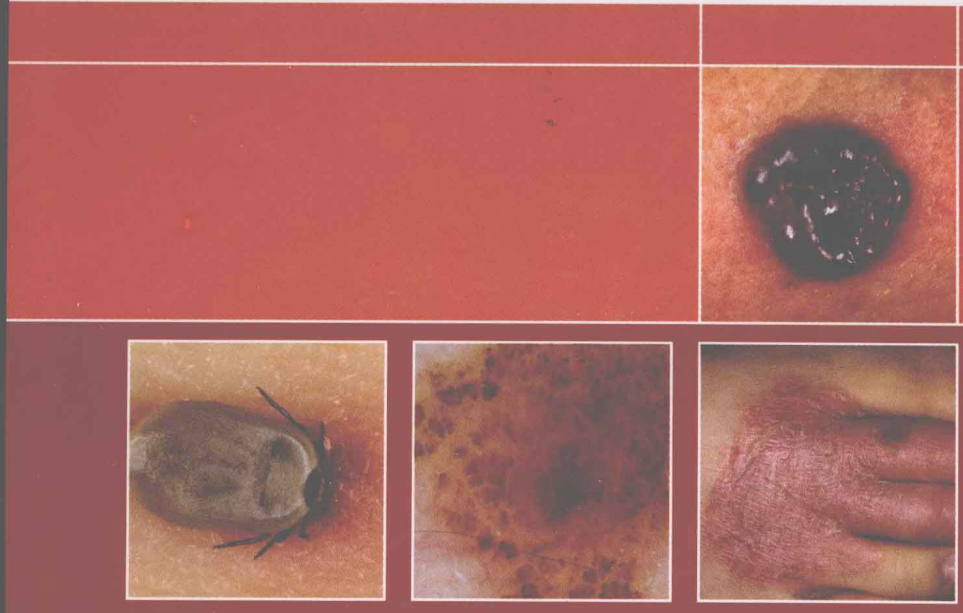
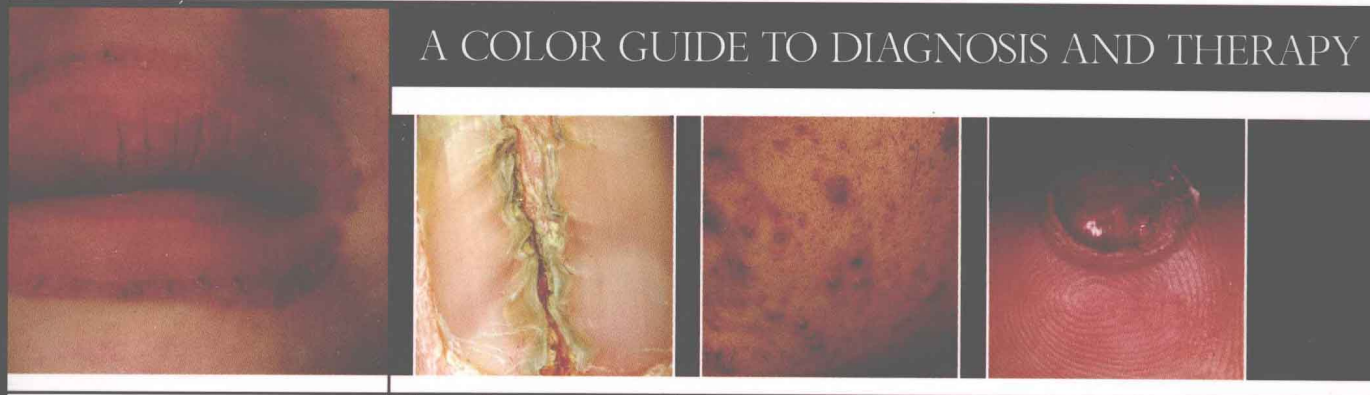


# CLINICAL DERMATOLOGY

FIFTH EDITION

A COLOR GUIDE TO DIAGNOSIS AND THERAPY



THOMAS P. HABIF

MOSBY
ELSEVIER

# CLINICAL DERMATOLOGY

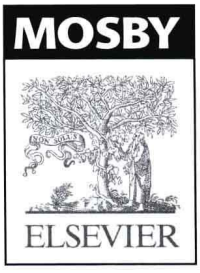
FIFTH EDITION

## A COLOR GUIDE TO DIAGNOSIS AND THERAPY

**Thomas P. Habif,** MD
Adjunct Professor of Medicine (Dermatology)
Dartmouth Medical School
Hanover, NH, USA

**Acquisitions Editor:** Claire Bonnett
**Development Editors:** Sven Pinczewski and Louise Cook
**Editorial Assistant:** Kirsten Lowson
**Project Manager and Layout Design:** Jeanne Genz
**Cover and Page Designer:** Charles Gra
**Compositors:** Graphic World, Inc.
Gary Clark, CSR; Lyn Watts, Michele Margenau, Victoria Brown
**Image Processing:** Graphic World, Inc.
Mark Lane, Tom Lane
**Illustrators:** Graphic World, Inc.
Gwen Gilbert, Trese Gloriod, Patty Bassman
**Project Organization:** Laura A. McCann
**Copyeditor:** Beth Welch
**Proofreader:** Denise L. Davis
**Production Assistant:** Natalie Jackson
**Indexer:** Razorsharp Communications
**Printer:** C&C Offset Printing Company, Ltd.
**Medical Photography:** Alan N. Binnick, MD;
Thomas P. Habif, MD; Lawrence B. Meyerson, MD
**Moral Support:** Dorothy, David, and Tommy





