

HIGH-YIELD PATHOLOGY

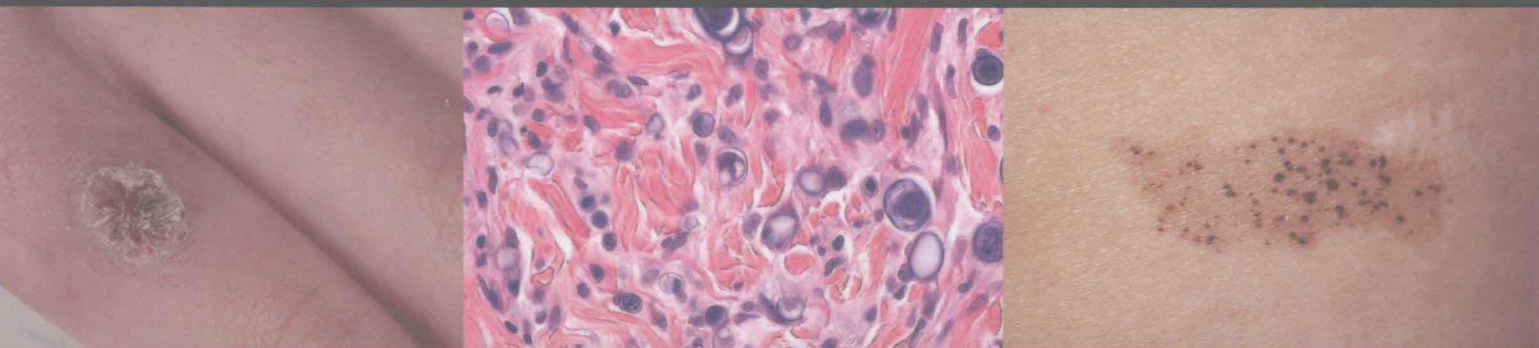
Dermatopathology

Nooshin K. Brinster

Vincent Liu

A. Hafeez Diwan

Phillip H. McKee



 **HIGH-YIELD PATHOLOGY**

Dermatopathology

Nooshin K. Brinster, MD

Assistant Professor

Departments of Pathology and Dermatology

Director of Dermatopathology Services

Virginia Commonwealth University Medical Center

Richmond, Virginia

Vincent Liu, MD

Clinical Associate Professor

Departments of Dermatology and Pathology

University of Iowa Carver College of Medicine

Iowa City, Iowa

A. Hafeez Diwan, MD, PhD

Associate Professor and Director of Dermatopathology

Departments of Pathology & Immunology and Dermatology

Baylor College of Medicine

Houston, Texas

Phillip H. McKee, MD, FRCPath

Formerly Associate Professor of Pathology and

Director, Division of Dermatopathology

Department of Surgical Pathology

Brigham and Women's Hospital and Harvard Medical School

Boston, Massachusetts

ELSEVIER
SAUNDERS

No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or any information storage and retrieval system, without permission in writing from the publisher. Details on how to seek permission, further information about the Publisher's permissions policies and our arrangements with organizations such as the Copyright Clearance Center and the Copyright Licensing Agency, can be found at our website: www.elsevier.com/permissions.

This book and the individual contributions contained in it are protected under copyright by the Publisher (other than as may be noted herein).

Notice

Knowledge and best practice in this field are constantly changing. As new research and experience broaden our understanding, changes in research methods, professional practices, or medical treatment may become necessary.

Practitioners and researchers must always rely on their own experience and knowledge in evaluating and using any information, methods, compounds, or experiments described herein. In using such information or methods they should be mindful of their own safety and the safety of others, including parties for whom they have a professional responsibility.

With respect to any drug or pharmaceutical products identified, readers are advised to check the most current information provided (i) on procedures featured or (ii) by the manufacturer of each product to be administered, to verify the recommended dose or formula, the method and duration of administration, and contraindications. It is the responsibility of practitioners, relying on their own experience and knowledge of their patients, to make diagnoses, to determine dosages and the best treatment for each individual patient, and to take all appropriate safety precautions.

To the fullest extent of the law, neither the Publisher nor the authors, contributors, or editors, assume any liability for any injury and/or damage to persons or property as a matter of products liability, negligence or otherwise, or from any use or operation of any methods, products, instructions, or ideas contained in the material herein.

Library of Congress Cataloging-in-Publication Data or Control Number

Dermatopathology / Nooshin K. Brinster ... [et al.].

p. ; cm. -- (High-yield pathology)

Includes index.

ISBN 978-1-4160-9976-5 (hardcover : alk. paper)

1. Skin--Diseases--Handbooks, manuals, etc. 2. Skin--Pathophysiology--Handbooks, manuals, etc. I. Brinster, Nooshin K. II. Series: High-yield pathology.

[DNLM: 1. Skin Diseases--Handbooks. 2. Skin--pathology--Handbooks. WR 39 H638 2010]

RL95.D52 2010

616.5'071--dc22

2010019232

Publishing Director: William Schmitt
Senior Developmental Editor: Andrew Hall
Publishing Services Manager: Patricia Tannian
Team Manager: Radhika Pallamparthy
Senior Project Manager: Kristine Feeherty
Project Manager: Antony Prince
Design Direction: Steven Stave

Printed in China

Last digit is the print number: 9 8 7 6 5 4 3 2 1

Working together to grow
libraries in developing countries

www.elsevier.com | www.bookaid.org | www.sabre.org

ELSEVIER BOOK AID
international Sabre Foundation

*To my love, Derek, and our four smiling faces: Layla, Maya, Neda, and Ella.
No matter what ...*

Nooshin Brinster

*To my absolutely wonderful wife, Saba, my two children, my parents, and
my three sisters.*

Hafeez Diwan

*To all the patients who grace us, the teachers who inspire us, the students who
challenge us, and the families who fulfill us, this book is for you.*

Vince Liu

To Gracie and my four children, whose lives revolve around dermatopathology!

Phillip McKee

High-Yield Pathology, with access to ExpertConsult.com, is a new series of pathology textbooks providing quick reference for the busy pathologist and student. We are honored to have this dermatopathology textbook as the first volume in the series.

The study of dermatopathology requires appreciation and understanding of the “gross” disease, that is, the clinical aspect of cutaneous disorders, as well as the histological findings. By integrating both pathological and clinical features, one is able to arrive at a meaningful diagnosis. With this in mind, *Dermatopathology* is organized by histological patterns, further classified by disease entity. Clinical and pathological features of each entity are presented and, where relevant, clinical

photographs are provided. Several pathological photographs are included of each disease, including immunohistochemical and immunofluorescence, to illustrate the many faces and phases of each disease. Furthermore, the text is presented in a bulleted format to facilitate quick reference and learning at the microscope. We hope that it will provide valuable and practical information for general pathologists, dermatopathologists, and residents and fellows alike.

