



*Textbook of*  
**PEDIATRIC**  
**Dermatology**

SECOND EDITION

Arun C Inamadar  
Aparna Palit  
S Ragunatha



# CONTENS

<b>1. STRUCTURE AND FUNCTIONS OF THE SKIN</b>	<b>1</b>
▶ <i>S Chidambara Murthy</i>	
Embryogenesis of the skin 1	
Embryonic skin 1	
Unique features of developing skin 4	
Structure of the newborn skin 6	
Functions of the newborn skin 9	
Skin of the premature infant 9	
Skin care 10	
<b>2. NEONATAL DERMATOLOGY</b>	<b>14</b>
▶ <i>Niti Khunger, Alka Goel</i>	
Transient neonatal dermatosis 14	
Developmental abnormalities 21	
Cutaneous signs of spinal dysraphism 23	
Cutaneous manifestations of congenital infections 24	
<b>3. GENODERMATOSIS</b>	<b>28</b>
▶ <i>Aparna Palit, Arun C Inamadar</i>	
Principles of genetics 28	
Major patterns of genetic transmission 29	
Genetic counseling 30	
Prenatal diagnosis of hereditary skin disorders 30	
Classification of genodermatoses 30	
Ectodermal dysplasia 31	
Hereditary disorders of pigmentation 36	
Hereditary disorders of immune system 39	
Hereditary disorders with photosensitivity 45	
Hereditary disorders of metabolism 60	
Multiple tumor syndromes 63	
Hereditary disorders of connective tissue 70	
Premature aging syndromes 78	
Chromosomal disorders 80	
Skin gene therapy 82	
<b>4. INHERITED ICHTHYOSIS AND OTHER HEREDITARY DISORDERS OF KERATINIZATION</b>	<b>89</b>
▶ <i>Arun C Inamadar, Ragunatha S</i>	
Inherited ichthyosis 89	
Ichthyosiform syndromes 100	

Erythrokeratoderma	104
Palmoplantar keratoderma	106
<b>5. ATOPIC DERMATITIS</b>	<b>112</b>
▶ <i>Sandipan Dhar</i>	
Etiopathogenesis	112
Prevalence and incidence of atopic dermatitis	113
Clinical features	113
The key steps to diagnose atopic dermatitis	114
Complications	117
Natural history and prognosis	117
Management of atopic dermatitis	118
Current investigational therapies of unproven efficacy	122
<b>6. ECZEMAS OTHER THAN ATOPIC DERMATITIS</b>	<b>127</b>
▶ <i>Sanjeev Handa</i>	
Classification	127
Exogenous eczemas	127
Endogenous eczemas	132
<b>7. BACTERIAL INFECTIONS</b>	<b>143</b>
▶ <i>Arun C Inamadar</i>	
Classification	143
Superficial pyogenic infections	144
Deep pyogenic infections	147
Nonpyogenic bacterial infections	151
Bacterial toxin-mediated illnesses	151
Secondary pyoderma	154
Special situations	154
<b>8. CUTANEOUS MYCOBACTERIAL INFECTIONS</b>	<b>157</b>
▶ <i>V Ramesh, M Ramam, Ragunatha S, P Narasimha Rao</i>	
<b>Cutaneous Tuberculosis</b>	<b>157</b>
Overview	157
Classification and clinical features	158
Dermatological complications due to BCG vaccination	163
Investigations	164
Diagnostic approach	165
Treatment	165
<b>Nontuberculous Mycobacterial Infections</b>	<b>168</b>
History	168
General characteristics and classification	168
Epidemiology	168
Pathogenesis	169
Clinical features	169
Histopathology	169
Diagnosis	169

Differential diagnosis	170
Treatment	171
Complications, course and prognosis	172
<b>Leprosy in Children</b>	<b>173</b>
Susceptibility to the disease	173
Reservoir of infection	173
Pathogenesis of leprosy	173
Classification of leprosy	175
Leprosy in children	176
Diagnosis of leprosy	177
Treatment of leprosy	178
Reactions in leprosy	178
Leprosy-related deformities in children	179
<b>9. VIRAL INFECTIONS AND EXANTHEM</b>	<b>181</b>
► KA Seetharam, Vijay Zawar	
<b>Viral Infections</b>	
Herpesviruses	181
Poxviruses	190
Human papillomaviruses	193
Epidermodysplasia verruciformis	197
Heck's disease	198
Viral hemorrhagic fevers	198
<b>Viral Exanthem</b>	<b>205</b>
Traditional exanthems	205
Newly rediscovered viral exanthems	213
<b>10. FUNGAL INFECTIONS</b>	<b>224</b>
► Ragunatha S, Anitha B	
Superficial fungal infections	224
Deep fungal infections	237
Systemic mycosis	242
Opportunistic fungal infections	243
<b>11. SEXUALLY TRANSMITTED INFECTIONS INCLUDING HIV INFECTION</b>	<b>246</b>
► Hemanta Kumar Kar	
Prevalence	246
Bacterial sexually transmitted infections	247
Sexually transmitted infections by parasites	255
Viral sexually transmitted infections	255
Human immunodeficiency virus infection	257
<b>12. DISEASES DUE TO PROTOZOA AND HELMINTHS</b>	<b>264</b>
► VRamesh	
Protozoan infections	264
Helminthic infestations	269