MOSBY
ELSEVIER

MOSBY is an affiliate of Elsevier Inc



First published 2010
First edition published 1984
Second edition published 1990
Third edition published 1996
Fourth edition published 2004



**ISBN:** 978-0-7234-3541-9

**British Library Cataloguing in Publication Data**

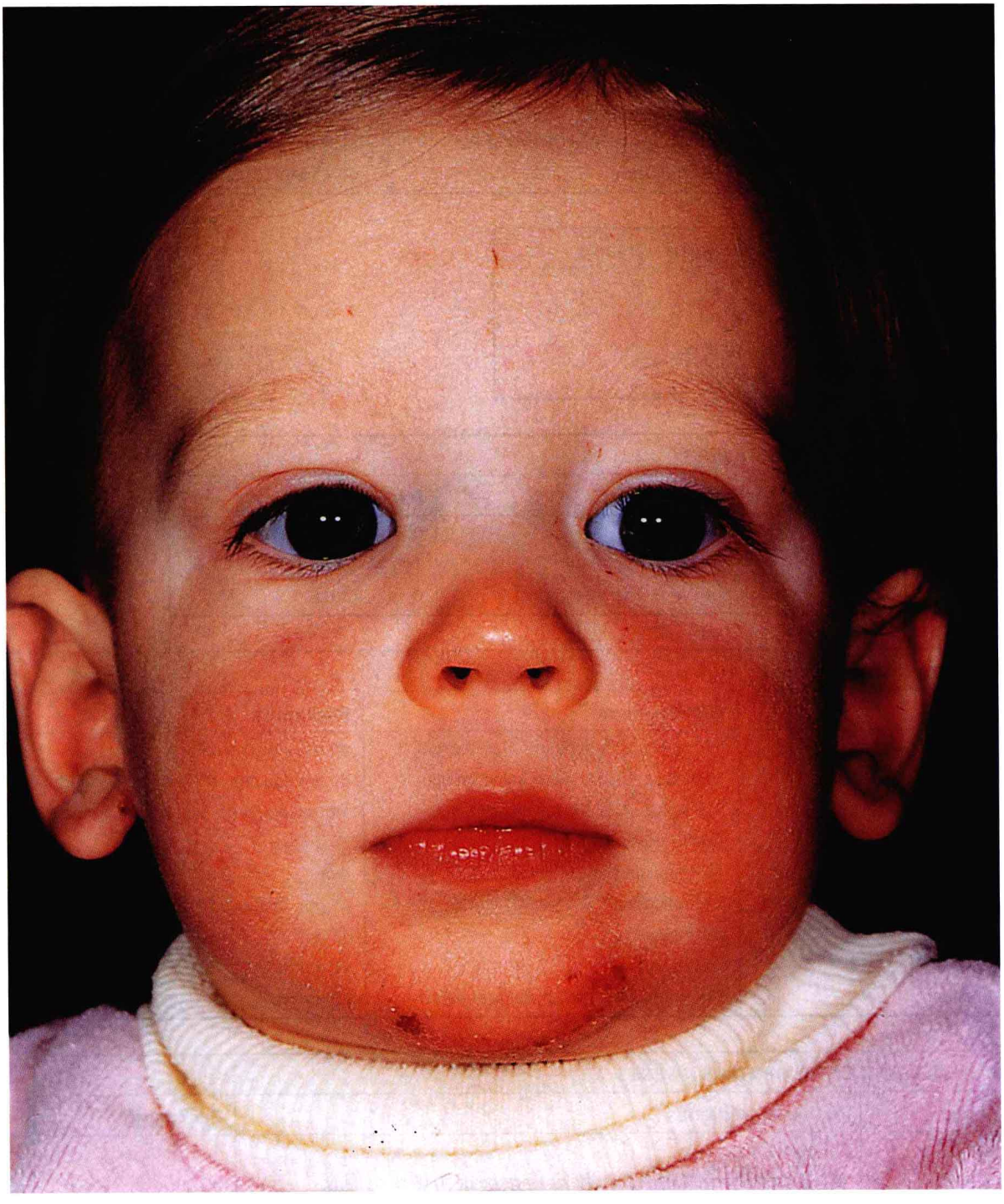
Habif, Thomas P.
Clinical dermatology. - 5th ed.
1. Dermatology - Atlases 2. Skin - Diseases - Diagnosis - Atlases 3. Skin - Diseases - Treatment - Atlases
I. Title
616.5

**Notice**

Medical knowledge is constantly changing. Standard safety precautions must be followed, but as new research and clinical experience broaden our knowledge, changes in treatment and drug therapy may become necessary or appropriate. Readers are advised to check the most current product information provided by the manufacturer of each drug to be administered to verify the recommended dose, the method and duration of administration, and contraindications. It is the responsibility of the practitioner, relying on experience and knowledge of the patient, to determine dosages and the best treatment for each individual patient. Neither the Publisher nor the author assumes any liability for any injury and/or damage to persons or property arising from this publication.