Nooshin K. Brinster, MD
Vincent Liu, MD
A. Hafeez Diwan, MD, PhD
Phillip H. McKee, MD, FRCPath

ACKNOWLEDGMENTS

Dermatopathology is a book whose creation and fulfillment would not have been possible without the unwavering leadership of Phillip McKee. His highest standards and immeasurable dedication are inspiring and matched only by his passion and sense of humor. It has been a gift to work with and learn from a master. I am also thankful to my old friend, Vince Liu, who invited me to join the project.

I am in debt to the dermatology residents and faculty of the Medical College of Virginia who have provided me with the many clinical photographs and skin biopsies that have found their way into this textbook. I have also been fortunate to have the administrative support of Jeanette MacFarland and Carol Burney, who have always been ready to help, however short the notice may have been.

I am extremely grateful to the group at Elsevier publishing, including William Schmitt, publishing director; Andrew Hall, developmental editor; Kristine Feeherty, project manager; and Steve Stave, manager of design.

The support of my family has been critical. My parents, Masoud and Vida, have championed my every endeavor, from childhood until today, with much love. I am most grateful for the love and guidance of my beloved husband, Derek, and for our dear daughters, Layla, Maya, Neda, and Ella. They have tolerated the many long hours (mostly after bedtime) spent in writing the book. I am particularly thankful that our latest addition demonstrated an uncanny sense of timing by delaying her arrival into this world until the book was complete.

Nooshin K. Brinster

A work of this kind does not happen without the help of many. First, I am grateful for all the patients I have been privileged to have known. Second, I am indebted to all those who have taught me the art and science of dermatology and dermatopathology. Third, I owe a great deal to all the medical students, residents, and fellows who have inspired my appreciation for teaching. Fourth, many thanks go to Chris Huber for her invaluable secretarial assistance. And finally, for her unflagging support through the tremendous sacrifice of this endeavor, a special thank you to Paula.

Vince Liu

I would like to thank the following colleagues and friends for their help: Jonathan Curry, Doina S. Ivan, Alexander J. Lazar, Daniel Ostler, Jose Plaza, Victor G. Prieto, Ronald P. Rapini, Carlos Torres-Cabala, Wei Lien-Wang, and Darren Whittemore. Doina Ivan was especially helpful in the preparation of the chapter on Cutaneous Metastases—she added significantly to, and vastly improved, this section. And a special thanks to Saba, Sara, and Hasan, who tolerated and supported me on many weekends and evenings when I was doing my Greta Garbo impersonation, wanting to be alone for extended periods of time to work on this book.

Hafeez Diwan

I am indebted to Bill Schmitt from Elsevier, who first thought of this concept, and to Andy Hall (also of Elsevier), whose patience and support throughout the preparation of this book have been unwavering. It has been a pleasure working on the project with Nooshin, Vince, and Hafeez, although my role has been limited to editing (sometimes quite a lot!) and photography. As always, I learn much from others. I also am extremely grateful to Eduardo Calonje, Alex Lazar, Thomas Brenn, Wayne Grayson, and Iskander Chaudhry, who continually supply me with fascinating cases to study and photographs for the various book projects that dominate my life. Finally and of greatest importance, I would never achieve anything if it were not for the patience and support of Gracie, who—in addition to being my wife, soul mate, and closest of friends—never wavers in her uphill battle of keeping me on the right path. Sometimes she finds this a Herculean task!

Phillip McKee

The authors are grateful to the following friends who so kindly contributed cases: M Avram, F Awadalla, D Barber, C Baum, M Blanes, T Brenn, E Calonje, I Chaudhry, J Cohen, G Dorer, L Edsall, A Farrajoli, S Granter, W Grayson, B Horvath, E Hudgins, D Jones, B Kockentiet, A Lazar, PE LeBoit, S Lyle, M Maiberger, SR Mays, F McMullen, D Metze, M Michal, J Nunley, JC Pascual, S Peck, L Requena, M Saeb, A Schiedel, D Slater, B Swick, I Van den Berghe, K Vu, D Whittemore, S-B Woo, L Yarbrough, and B Zelger.

The authors also thank the late NP Smith.

I. INFLAMMATORY DERMATITIS

A. SPONGIOTIC DERMATITIS

Atopic Dermatitis, 2
Seborrheic Dermatitis, 4
Allergic Contact Dermatitis, 5
Dyshidrotic Eczema (Pompholyx), 7
Stasis Dermatitis, 8
Spongiotic Drug Eruption, 10
Arthropod Bite Reaction, 11
Incontinentia Pigmenti (Bloch-Sulzberger Syndrome), 13
Pityriasis Rosea, 15
Photosensitive (Phototoxic/Photoallergic) Dermatitis, 17

B. PSORIASIFORM AND PUSTULAR DERMATITIS

Psoriasis, 19
Reiter's Syndrome, 22
Pityriasis Rubra Pilaris, 24
Subcorneal Pustular Dermatoses, 26
Acute Generalized Exanthematous Pustulosis, 27
Transient Neonatal Pustular Melanosis, 28
Lichen Simplex Chronicus and Prurigo Nodularis, 29
Inflammatory Linear Verrucous Epidermal Nevus, 31

C. INTERFACE DERMATITIS

Erythema Multiforme, 32
Toxic Epidermal Necrolysis/Stevens-Johnson Syndrome, 34
Lupus Erythematosus, 36
Dermatomyositis, 40
Graft-Versus-Host Disease (GVHD), 42
Interface Dermatitis of HIV Infection, 44
Pityriasis Lichenoides, 46

D. LICHENOID DERMATITIS

Lichen Planus, 48
Lichenoid Drug Reaction, 50
Fixed Drug Eruption, 52
Lichen Striatus, 54
Lichen Nitidus, 56
Erythema Dyschromicum Perstans (Ashy Dermatoses), 57
Lichenoid Keratosis, 58

E. ACANTHOLYTIC DISORDERS

Pemphigus Foliaceus, 59
Pemphigus Erythematosus, 61
IgA Pemphigus, 62
Pemphigus Vulgaris, 63
Pemphigus Vegetans, 65
Paraneoplastic Pemphigus, 66
Darier's Disease (Keratosis Follicularis), 68
Hailey-Hailey Disease (Familial Benign Pemphigus), 69
Grover's Disease (Transient Acantholytic Dermatoses), 71

F. SUBEPIDERMAL VESICULAR DERMATITIS

Bullous Pemphigoid, 73
Pemphigoid (Herpes) Gestationis, 75
Mucosal (Cicatricial) Pemphigoid, 77
Epidermolysis Bullosa Acquisita, 79
Epidermolysis Bullosa Congenita, 81
Dermatitis Herpetiformis, 83
Linear IgA Disease, 85
Porphyria Cutanea Tarda, 87
Pseudoporphyria, 89

G. GRANULOMATOUS DERMATITIS

Granuloma Annulare, 90
Necrobiosis Lipoidica, 92
Rheumatoid Nodule, 94
Palisaded Neutrophilic and Granulomatous Dermatitis, 95
Necrobiotic Xanthogranuloma, 97
Sarcoidosis, 99
Cutaneous Crohn's Disease, 101
Foreign-Body Granulomata, 102

