Operation Theater	735
Life Support Training	735
Transfer Arrangements	735
Presence of Anesthetist During Hair Transplant Procedure	735
HT Practice Guideline: Part 4	736
Miniaturization in the Donor Area	736
Maximum Grafts that can be Safely Harvested from Sda	737
Follicular Unit Excision	737
Strip Excision	737
Strip Harvest	738
Wound Closure	738
Suturing and Suture Material	738
Magnification for the Working Field	739
Recipient Area	739
Some Important Specific Issues	740
Combination Surgeries	741
PRP in Androgenetic Alopecia and HT	741

Index**743**