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



| ANTIPRURITIC CREAMS AND LOTIONS | | |
|---|---|---|
| **Product** | **Active ingredient** | **Packaging** |
| Eucerin itch relief | Menthol 0.15% | 6.8 oz spray |
| Neutrogena anti-itch moisturizer | Camphor 0.1%, dimethicone 0.1% | 10.1 oz |
| PrameGel | 1% pramoxine, 0.5% menthol | |
| Sarna original | 0.5% each of camphor, menthol | 7.5 oz bottle |
| Sarna sensitive anti-itch lotion | Pramoxine HCL | 7.5 oz |
| Sarna Ultra anti-itch cream | Menthol 0.5% and pramoxine | 2 oz |
| Zonalon | 5% doxepin | 45 gm |

| ATOPIC DERMATITIS: Nonsteroidal Barrier Creams | |
|---|---|
| Atopiclair | 100 gm |
| Eletone | 100 gm |
| Epiceram | 90 gm |
| Mimyx | 140 gm |

| PSORIASIS: Topical Vitamin $D_3$ Analogs | | |
|---|---|---|
| **Brand name** | **Active ingredient** | **Packaging** |
| Dovonex cream | Calcipotriene | 30, 60, 100 gm tubes |
| Vectical ointment | Calcitriol | 100 gm tube |
| Taclonex ointment, scalp | Calcipotriene + betamethasone | 60 gm, 60 ml |

| ROSACEA: Topical Medications | | |
|---|---|---|
| **Brand name** | **Generic name** | **Packaging** |
| Avar | 5% Sulfur, 10% sodium sulfacetamide | 45 gm aqueous gel |
| Avar Green | 5% Sulfur, 10% sodium sulfacetamide | 45 gm aqueous gel with green color masks redness |
| Clenia | 5% Sulfur, 10% sodium sulfacetamide | 1 oz cream, 6 oz, 12 oz foaming wash |
| Finacea 15% | Azelaic acid | 30 gm gel |
| Klaron 10% | 10% sodium sulfacetamide | 4 oz |
| Generic gel, cream, lotion 0.75% | Metronidazole | 45 gm, 45 gm, 120 ml |
| Metrogel 1% | Metronidazole | 45 gm |
| Noritate cream 1% | Metronidazole | 30 gm tube |
| Sulfacet-R lotion | 5% Sulfur, 10% sodium sulfacetamide | 25 gm bottle |

| SKIN BLEACHES AND DEPIGMENTING AGENTS | | |
|---|---|---|
| **Brand name** | **Active ingredient** | **Packaging** |
| Generic | 4% Hydroquinone | 1 oz, 2 oz jar |
| TriLuma | 4% Hydroquinone, 0.01% fluocinolone acetonide, 0.05% tretinoin | 30 gm |

Expert | CONSULT

# Activate your access at expertconsult.com

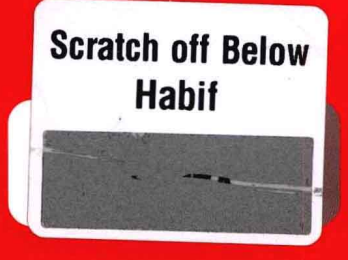
## 1 REGISTER

- Visit **expertconsult.com.**
- Click **"Register Now."**
- Fill in your **user information.**
- Click **"Create Account."**

## 2 ACTIVATE YOUR BOOK

- Scratch off your **Activation Code** below and enter it into the **"Add a title"** box.
- **You're done!** Click on the book's title under **"My Titles."**

For technical assistance, email **online.help@elsevier.com** or call **800-401-9962** (inside the US) or **+1-314-995-3200** (outside the US).




Activation Code

# QUICK REFERENCE FORMULARY

(Topical corticosteroids are listed on the inside back cover)

| ACNE MEDICATIONS: Retinoids | | | |
|---|---|---|---|
| **Product** | **Base** | **Concentration** | **Packaging** |
| Retin-A (Tretinoin) | Cream<br>Gel | 0.025%, 0.05%, 0.1%<br>0.01%, 0.025% | 20, 45 gm<br>15, 45 gm |
| Retin-A Micro (Tretinoin) | Gel | 0.1%, 0.04% | 20, 45, 50 gm pump |
| Tazorac (Tazarotene) | Gel<br>Cream | 0.1%, 0.05%<br>0.1%, 0.5% | 30, 100 gm<br>30, 60 gm |
| Differin (Adapalene) | Gel<br>Cream | 0.1%, 0.3%<br>0.1% | 45 gm<br>45 gm |
| Epiduo | Gel | 0.1% adapalene + 2.5% benzoyl peroxide | 45 gm |