H. SUPERFICIAL AND DEEP PERIVASCULAR DERMATITIS

Erythema Annulare Centrifugum, 104
Urticaria, 105
Polymorphous Light Eruption, 107

I. FOLLICULITIS, PERIFOLLICULITIS, AND INFLAMMATION OF THE SWEAT APPARATUS

Acne Vulgaris, 109
Rosacea, 111
Hidradenitis Suppurativa, 113
Acne Agminata, 115
Folliculitis, 116
Eosinophilic Folliculitis, 118
Neutrophilic Eccrine Hidradenitis, 119
Acne Keloidalis Nuchae, 120

J. ALOPECIA

Alopecia Areata, 121
Androgenetic Alopecia, 123
Dissecting Cellulitis (Dissecting Folliculitis), 125
Follicular Degeneration Syndrome, 126
Folliculitis Decalvans, 127
Lichen Planopilaris (LPP) and Frontal Fibrosing Alopecia, 129

K. VASCULITIS AND VASCULOPATHY

Leukocytoclastic Vasculitis (LCV), 131
Henoch-Schönlein Purpura (HSP), 133
Urticarial Vasculitis, 135
Granuloma Faciale, 137
Erythema Elevatum Diutinum, 139
Polyarteritis Nodosa, 140
Wegener's Granulomatosis, 142
Churg-Strauss Syndrome (Allergic Granulomatosis with Angiitis), 144
Disseminated Intravascular Coagulopathy (DIC), 145

Cryoglobulinemia, 147
 Antiphospholipid Antibody Syndrome, 149
 Coumadin (Warfarin) Necrosis, 150
 Cholesterol Crystal Embolism, 151
 Giant Cell (Temporal) Arteritis, 152
 Atrophie Blanche (Livedoid Vasculitis), 154
 Lymphocytic Vasculitis, 156
 Perniosis, 157
 Degos' Disease (Malignant Atrophic Papulosis), 158
 Pigmented Purpura, 159

L. FIBROSING/SCLEROSING DERMATITIS

Morphea, 161
 Scleroderma (Systemic Sclerosis), 163
 Lichen Sclerosus, 165
 Nephrogenic Systemic Fibrosis, 167
 Radiation Dermatitis, 169

M. PANNICULITIS

Erythema Nodosum, 170
 α_1 Antitrypsin Deficiency–Associated Panniculitis, 172
 Pancreatic Panniculitis, 173
 Subcutaneous Fat Necrosis of the Newborn, 174
 Nodular Vasculitis/Erythema Induratum, 175
 Lupus Profundus, 177
 Factitial and Traumatic Fat Necrosis, 179
 Lipodermatosclerosis (Sclerosing Panniculitis), 181
 Infective Panniculitis, 183

N. OTHER INFLAMMATORY DERMATOSES

Sweet's Syndrome (Acute Febrile Neutrophilic Dermatitis), 184
 Pyoderma Gangrenosum, 186
 Behçet's Disease, 188
 Eosinophilic Cellulitis (Wells' Syndrome), 190
 Eosinophilic Fasciitis (Schulman's Syndrome), 192
 Zoon's Balanitis, 193

O. DISORDERS OF KERATINIZATION

Ichthyosis Vulgaris, 194
 X-Linked Recessive Ichthyosis, 195
 Lamellar Ichthyosis, 196
 Congenital Bullous Ichthyosiform Erythroderma, 197
 Palmoplantar Keratoderma (PPK), 198
 Poroikeratosis, 200
 Axillary Granular Parakeratosis, 202

II. INFECTIOUS DERMATITIS

A. VIRAL INFECTIONS

Verruca Vulgaris, 204
 Verruca Plantaris (Plantar Wart), 205
 Verruca Plana (Plane Wart), 206
 Condyloma Acuminatum, 207
 Molluscum Contagiosum, 208
 Herpes Simplex, 209
 Varicella-Zoster Virus (VZV), 211
 Orf (Ecthyma Contagiosum), 212

B. BACTERIAL INFECTIONS

Impetigo, 213
 Staphylococcal–Scalded Skin Syndrome, 215
 Necrotizing Fasciitis, 216
 Ecthyma, 217
 Bacillary Angiomatosis, 219
 Actinomycosis, 220

Granuloma Inguinale, 221
 Anthrax, 223
 Corynebacterial Infections, 225
 Lyme Disease, 226
 Syphilis, 228
 Lupus Vulgaris, 231
 Atypical Mycobacterial Infections, 232
 Leprosy, 235

C. FUNGAL INFECTIONS

Dermatophytosis, 238
 Tinea Versicolor, 241
 Candida, 242
 Pityrosporum Folliculitis, 244
 Mycetoma, 245
 North American Blastomycosis, 247
 Histoplasmosis, 249
 Cryptococcosis, 251
 Coccidioidomycosis, 253
 Paracoccidioidomycosis (South American Blastomycosis), 255
 Chromoblastomycosis (Chromomycosis), 256
 Phaeohyphomycosis, 258
 Sporotrichosis, 260
 Aspergillosis, 261
 Zygomycosis, 263

D. OTHER INFECTIONS

Protothecosis, 265
 Rhinosporidiosis, 266
 Leishmaniasis, 267
 Amoebiasis Cutis, 269
 Onchocerciasis, 270
 Schistosomiasis (Bilharzia), 271
 Scabies, 272
 Tungiasis, 274

III. NONINFLAMMATORY DERMATOSES

A. METABOLIC AND DEGENERATIVE DISORDERS

Necrolytic Migratory Erythema, 276
 Acrodermatitis Enteropathica, 277
 Cutaneous Amyloidosis, 278
 Adult Colloid Milium, 281
 Juvenile Colloid Milium, 282
 Gout, 283
 Lichen Myxedematosus/Scleromyxedema, 285
 Scleredema (Buschke), 286
 Pretibial Myxedema, 287
 Follicular Mucinosis, 289
 Calcinosis Cutis, 291
 Calciophylaxis, 293
 Chondrodermatitis Nodularis Helicis, 295

B. DISEASES OF COLLAGEN AND ELASTIC TISSUE

Pseudoxanthoma Elasticum, 297
 Elastosis Perforans Serpiginosa, 299
 Reactive Perforating Collagenosis, 301
 Kyrle's Disease (Hyperkeratosis Follicularis et Para-follicularis in Cutem Penetrans), 302

C. DISORDERS OF PIGMENTATION

Vitiligo, 303
 Drug-Induced Pigmentation, 305

IV. NEOPLASMS

A. CYSTS AND PSEUDOCYSTS

Dilated Pore of Winer, 308
Epidermoid (Infundibular) Cyst, 309
Pilar (Trichilemmal) Cyst, 310
Proliferating Pilar Tumor, 311
Steatocystoma, 313
Eruptive Vellus Hair Cyst, 314
Hidrocystoma, 315
Cutaneous Ciliated Cyst, 317
Dermoid Cyst, 318
Digital Myxoid (Mucous) Cyst, 319