<b>13. BITES, STINGS AND INFESTATIONS</b>	<b>277</b>
► <i>Jaydev Betkerur, Veeranna S</i>	
Bites	277
Other noxious and venomous stings	283
Injuries by aquatic creatures	283
Other animal and human bites	284
Infestations	284
<b>14. DISEASES OF THE MUCOUS MEMBRANES</b>	<b>291</b>
► <i>Anandan S, Rashmi Mittal</i>	
Mouth ulcers	291
White patches	295
Red and pigmented lesions	297
Swellings/lumps	298
Lesions of the tongue	298
<b>15. DISORDERS OF HAIR</b>	<b>301</b>
► <i>Anitha B, Ragunatha S</i>	
Normal hair	301
Congenital or early onset alopecia	303
Nonscarring alopecia	306
Scarring alopecia	320
Hypertrichosis	323
Hirsutism	328
Eruptive vellus hair cysts	329
Abnormalities of hair color	330
Altered pigmentation of hair due to exogenous agents	332
<b>16. DISORDERS OF NAIL</b>	<b>334</b>
► <i>Rashmi Sarkar, Sudhanshu Sharma, Vijay Kumar Garg</i>	
Anatomy	334
Pathological changes of the nail apparatus	335
Traumatic nail disorders	337
Paronychia	338
Leukonychia	338
Nail changes in primary cutaneous disorders	338
Nail changes in genodermatoses	340
Nail changes in systemic disorders	341
Nail changes associated with chemotherapy in children	343
<b>17. DISORDERS OF CUTANEOUS APPENDAGES</b>	<b>344</b>
► <i>Devinder Mohan Thappa, Divya Gupta</i>	
Disorders of sebaceous glands	344
Disorders of eccrine sweat glands	353
Disorders of apocrine glands	358
<b>18. CHILDHOOD PSORIASIS</b>	<b>362</b>
► <i>Sunil Dogra, Dipankar De</i>	
Etiology and pathogenesis	362
Histopathology	363

Clinical features	363
Differential diagnosis	368
Comorbidities	369
Quality of life	369
Long-term behavior of childhood psoriasis into adulthood	369
Treatment	369
<b>19. ERYthroderMA IN CHILDREN</b>	<b>373</b>
► <i>Dipankar De, Sunil Dogra</i>	
Epidemiology	373
Causes and clinical features of erythroderma	374
Approach to a child with erythroderma	377
Management of childhood erythroderma	378
<b>20. LICHEN PLANUS, LICHENOID DISORDERS AND OTHER PAPULOSQUAMOUS DISORDERS</b>	<b>381</b>
► <i>Ragunatha S</i>	
Lichen planus	381
Lichenoid disorders	385
Other skin diseases with lichenoid eruptions	388
Other papulosquamous disorders	388
<b>21. VESICULOBULLOUS DISORDERS</b>	<b>397</b>
► <i>Archana Singal</i>	
Immunobullous disorders	397
Mechanobullous disorders	407
<b>22. CHILDHOOD VITILIGO</b>	<b>418</b>
► <i>Najeeba Riyaz</i>	
Epidemiology	418
Etiopathogenesis	418
Classification of vitiligo	419
Clinical features	420
Associations of vitiligo	420
Course of vitiligo	423
Differential diagnosis	423
Diagnosis	424
Management	424
<b>23. DISORDERS OF PIGMENTATION</b>	<b>428</b>
► <i>Manjunath Shenoy</i>	
Classification	429
Disorders of hyperpigmentation	430
Disorders of hypopigmentation	438
<b>24. PHOTOSENSITIVITY AND PHOTODERMATOSES IN CHILDREN</b>	<b>446</b>
► <i>Rajesh Kumar</i>	
Ultraviolet spectrum and skin	446
Acquired photosensitivity dermatoses	447
Management	449