| ACNE MEDICATIONS: Topical Antibiotics | | |
|---|---|---|
| **Product** | **Antibiotics** | **Packaging** |
| Aczone | 5% dapsone | 30, 60 gm gel |
| Benzaclin | 1% clindamycin 5% benzoyl peroxide | 25 gm, 50 gm gel, pump |
| Benzamycin | 3% erythromycin 5% benzoyl peroxide | 23.3, 46.6 gm gel |
| Cleocin T | 1% clindamycin | 30, 60 ml liquid, 30, 60 gm gel, 60 ml lotion |
| Duac gel | 1% clindamycin 5% benzoyl peroxide | 45 gm gel |
| Klaron 10% | 10% sodium sulfacetamide | 4 oz bottle |
| Clenia | 5% sulfur, 10% sodium sulfacetamide | 1 oz emollient cream |
| Sulfacet-R lotion | 5% sulfur, 10% sodium sulfacetamide | 25 ml, larger in generic |
| AVAR cleanser | 5% sulfur, 10% sodium sulfacetamide | 8 oz pump |

| ACNE MEDICATIONS: Oral Antibiotics | | |
|---|---|---|
| **Generic** | **Preparation** | **Adult dosage (mg unless noted)** |
| Doxycycline | 50, 75, 100, 150 mg | Every day, twice/day |
| Minocycline | 50, 75, 100 mg | Every day, twice/day |
| Minocycline extended release tablets (Solodyn) | 45 mg (90-131 lb), 90 mg (132-199 lb), 135 mg (200-300 lb) | 1 tablet every day (1 mg/kg/day) |

| ANTINEOPLASTIC AGENTS: Topical | | |
|---|---|---|
| | **Product** | **Packaging** |
| Aldara | 5% imiquimod | Box of 12 or 24 packets |
| Carac | 0.5% fluorouracil | 30 gm tube |
| Fluoroplex | 1% fluorouracil | 30 ml solution, 30 gm cream |
| Efudex | 2% or 5% fluorouracil<br>5% fluorouracil | 10 ml liquid<br>25 gm cream |

# Preface

*Clinical Dermatology* is intended to be a practical resource for the clinician. Over 1500 illustrations are combined with disease descriptions and current and comprehensive therapeutic information. Bold headings are used to facilitate rapid access to information.

## RAPID ACCESS TO THE TEXT

1. *Disorders Index:* A list of diseases with page references is located inside the front cover. This is the best place to start if you know the diagnosis.
2. Chapter 1—*Regional Differential Diagnosis Atlas:* New to the fifth edition, this very large section with page references will help you to narrow the differential diagnosis.
3. A list of *topical corticosteroids* can be found on the inside back cover.
4. The complete *Dermatologic Formulary,* previously in the book, can now be found online (using your login details), and we are able to offer updates. However, a *Quick Reference Formulary* to the most commonly used drugs is on pp. ii-iii.

### PMID numbers (PubMed identification numbers)

References are no longer placed at the end of the chapter. They have been replaced by PMID numbers (blue letters and numbers) and are embedded in the text. Go to PubMed's home page. Be sure the search box is empty. There should be no limits set on the left-hand limits tab. Type in just the number in the search line and click on Go. You will be taken to the paper and abstract. Classic references and PMID numbers are found in tables and boxes.

### Web-based text

The book with extra images and a mannequin-based aid to diagnosis are provided.

### Web-based formulary

New therapeutic agents often become available. Therefore, the *Dermatologic Formulary* has been moved online. The formulary may be printed and kept as a separate document. The formulary will be updated regularly.

### Text organization and content

The classic method of organizing skin diseases is used. Common diseases are covered in depth. Illustrations of classic examples of these disorders and photographs of variations seen at different stages are included. Theoretical information, disease mechanisms, and rare diseases are found in comprehensive textbooks.

## HOW TO USE THIS BOOK

### Students in the classroom

Students should learn the primary and secondary lesions and look at every page in the *Regional Differential Diagnosis Atlas* at the end of Chapter 1. Select a few familiar diseases from each list and read about them. Obtain an overview of the text. Turn the pages, look at the pictures, and read the captions.

### Students in the clinic

You see skin abnormalities every day in the clinic. Try to identify these diseases, or ask for assistance. Study all diseases, especially tumors, with a magnifying glass or an ocular lens. Read about what you see and you will rapidly gain a broad fund of knowledge.

Study Chapters 20 (Benign Skin Tumors), 21 (Premalignant and Malignant Nonmelanoma Skin Tumors), and 22 (Nevi and Malignant Melanoma). Skin growths are common, and it is important to recognize their features.

House officers are responsible for patient management. Read Chapter 2 carefully, and study all aspects of the use of topical steroids. These agents are used to treat a variety of skin conditions. It is tempting to use these agents as a therapeutic trial and ask for a consultation only if therapy fails. Topical steroids mask some diseases, make some diseases worse, and create other diseases. Do not develop bad habits; if you do not know what a disease is, do not treat it.

The diagnosis of skin disease is deceptively easy. Do not make hasty diagnoses. Take a history, study primary lesions

and the distribution, and be deliberate and methodical. Ask for help. With time and experience you will feel comfortable managing many common skin diseases.