B. MELANOCYTIC NEOPLASMS

Ephelis, 320
Lentigo, 321
Ink Spot Lentigo, 323
Labial Melanotic Macule, 324
Melanocytic Nevus, 325
Acral Nevus, 330
Congenital Melanocytic Nevus, 332
Halo Nevus (Sutton's Nevus), 334
Balloon Cell Nevus, 336
Recurrent (Persistent) Nevus (Pseudomelanoma), 337
Atypical Genital (Milk-Line, Flexural) Nevus (Nevus of Special Anatomic Sites), 339
Dysplastic Nevus, 341
Spitz Nevus, 344
Pigmented Spindle Cell Nevus (Reed Nevus), 347
Nevus of Ota (Nevus Fusoceruleus Ophthalmomaxillaris) and Nevus of Ito (Nevus Fusoceruleus Acromioclavicularis), 349
Blue Nevus, 350
Combined Nevus, 352
Deep Penetrating Nevus, 353
Melanoma, 355

C. KERATINOCYTIC NEOPLASMS

Epidermal Nevus, 364
Seborrheic Keratosis, 365
Inverted Follicular Keratosis (Irritated Seborrheic Keratosis), 367
Stucco Keratosis, 368
Borst-Jadassohn Phenomenon, 369
Large Cell Acanthoma, 370
Acantholytic Acanthoma, 371
Warty Dyskeratoma, 372
Clear Cell Acanthoma, 373
Actinic Keratosis, 374
Squamous Cell Carcinoma In Situ, 376
Squamous Cell Carcinoma, 377
Keratoacanthoma, 380
Verrucous Carcinoma, 382
Basal Cell Carcinoma, 384

D. FOLLICULAR NEOPLASMS

Trichoepithelioma, 388
Desmoplastic Trichoepithelioma, 390
Trichilemmoma, 391
Desmoplastic Trichilemmoma, 393
Tumor of the Follicular Infundibulum (Infundibuloma), 394
Pilar Sheath Acanthoma, 395
Basaloid Follicular Hamartoma, 396
Trichoblastoma, 397

Trichofolliculoma, 399
Pilomatrixoma, 400
Lymphadenoma Cutis, 402
Trichilemmal Carcinoma, 403
Matrical Carcinoma (Pilomatrix Carcinoma, Malignant Pilomatrixoma), 405

E. SEBACEOUS NEOPLASMS

Nevus Sebaceus of Jadassohn (Organoid Nevus), 407
Sebaceous Hyperplasia, 409
Sebaceous Adenoma, 410
Sebaceoma, 411
Sebaceous Carcinoma, 412

F. ECCRINE/APOCRINE NEOPLASMS

Poroma, 414
Dermal Duct Tumor, 415
Eccrine Syringofibroadenoma (Acrosyringial Nevus), 416
Syringoma, 417
Nodular Hidradenoma, 418
Chondroid Syringoma (Mixed Tumor), 420
Eccrine Spiradenoma, 422
Cylindroma, 423
Syringocystadenoma Papilliferum, 424
Hidradenoma Papilliferum, 425
Tubular Apocrine Adenoma (Papillary Tubular Adenoma), 426
Papillary Eccrine Adenoma, 427
Microcystic Adnexal Carcinoma, 428
Adenoid Cystic Carcinoma, 431
Eccrine Porocarcinoma, 432
Primary Cutaneous Mucinous Carcinoma, 434
Hidradenocarcinoma (Malignant Acrospiroma, Clear Cell Hidradenocarcinoma), 436
Eccrine Ductal Carcinoma, 438
Aggressive Digital Papillary Adenocarcinoma, 439
Apocrine Carcinoma, 440

G. FIBROUS, FIBROHISTIOCYTIC, AND MYOFIBROBLASTIC NEOPLASMS

Hypertrophic Scar, 442
Keloid, 443
Fibrous Papule, 444
Acrochordon (Fibroepithelial Polyp, Skin Tag), 446
Acquired Digital Fibrokeratoma, 447
Superficial Angiomyxoma, 448
Palmar Fibromatosis (Dupuytren's Contracture), 449
Nodular Fasciitis, 450
Elastofibroma, 452
Fibroma of Tendon Sheath, 453
Giant Cell Tumor of Tendon Sheath, 454
Inclusion Body Fibromatosis (Infantile Digital Fibromatosis), 455
Fibrous Hamartoma of Infancy, 456
Sclerotic Fibroma (Storiform Collagenoma), 457
Infantile Myofibromatosis and Solitary Myofibroma, 458
Myoepithelioma, 460
Solitary Fibrous Tumor, 462
Dermatofibroma (Fibrous Histiocytoma), 464
Cellular Fibrous Histiocytoma, 467
Atypical Fibrous Histiocytoma, 469
Dermatomyofibroma, 470
Dermatofibrosarcoma Protuberans (DFSP), 471
Giant Cell Fibroblastoma, 473

Atypical Fibroxanthoma, 474
 Superficial Malignant Fibrous Histiocytoma
 (Superficial Pleomorphic Sarcoma—NOS), 475
 Epithelioid Sarcoma, 476

H. VASCULAR NEOPLASMS

Intravascular Papillary Endothelial Hyperplasia
 (Masson's Tumor), 478
 Lobular Capillary Hemangioma (Pyogenic
 Granuloma), 479
 Port Wine Stain, 480
 Infantile Hemangioma (Strawberry Nevus, Juvenile
 Hemangioma, Infantile Hemangioendothelioma),
 481
 Cavernous Hemangioma, 482
 Arteriovenous Hemangioma (Arteriovenous
 Malformation, Cirroid Aneurysm), 483
 Cherry Hemangioma (Senile Hemangioma,
 Campbell de Morgan Spot), 484
 Angiokeratoma, 485
 Hobnail Hemangioma (Targetoid Hemosiderotic
 Hemangioma), 486
 Spindle Cell Hemangioma, 487
 Multinucleate Cell Angiohistiocytoma, 488
 Epithelioid Hemangioma (Angiolymphoid
 Hyperplasia with Eosinophilia), 489
 Reactive Angioendotheliomatosis, 491
 Lymphangioma Circumscriptum, 492
 Glomus Tumor/Glomangioma, 493
 Myopericytoma, 495
 Epithelioid Hemangioendothelioma, 496
 Kaposi's Sarcoma, 497
 Cutaneous Angiosarcoma, 500
 Epithelioid Angiosarcoma, 502

I. NEURAL-NEUROENDOCRINE NEOPLASMS

Traumatic Neuroma, 503
 Morton's Neuroma (Metatarsalgia), 504
 Neurofibroma, 505
 Schwannoma (Neurilemmoma), 507
 Palisaded Encapsulated Neuroma (Solitary
 Circumscribed Neuroma), 509
 Granular Cell Tumor, 510
 Neurothekeoma (Myxoid Neurothekeoma, Dermal
 Nerve Sheath Myxoma), 512
 Cellular Neurothekeoma, 514
 Perineurioma, 515
 Nasal Glioma, 517
 Malignant Peripheral Nerve Sheath Tumor
 (Neurofibrosarcoma, Malignant Schwannoma),
 518
 Merkel Cell Carcinoma, 520