<b>25. URTICARIA, ANGIOEDEMA AND ANNULAR ERYTHEMAS</b>	<b>451</b>
► <i>Ragunatha S, Arun C Inamadar</i>	
Epidemiology	451
Classification	451
Etiopathogenesis	451
Clinical features	452
Differential diagnosis	456
Laboratory investigations	456
Treatment	456
Annular erythemas	457
<b>26. NEVI AND NEVOID DISORDERS</b>	<b>460</b>
► <i>Nilendu Sarma, Sayantani Chakraborty</i>	
Insight into mosaicism	460
Classification of nevi	462
Nevomelanocytic nevi	462
Epidermal nevi	469
Vascular nevi	475
Nevus syndromes	488
<b>27. NEOPLASTIC DISORDERS OF SKIN</b>	<b>495</b>
► <i>Keshavmurthy Adya, Aparna Palit</i>	
Classification	495
Nevi and hamartomas	495
Benign and malignant neoplasia	501
Syndromes associated with cutaneous tumors and tumor-like conditions	504
Cutaneous metastases from internal malignancies	505
<b>28. DISORDERS OF DERMIS AND SUBCUTANEOUS FAT</b>	<b>513</b>
► <i>Vishalakshi Viswanath, Seema Ramakrishnan Nair</i>	
Panniculitis	513
Granuloma annulare	520
Lipodystrophy	523
Fibromatosis	526
<b>29. HISTIOCYTOSIS AND CUTANEOUS MASTOCYTOSIS</b>	<b>533</b>
► <i>Aparna Palit, Arun C Inamadar</i>	
Histiocytosis	533
Cutaneous mastocytosis	538
<b>30. SKIN IN SYSTEMIC DISEASES</b>	<b>545</b>
► <i>Sanjeev Grover, Aparna Palit</i>	
Disorders of gastrointestinal system	545
Hepatic and pancreatic disorders	547
Disorders of cardiovascular system	549
Disorders of respiratory system	550
Renal disorders	551
Hematological disorders	553

Endocrine disorders	554
Psychocutaneous disorders	558
Cutaneous manifestations of internal malignancies	562
Purpura fulminans	563
Sarcoidosis	565
Graft-versus-host disease	568
<b>31. COLLAGEN VASCULAR DISORDERS</b>	<b>573</b>
► <i>Aparna Palit</i>	
Discoid lupus erythematosus	573
Systemic lupus erythematosus	575
Neonatal lupus erythematosus	582
Juvenile dermatomyositis	584
Childhood scleroderma	589
Lichen sclerosus et atrophicus	597
Mixed connective tissue disease	598
Cutaneous manifestations of other collagen vascular disorders	598
<b>32. CUTANEOUS VASCULITIDES AND NEUTROPHILIC DERMATOSES IN CHILDREN</b>	<b>600</b>
► <i>Bhushan Madke, Uday Khopkar</i>	
<b>Childhood Vasculitides</b>	<b>600</b>
Classification	600
Small vessel vasculitis	600
Medium vessel vasculitis	606
Behçet's disease	609
<b>Neutrophilic Dermatoses in Children</b>	<b>610</b>
Classification	610
Sweet syndrome	611
Pyoderma gangrenosum	612
Erythema elevatum diutinum	613
Neutrophilic eccrine hidradenitis	613
Periodic fever syndromes	613
<b>33. NUTRITIONAL DEFICIENCY DISORDERS</b>	<b>615</b>
► <i>Ragunatha S, Aparna Palit</i>	
Micronutrient deficiency disorders	615
Macronutrient deficiency disorders	623
Heritable disorders of nutritional deficiency	624
Nutritional deficiency in patients with eating disorders	629
Nutritional deficiency in children with other medical/surgical/cutaneous disorders	629
<b>34. PRURITUS IN CHILDREN</b>	<b>631</b>
► <i>Vishalakshi S Pandit, Aparna Palit</i>	
Itch pathway	631
Cutaneous disorders causing pruritus	632
Systemic disorders causing pruritus	638

<b>35. DERMATOLOGICAL DRUG THERAPY IN CHILDREN</b>	<b>642</b>
► <i>Lalit Gupta</i>	
Basic principles of drug therapy in children	642
General principles of topical therapy	643
Topical drug therapy in children	644
Systemic drug therapy in children	650
Adverse cutaneous drug reactions: issues in children	656
Some important adverse cutaneous drug reaction patterns in children	657
<b>36. PEDIATRIC DERMATOLOGICAL EMERGENCIES</b>	<b>666</b>
► <i>Arun Chnamadar, Ragunatha S</i>	
Epidemiology	666
Classification	666
Diseases causing acute skin failure	666
Diseases with/due to underlying systemic illness	671
Localized diseases	674
<b>37. DERMOSCOPY IN CHILDREN</b>	<b>676</b>
► <i>Laxmisha Chandrashekhar, Nidhi Singh</i>	
Dermoscope	676
Principle of Dermoscopy	677
Application of Dermoscopy in Pediatric Dermatology	677
<b>38. DERMATOSURGERY</b>	<b>686</b>
► <i>JC Prakash Gowda, Swapnil Shah</i>	
<b>Dermatosurgical Procedures in Pediatric Age Group</b>	<b>686</b>
Indications of dermatosurgical procedures in pediatric patients	686
Preoperative preparation	687
Anesthesia	687
Various dermatosurgical procedures	688
Technique of suturing	690
Electrosurgery	690
Cryosurgery	691
Cyst excision	691
Wound dressing and postoperative care	692
<b>Vitiligo Surgery in Children</b>	<b>692</b>
Anesthesia	692
Surgical procedure	693
<b>Index</b>	<b>695</b>