### The non-dermatologist provider

Most skin diseases are treated by non-dermatologist providers. This includes primary care physicians, nurse practitioners and physician assistants. Clinicians involved in direct patient care should read the above guidelines for using this book. Look at the *Regional Differential Diagnosis Atlas* in Chapter 1 as a general guide. Learn a few topical steroids in each potency group. There are a great number of agents in the *Dermatologic Formulary*. Many in each table contain similar ingredients and have the same therapeutic effect. Develop an armamentarium of agents and gain experience in their use.

Inflammatory conditions are often confusing, and sometimes biopsies are of limited value in their diagnosis. Eczema is common, read Chapters 2 and 3. Acne is seen everyday, read Chapter 7. Managing acne effectively will provide a great service to many young patients who are very uncomfortable with their appearance. The clinical diagnosis of pigmented lesions is complicated. Look at Chapters 20, 21, and 23. Don't be afraid to ask for help. A dermatologist can often make a diagnosis without the need for a biopsy.

### The dermatologist

Use the *Disorders Index* on the inside front cover to rapidly access the text. Many dermatologists use the pictures as an aid to reassure patients. Examine the patient, make a diagnosis, and then show them an illustration of their disease. Many patients see the similarity and are reassured.

This book is designed to be a practical resource. All of the most current descriptive and therapeutic information that is practical and relevant has been included. All topics are researched on Medline. Details about basic science and complex mechanisms of disease can be found elsewhere. Rare diseases are found in larger textbooks.

## IMAGES

The photographs were taken with film and digital cameras. The images for this text come from three main sources. Alan N. Binnick, MD, Adjunct Assistant Professor of Medicine (Dermatology), Dartmouth Medical School, and Lawrence B. Meyerson, Clinical Associate Professor of Dermatology at the University of Texas Southwestern Medical School provided very large collections of images taken with transparency film. I provided film and digital images. Transparency film images are in many ways superior to digital images. Each contributor has over 30 years experience as a dermatologist and a medical photographer. A combination of these three collections with over 23,000 images can be found at www.dermnet.com.