J. MUSCULAR NEOPLASMS

Leiomyoma and Angioleiomyoma, 523
 Leiomyosarcoma, 525

K. ADIPOSE, OSSEOUS, AND CARTILAGINOUS NEOPLASMS

Lipoma, 527
 Angiolipoma, 529
 Spindle Cell Lipoma, 530

Pleomorphic Lipoma, 532
 Liposarcoma, 533
 Osteoma Cutis, 535
 Soft Tissue Chondroma, 536

L. T-CELL (AND NK/T-CELL) NEOPLASMS

T-Cell Pseudolymphoma, 537
 Chronic Actinic Dermatitis (Actinic Reticuloid), 539
 Mycosis Fungoides, 541
 Sézary Syndrome, 546
 Pagetoid Reticulosis, 548
 Granulomatous Slack Skin, 549
 Primary Cutaneous Aggressive Epidermotropic
 CD8-Positive Cytotoxic T-Cell Lymphoma, 551
 Lymphomatoid Papulosis, 552
 Anaplastic Large Cell Lymphoma (ALCL), 554
 Subcutaneous Panniculitis-Like T-Cell Lymphoma,
 556
 Adult T-Cell Leukemia/Lymphoma (ATLL), 558
 Extranodal NK/T-Cell Lymphoma, Nasal Type, 560
 Gamma/Delta T-Cell Lymphoma, 561

M. B-CELL NEOPLASMS

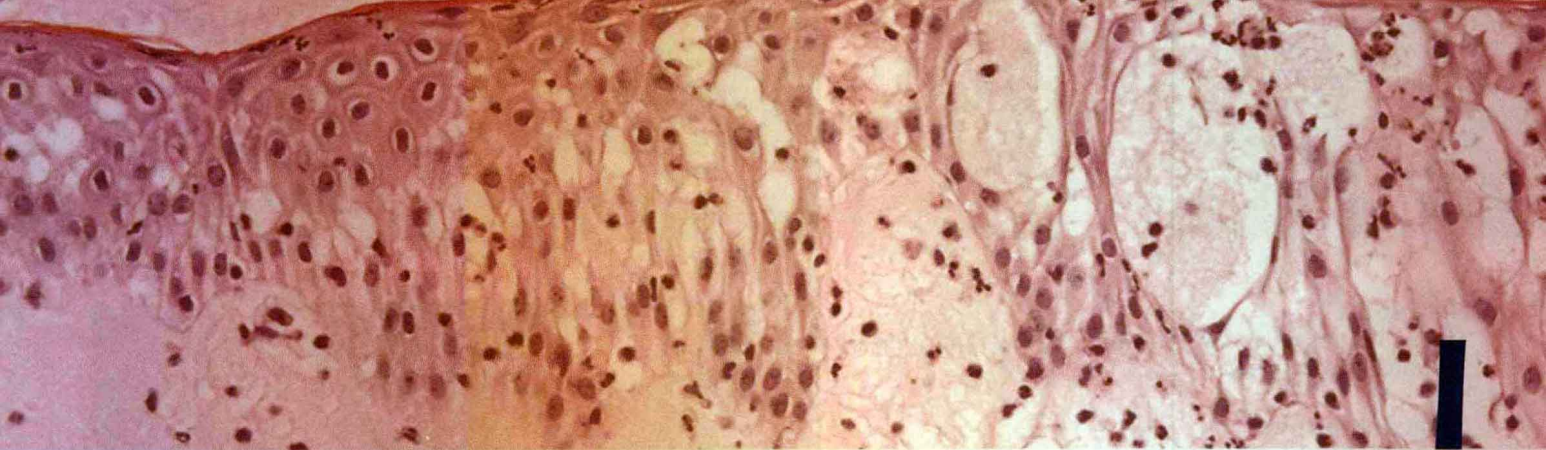
B-Cell Pseudolymphoma (Cutaneous Lymphoid
 Hyperplasia), 562
 Primary Cutaneous Marginal Zone B-Cell
 Lymphoma/Immunocytoma, 564
 Primary Cutaneous Follicle Center Lymphoma
 (PCFCL), 567
 Primary Cutaneous Diffuse Large B-Cell Lymphoma,
 569
 Intravascular B-Cell Lymphoma, 571
 Lymphomatoid Granulomatosis, 573

N. XANTHOMATOUS, HISTIOCYTIC, MAST CELL, MYELOID NEOPLASMS, AND PLASMA CELL

Xanthomata, 575
 Xanthogranuloma (Juvenile), 577
 Xanthoma Disseminatum, 579
 Verruciform Xanthoma, 581
 Rosai-Dorfman Disease, 582
 Reticulohistiocytoma, 584
 Langerhans Cell Histiocytosis, 586
 Cutaneous Mastocytosis, 588
 Leukemia Cutis, 591
 Plasmacytoma, 593

O. CUTANEOUS METASTASES/IMPLANTATION

Cutaneous Endometriosis, 594
 Cutaneous Metastases, 595
 Extramammary Paget's Disease, 599



INFLAMMATORY DERMATITIS

A. SPONGIOTIC DERMATITIS

ATOPIC DERMATITIS

Definition

- Eczematous dermatitis in individuals as manifestation of atopic diathesis

Clinical features

Epidemiology

- Affects those with atopic tendency (associated with allergic rhinitis and asthma)
- Familial predisposition
- Typically arises in infancy or childhood; delayed onset in adulthood less common

Presentation

- Eczematous reaction pattern with classically dry, scaly, pruritic patches and plaques
- Often symmetrically distributed
- Infancy: extensor involvement
- Childhood: flexural involvement of arms and legs, trunk, face (with sparing of nose—"headlight sign")
- With chronicity, lichenification and dyspigmentation occur

Prognosis and treatment

- Lifelong tendency, although many improve over time
- Risk for superinfection (impetiginization or eczema herpeticum)
- Dry skin care important part of management
- Therapeutic regimen includes topical corticosteroids, topical calcineurin-inhibitors, antihistamines, systemic immunosuppressives (e.g., methotrexate, cyclosporine), phototherapy

Pathology

Histology

- Acute: mild acanthosis, epidermal spongiosis, lymphocytic exocytosis, superficial dermal perivascular lymphohistiocytic infiltrate sometimes accompanied by eosinophils
- Subacute: parakeratosis, acanthosis, variable epidermal spongiosis, superficial dermal chronic inflammation
- Chronic: hyperkeratosis, psoriasiform epidermal hyperplasia, hypergranulosis, spongiosis less prominent or absent

Immunopathology (including immunohistochemistry)

- Not contributory

Main differential diagnoses

- Other spongiotic dermatitides including nummular eczema, contact dermatitis
- Seborrheic dermatitis
- Spongiotic drug eruption
- Dermatophytosis



Fig 1. Atopic dermatitis. Pruritic, dry, scaly, ill-defined patches symmetrically distributed in the bilateral antecubital fossae.



Fig 2. Atopic dermatitis. Numerous few-millimeter erythematous eczematous papules, several excoriated, over the left medial thigh.