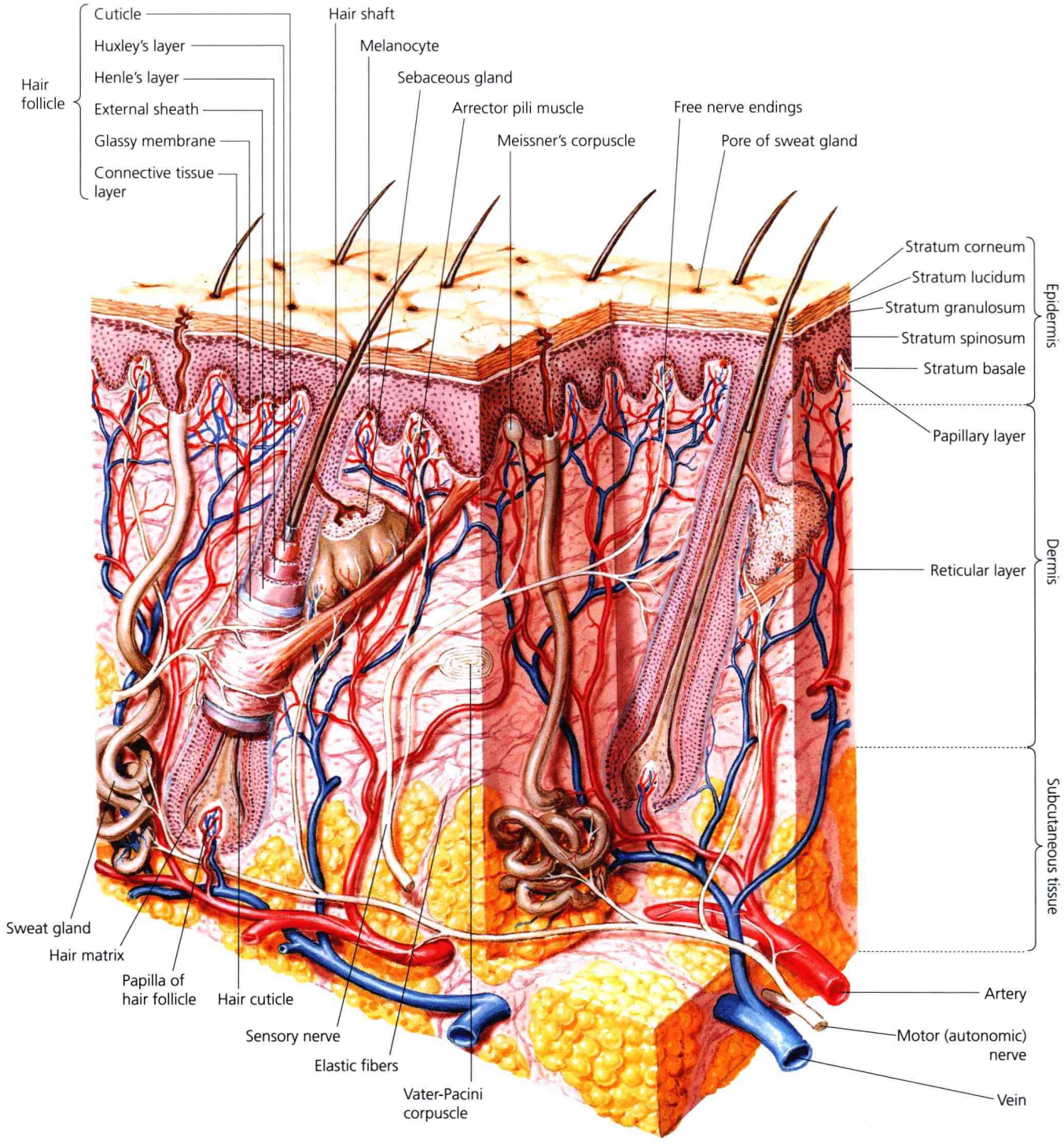
## PRODUCTION

Manufacturing an illustrated book is a complicated process. The large number of people involved in this effort is listed on the title page. As my first editor said 25 years ago, "If people ever realized what was involved in making a book, they would not believe that it could ever get done."

The layout and design of each page in this book is done the "old fashioned way," by cutting and pasting images and strips of text by the layout artist. Page layout design is a science and an art. Jeanne Genz has done the page layout for all five editions of this book. This older, slower, non-computerized technique performed by an expert produces pages that are balanced and of maximum clarity. The final "pasted" book is then converted to a digital file and then converted to a pdf file that is sent to the printer who must balance color through a calibration process. The book is printed in China on high-grade glossy paper on a sheet-fed press. Glossy paper retains ink at the surface to enhance definition. Sheet-fed presses print slowly and allow ink to be laid down precisely so that exceptional sharpness and color balance are achieved.

Thomas P. Habif
2009

# SKIN ANATOMY



# Contents

**Disorders Index**.....Inside front cover
Quick Reference Formulary ..... i-ii
**Preface** ..... vii

**1 Principles of Diagnosis and Anatomy 1**

Skin anatomy ..... 1
Diagnosis of skin disease ..... 2
Primary lesions ..... 3
Secondary lesions ..... 12
Special skin lesions ..... 17

***Regional differential diagnosis atlas*** ..... 19

**2 Topical Therapy and Topical Corticosteroids 75**

Topical therapy ..... 75
Topical corticosteroids ..... 77

**3 Eczema and Hand Dermatitis 91**

Stages of eczematous inflammation ..... 91
Hand eczema ..... 100
Eczema: various presentations ..... 110
Chapped fissured feet ..... 113
Self-inflicted dermatoses ..... 115
Psychogenic parasitosis ..... 121
Stasis dermatitis and venous ulceration: postphlebitic syndromes ..... 122

**4 Contact Dermatitis and Patch Testing 130**

Irritant contact dermatitis ..... 131
Allergic contact dermatitis ..... 133
Diagnosis of contact dermatitis ..... 148

**5 Atopic Dermatitis 154**

Pathogenesis and immunology ..... 156
Clinical aspects ..... 156
Associated features ..... 167
Triggering factors ..... 172
Treatment of atopic dermatitis ..... 172

**6 Urticaria and Angioedema 181**

Clinical aspects ..... 182
Pathophysiology ..... 185
Initial evaluation of all patients with urticaria ..... 186
Acute urticaria ..... 186
Chronic urticaria ..... 188
Treatment of urticaria ..... 191
Physical urticarias ..... 194
Angioedema ..... 200
Contact urticaria syndrome ..... 207
Pruritic urticarial papules and plaques of pregnancy ..... 207
Urticarial vasculitis ..... 209
Serum sickness ..... 210
Mastocytosis ..... 211

**7 Acne, Rosacea, and Related Disorders 217**

Acne ..... 217
Acne surgery ..... 252
Perioral dermatitis ..... 253
Rosacea (acne rosacea) ..... 256
Hidradenitis suppurativa ..... 260
Miliaria ..... 263

**8 Psoriasis and Other Papulosquamous Diseases 264**

Psoriasis ..... 264
Pityriasis rubra pilaris ..... 309
Seborrheic dermatitis ..... 312
Pityriasis rosea ..... 316
Lichen planus ..... 320
Lichen sclerosus et atrophicus ..... 327
Pityriasis lichenoides ..... 332
Grover's disease ..... 334

**9 Bacterial Infections 335**

Skin infections ..... 335
Folliculitis ..... 351
Furuncles and carbuncles ..... 356
Erysipeloid ..... 359
Blistering distal dactylitis ..... 359
Staphylococcal scalded skin syndrome ..... 360

*Pseudomonas aeruginosa* infection ..... 363
Meningococcemia ..... 371
Nontuberculous mycobacteria ..... 379

**10 Sexually Transmitted Bacterial Infections 382**

Sexually transmitted disease presentations ..... 382
Genital ulcers ..... 385
Syphilis ..... 396
Rare sexually transmitted diseases ..... 408
Diseases characterized by urethritis and cervicitis ..... 413

**11 Sexually Transmitted Viral Infections 419**

Genital warts ..... 419
Bowenoid papulosis ..... 427
Molluscum contagiosum ..... 428
Genital herpes simplex ..... 431
Acquired immunodeficiency syndrome ..... 444

**12 Warts, Herpes Simplex, and Other Viral Infections 454**

Warts ..... 454
Molluscum contagiosum ..... 465
Herpes simplex ..... 467
Varicella ..... 474
Herpes zoster ..... 479

**13 Superficial Fungal Infections 491**

Dermatophyte fungal infections ..... 491
Candidiasis (moniliasis) ..... 523
Tinea versicolor ..... 537

**14 Exanthems and Drug Eruptions 541**

Exanthems ..... 544
Drug eruptions: clinical patterns and most frequently causal drugs ..... 570
Drug eruptions ..... 575

**15 Infestations and Bites 581**

Scabies ..... 582
Pediculosis ..... 590
Caterpillar dermatitis ..... 594
Spiders ..... 596
Ticks ..... 600
Cat-scratch and related diseases ..... 614
Animal and human bites ..... 616
Stinging insects ..... 620
Biting insects ..... 621
Creeping eruption ..... 625
Ants ..... 626
Dermatitis associated with swimming ..... 627
Leishmaniasis ..... 632

**16 Vesicular and Bullous Diseases 635**

Blisters ..... 635
Diagnosis of bullous disorders ..... 638
Dermatitis herpetiformis and linear IgA bullous dermatosis ..... 642
Bullae in diabetic persons ..... 646
Pemphigus ..... 647
The pemphigoid group of diseases ..... 655
Pemphigoid-like disease ..... 661
Benign familial chronic pemphigus ..... 662
Epidermolysis bullosa ..... 664
The newborn with blisters, pustules, erosions, and ulcerations ..... 665

**17 Connective Tissue Diseases 671**

Autoimmune diseases ..... 671
Connective tissue diseases ..... 672
Lupus erythematosus ..... 678
Dermatomyositis and polymyositis ..... 692
Scleroderma ..... 700

**18 Hypersensitivity Syndromes and Vasculitis 710**

Hypersensitivity syndromes ..... 710
Erythema multiforme ..... 710
Stevens-Johnson syndrome/toxic epidermal necrolysis spectrum of disease ..... 714
Erythema nodosum ..... 720
Vasculitis ..... 722
Vasculitis of small vessels ..... 726
Neutrophilic dermatoses ..... 734
Schamberg's disease ..... 740

**19 Light-Related Diseases and Disorders of Pigmentation 741**

Photobiology ..... 741
Sun-damaged skin ..... 743
Suntan and sunburn ..... 747
Sun protection ..... 747
Polymorphous light eruption ..... 750
Hydroa aestivale and hydroa vacciniforme ..... 752
Porphyrias ..... 754
Phototoxic reactions ..... 761
Photoallergy ..... 764
Disorders of hypopigmentation ..... 764
Disorders of hyperpigmentation ..... 771

## 20 Benign Skin Tumors 776

Seborrheic keratoses ..... 776
Stucco keratoses ..... 784
Skin tags (acrochordon) and polyps ..... 784
Dermatosis papulosa nigra ..... 786
Cutaneous horn ..... 786
Dermatofibroma ..... 787
Hypertrophic scars and keloids ..... 788
Keratoacanthoma ..... 790
Epidermal nevus ..... 792
Nevus sebaceous ..... 794
Chondrodermatitis nodularis helicis ..... 795
Epidermal cyst ..... 796
Pilar cyst (wen) ..... 798
Senile sebaceous hyperplasia ..... 799
Syringoma ..... 800

## 21 Premalignant and Malignant Nonmelanoma Skin Tumors 801

Basal cell carcinoma ..... 801
Actinic keratosis ..... 812
Squamous cell carcinoma in situ ..... 820
Bowen's disease ..... 821
Erythroplasia of Queyrat ..... 823
Arsenical keratoses and other arsenic-related skin diseases ..... 824
Squamous cell carcinoma ..... 824
Leukoplakia ..... 829
Verrucous carcinoma ..... 830
Primary cutaneous lymphomas ..... 831
Cutaneous T-cell lymphoma ..... 832
Paget's disease of the breast ..... 843
Extramammary Paget's disease ..... 844
Cutaneous metastasis ..... 845

## 22 Nevi and Malignant Melanoma 847

Melanocytic nevi ..... 847
Malignant melanoma ..... 860
Management of melanoma ..... 872
Staging and prognosis ..... 875
Treatment of lentigo maligna ..... 879
Dermoscopy ..... 880

## 23 Vascular Tumors and Malformations 891

Congenital vascular lesions ..... 891
Acquired vascular lesions ..... 904
Telangiectasias ..... 910

## 24 Hair Diseases 913

Anatomy ..... 913
Physiology ..... 915
Evaluation of hair loss ..... 917
Generalized hair loss ..... 920
Localized hair loss ..... 922
Trichomycosis ..... 946

## 25 Nail Diseases 947

Anatomy and physiology ..... 947
Normal variations ..... 950
Nail disorders associated with skin disease ..... 951
Acquired disorders ..... 953
The nail and internal disease ..... 966
Color and drug-induced changes ..... 969
Congenital anomalies ..... 969
Tumors ..... 970