Fig 3. Atopic dermatitis. Focally crusted, fairly discrete, hyperkeratotic, pink erythematous, nummular plaque in a patient with atopic dermatitis.

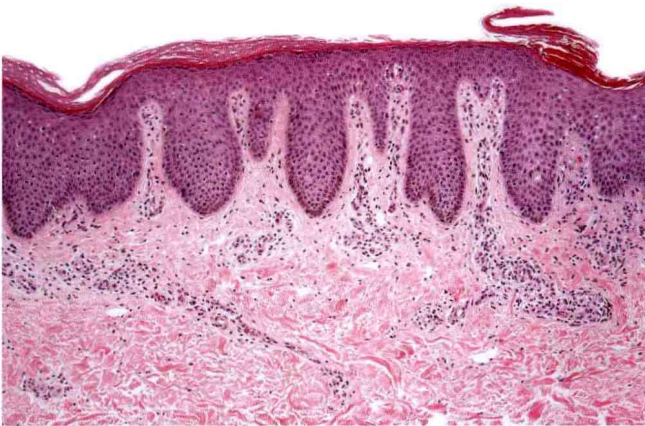


Fig 4. Atopic dermatitis. There is hyperkeratosis, parakeratosis, and psoriasiform hyperplasia associated with mild spongiosis in this example of subacute atopic dermatitis.

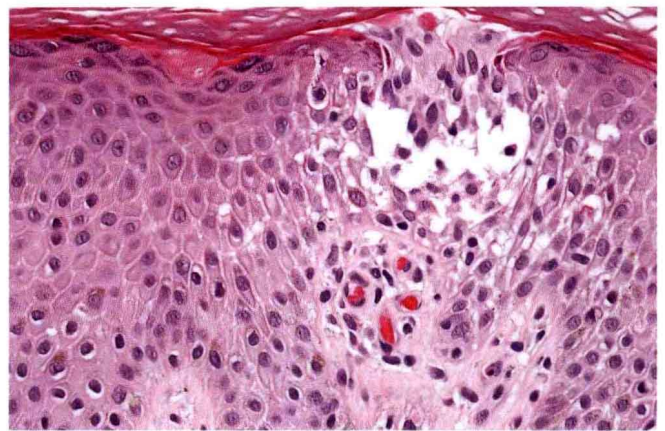


Fig 5. Atopic dermatitis. Intraepidermal Langerhans cell microgranuloma with surrounding spongiosis.

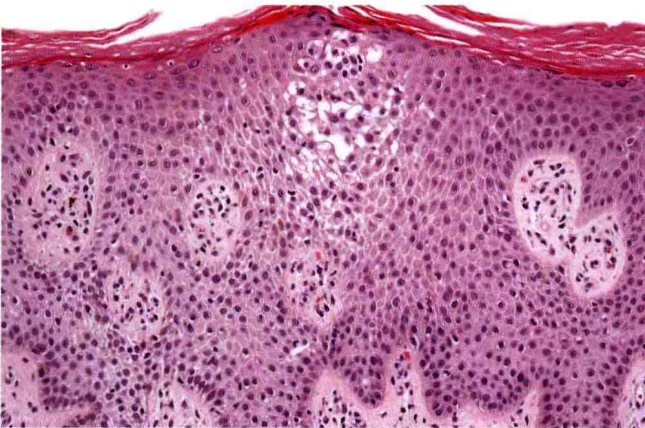


Fig 6. Atopic dermatitis. Spongiosis and lymphocytic exocytosis.

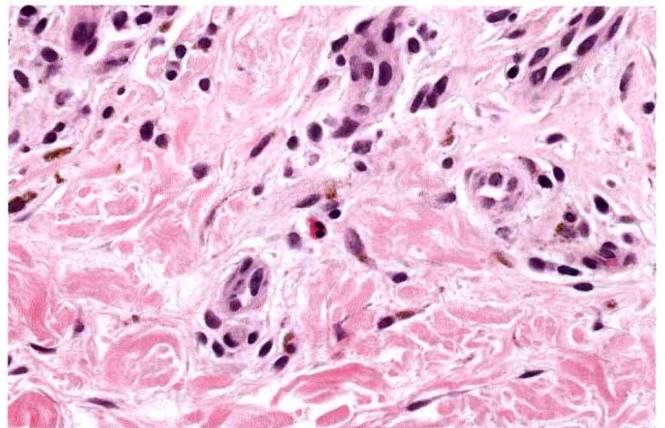


Fig 7. Atopic dermatitis. In the dermis, there is a lymphocytic infiltrate with an eosinophil and melanophages.

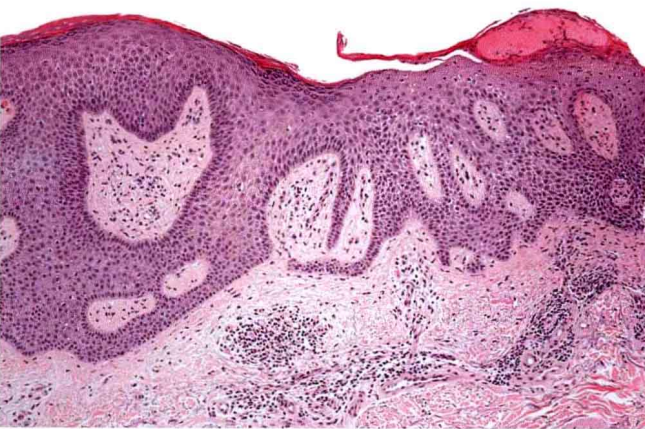


Fig 8. Chronic spongiotic dermatitis. Hyperkeratosis with crusting and acanthosis. Note the superficial perivascular chronic inflammatory cell infiltrate.

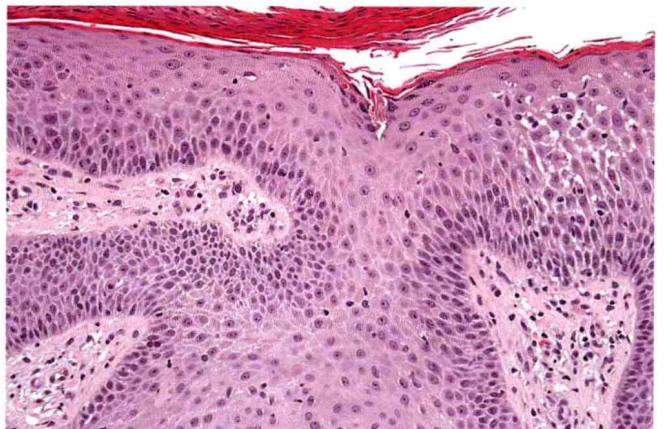


Fig 9. Chronic spongiotic dermatitis. There is parakeratosis and focal spongiosis with lymphocytic exocytosis.

SEBORRHEIC DERMATITIS

Definition

- Common papulosquamous skin condition affecting sebum-rich areas of the body

Clinical features

Epidemiology

- Predilection for whites
- May arise in infancy but more common in adults, beginning with puberty
- Can be particularly prominent in AIDS patients and patients with neurologic disorders

Presentation

- Greasy, scaling erythema in a seborrheic (sebum-rich) distribution: scalp, eyebrows, perinasal region, beard area, presternal chest, axillae, and groin
- Scalp involvement prompts patient's complaint of dandruff and pruritus
- In particularly inflammatory areas, erythematous 2- to 4-mm papules sometimes seen
- Affected areas can be pruritic or burning
- Erythroderma rare: occurs in AIDS and patients with neurologic disorders

Prognosis and treatment

- Benign process with waxing-waning course
- Topical steroids or topical calcineurin-inhibitors (e.g., tacrolimus, pimecrolimus) to calm inflammation
- Antiseborrheic shampoos (containing ingredients such as zinc pyrithione, selenium sulfide, tar preparations, keratolytics)
- Topical or, if indicated, oral, ketoconazole, or other antifungals (e.g., other azoles or allylamines)
- Certain medications may flare condition (e.g., lithium, buspirone, chlorpromazine, gold)
- Occasional superinfection can occur

Pathology

Histology

- Features of subacute spongiotic dermatitis: mildly spongiotic epidermis topped by mounded parakeratosis (often perifollicular), lymphocytic exocytosis, mild superficial perivascular infiltrate of lymphocytes, histiocytes, and scattered eosinophils
- Irregular epidermal hyperplasia
- Intracorneal neutrophilic collections (often perifollicular) may be present
- Intracorneal pityrosporum organisms sometimes found

Immunopathology

- Not contributory

Main differential diagnoses

- Other subacute spongiotic conditions
- Psoriasis



Fig 1. Seborrheic dermatitis. Erythema and marked scaling affecting the beard area.

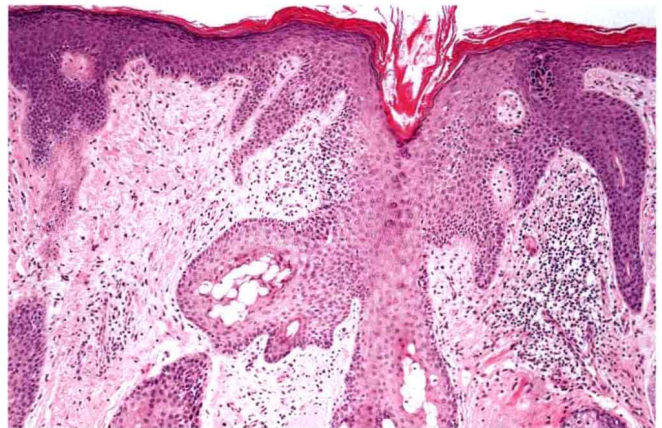


Fig 2. Seborrheic dermatitis. Hyperkeratosis with characteristic perifollicular parakeratosis. A superficial perivascular lymphohistiocytic infiltrate is present.



Fig 3. Seborrheic dermatitis. High-power view showing perifollicular parakeratosis, focal spongiosis, and lymphocytic exocytosis.

ALLERGIC CONTACT DERMATITIS

Definition

- Cutaneous delayed hypersensitivity reaction to exogenous antigen

Clinical features

Epidemiology

- Affects any age, either sex
- Common contactants include nickel, *Rhus* (uroshiol), fragrance, neomycin/bacitracin, formaldehyde, quaternium-15

Presentation

- Eczematous reaction pattern at areas in contact with the offending antigen, so characteristically linear or in geometric pattern
- Acutely, exposed areas may be weepy, blistering, brightly erythematous edematous papules and plaques, often with excoriation, sometimes with crusting
- With time, areas become xerotic, develop more prominent scale, and may leave postinflammatory hyper/hypopigmentation

Prognosis and treatment

- Classically self-limited over days to weeks after removal of causative agent
- Treatment with topical and systemic corticosteroids
- Immunosuppressive treatment may blunt histologic features
- Secondary impetiginization can occur, may require treatment with topical/oral antibiotics

Pathology

Histology

- *Acute*: prominent epidermal spongiosis often with vesiculation, lymphocytic exocytosis, conspicuous epidermal Langerhans cells, may form microabscesses, superficial dermal perivascular lymphohistiocytic infiltrate with eosinophils, papillary dermal edema
- *Subacute*: focal parakeratosis, epidermal spongiosis less conspicuous, mild epidermal hyperplasia, superficial dermal chronic inflammation
- *Chronic*: focal parakeratosis, psoriasiform epidermal hyperplasia, spongiosis much less prominent or absent, papillary dermal fibrosis

Immunopathology (including immunohistochemistry)

- Not contributory

Main differential diagnoses

- Other spongiotic dermatitides (e.g., seborrheic dermatitis, spongiotic drug eruption)
- Insect bite reaction
- Sézary syndrome
- Mycosis fungoides may resemble the subacute and chronic forms of dermatitis



Fig 1. Allergic contact dermatitis. Florid example of an acute lesion showing diffuse vesiculation.



Fig 2. Allergic contact dermatitis. Eczematous scaly erythematous plaque on the chest with sharp demarcation at the inferior border, representing allergic contact dermatitis to perfume.

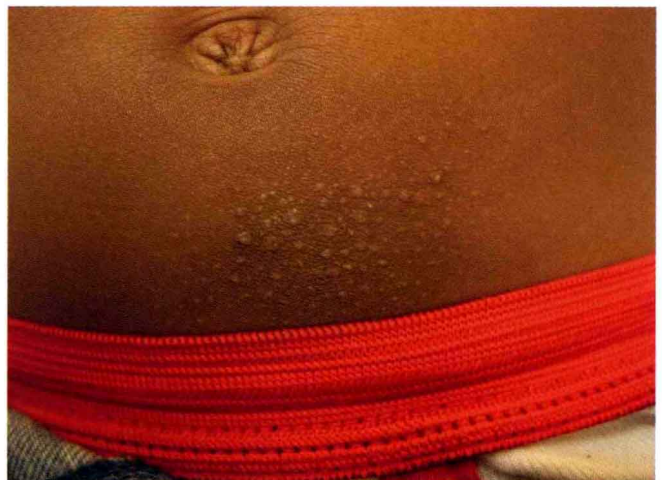


Fig 3. Allergic contact dermatitis. Fairly well-demarcated plaque formed by a coalescence of erythematous few-millimeter papules, with areas of focally crusted erosion in the infraumbilical area as a result of nickel allergy in a belt buckle.

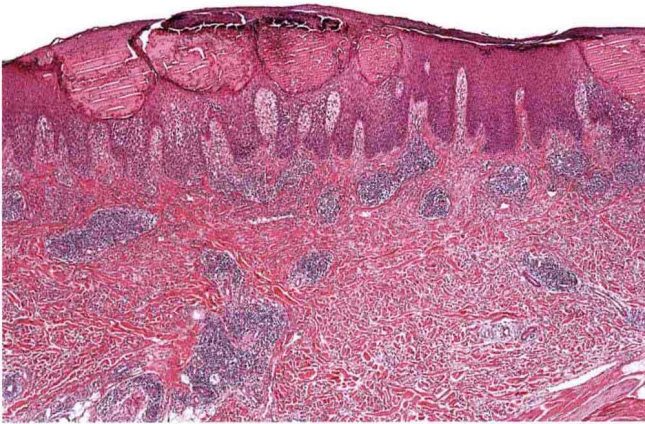


Fig 4. Allergic contact dermatitis. Crusting, psoriasiform hyperplasia, and spongiosis with vesiculation.

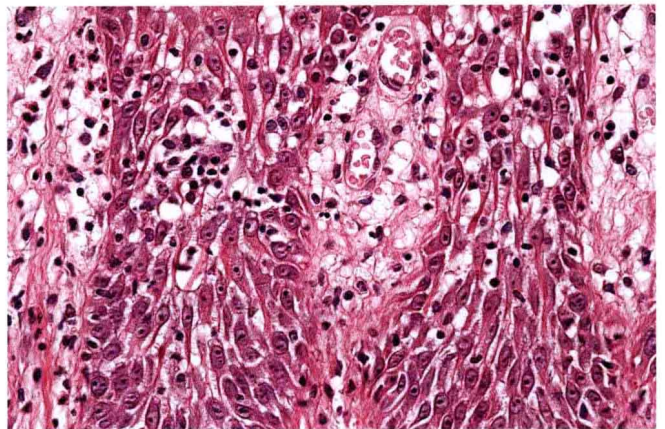


Fig 5. Allergic contact dermatitis. Spongiosis and marked lymphocytic exocytosis.

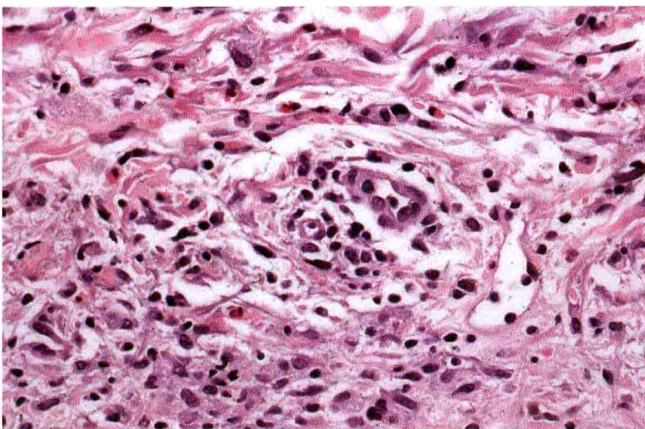


Fig 6. Allergic contact dermatitis. Dermal edema with a superficial perivascular lymphohistiocytic infiltrate. Note the eosinophils.

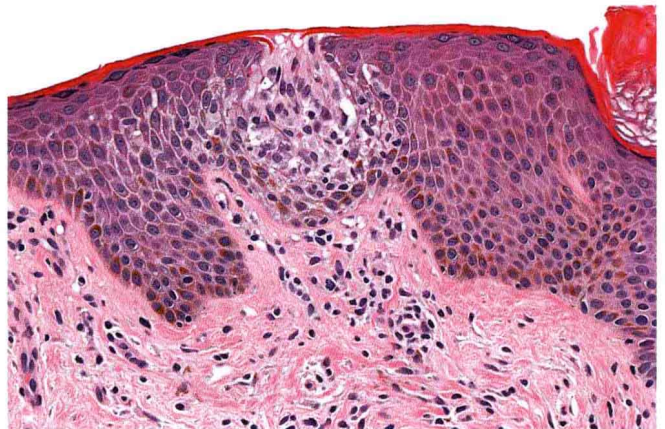


Fig 7. Allergic contact dermatitis. Conspicuous Langerhans cells.



Fig 8. Allergic contact dermatitis. Chronic lesion showing hyperkeratosis, focal mild parakeratosis, psoriasiform hyperplasia, and fibrosis of the papillary dermis.

DYSHIDROTIC ECZEMA (POMPHOLYX)

Definition

- Recurrent vesicular dermatitis of the hands and feet

Clinical features

Epidemiology

- Most commonly presents in adults in the third to fifth decades of life, but children, teens, and elderly also affected
- More often seen in females
- No clear racial predilection

Presentation

- Pruritic eruption of 1- to 2-mm deep-seated, tapioca pudding-like vesicles embedded in the palms, along the finger sides, and soles
- Background variable scaling erythema
- Hyperhidrosis may be seen
- Typically lasts 2 to 4 weeks, but, not uncommonly, can experience recurrent episodes
- Longitudinal furrowing of nails sometimes occurs

Prognosis and treatment

- Topical (or intralesional or systemic) corticosteroids, topical calcineurin inhibitors, PUVA (topical soaks or with hand/foot unit) form the mainstay of therapy
- Botulinum toxin now being offered

Pathology

Histology

- Epidermal spongiosis with intraepidermal spongiotic macrovesiculation
- Superficial perivascular lymphocytic inflammation
- Occasional eosinophils

Special stains/immunopathology

- Not contributory

Main differential diagnoses

- Dermatophyte infection
- Acute contact dermatitis



Fig 1. Dyshidrotic eczema. Erythematous papulovesicles on the palm.

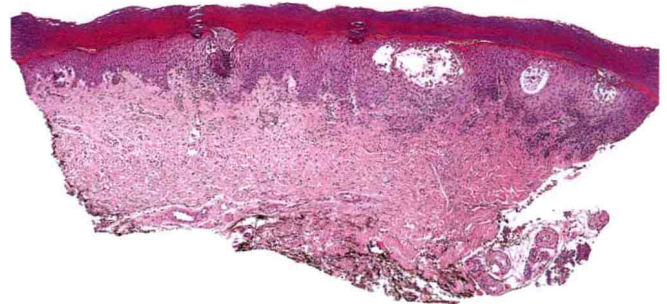


Fig 2. Dyshidrotic eczema. Scanning view showing multiple large intraepidermal vesicles.

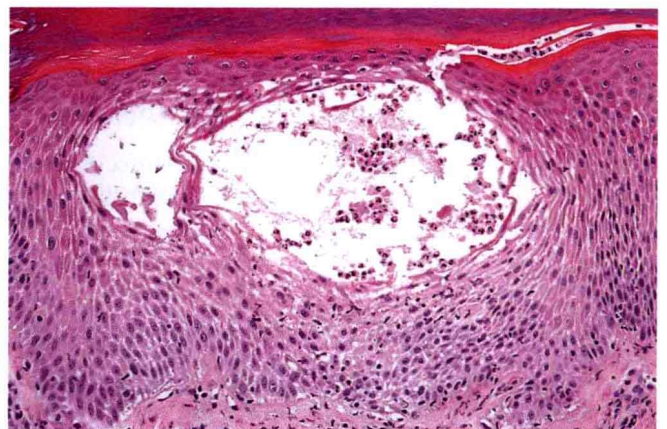


Fig 3. Dyshidrotic eczema. High-power view showing spongiotic vesicle. In view of the conspicuous neutrophils, a secondary infection should be excluded.