## 26 Cutaneous Manifestations of Internal Disease 975

Cutaneous manifestations of diabetes mellitus ..... 975
Acanthosis nigricans ..... 978
Xanthomas and dyslipoproteinemia ..... 980
Neurofibromatosis ..... 983
Tuberous sclerosis ..... 987
Internal cancer and skin disease ..... 990
Familial cancer syndromes ..... 990

**Index** ..... I-1
**Corticosteroids** (topical) ..... Inside back cover

ONLINE ONLY CONTENT

## 27 Dermatologic Surgical Procedures 999

Antibiotic prophylaxis ..... 1001
Local anesthesia ..... 1001
Hemostasis ..... 1002
Wound healing ..... 1002
Skin biopsy ..... 1006
Electrodesiccation and curettage ..... 1009
Curettage ..... 1010
Blunt dissection ..... 1011
Cryosurgery ..... 1012
Extraction of cysts ..... 1013
Mohs' micrographic surgery ..... 1014
Chemical peels ..... 1015
Dermal and subdermal fillers ..... 1016
Liposuction ..... 1016
Lasers ..... 1016
Botulinum toxin ..... 1018

**Appendix A Bioterrorism** ..... 1019
**Appendix B Dermatology and the Recently Returned Traveler** ..... 1024

**Dermatologic Formulary** ..... F-1

# Chapter 1

# Principles of Diagnosis and Anatomy

**CHAPTER CONTENTS**


- **Skin anatomy**
  - Epidermis
  - Dermis
  - Dermal nerves and vasculature
- **Diagnosis of skin disease**
  - A methodical approach
  - Examination technique
  - Approach to treatment
  - Primary skin lesions
  - Secondary skin lesions
  - Special skin lesions
- **Regional differential diagnoses**


## SKIN ANATOMY

The skin is divided into three layers: the epidermis, the dermis, and the subcutaneous tissue. The skin is thicker on the dorsal and extensor surfaces than on the ventral and flexor surfaces.

### Epidermis

The epidermis is the outermost part of the skin; it is stratified squamous epithelium. The thickness of the epidermis ranges from 0.05 mm on the eyelids to 1.5 mm on the palms and soles. The microscopic anatomy of the epidermal-dermal junction is complex; it is discussed in detail in Chapter 16. The innermost layer of the epidermis consists of a single row of columnar cells called basal cells. Basal cells divide to form keratinocytes, which comprise the spinous layer. The cells of the spinous layer are connected to each other by intercellular bridges or spines, which appear histologically as lines between cells. The keratinocytes synthesize insoluble protein, which remains in the cell and eventually becomes a major component of the outer layer (the stratum and corneum). The cells continue to flatten, and their cytoplasm appears granular (stratum granulosum); they finally die as they reach the surface to form the stratum corneum. There are three types of branched cells in the epidermis: the melanocyte, which synthesizes pigment (melanin); the Langerhans cell, which serves as a frontline element in immune reactions of the skin; and the Merkel cell, the function of which is not clearly defined.

### Dermis

The dermis varies in thickness from 0.3 mm on the eyelid to 3.0 mm on the back; it is composed of three types of connective tissue: collagen, elastic tissue, and reticular fibers. The dermis is divided into two layers: the thin upper layer, called the papillary layer, is composed of thin, haphazardly arranged collagen fibers; the thicker lower layer, called the reticular layer, extends from the base of the papillary layer to the subcutaneous tissue and is composed of thick collagen fibers that are arranged parallel to the surface of the skin. Histiocytes are wandering macrophages that accumulate hemosiderin, melanin, and debris created by inflammation. Mast cells, located primarily around blood vessels, manufacture and release histamine and heparin.

### Dermal nerves and vasculature

The sensations of touch and pressure are received by Meissner's and Vater-Pacini corpuscles. The sensations of pain, itch, and temperature are received by unmyelinated nerve endings in the papillary dermis. A low intensity of stimulation created by inflammation causes itching, whereas a high intensity of stimulation created by inflammation causes pain. Therefore scratching converts the intolerable sensation of itching to the more tolerable sensation of pain and eliminates pruritus.

The autonomic system supplies the motor innervation of the skin. Adrenergic fibers innervate the blood vessels (vasoconstriction), hair erector muscles, and apocrine glands. Autonomic fibers to eccrine sweat glands are cholinergic. The sebaceous gland is regulated by the endocrine system and is not innervated by autonomic fibers. The anatomy of the hair follicle is described in Chapter 24.

## DIAGNOSIS OF SKIN DISEASE

What could be easier than the diagnosis of skin disease? The pathology is before your eyes! Why then do nondermatologists have such difficulty interpreting what they see?

There are three reasons. First, there are literally hundreds of cutaneous diseases. Second, a single entity can vary in its appearance. A common seborrheic keratosis, for example, may have a smooth, rough, or eroded surface and a border that is either uniform or as irregular as a melanoma. Third, skin diseases are dynamic and change in morphology. Many diseases undergo an evolutionary process: herpes simplex may begin as a red papule, evolve into a blister, and then become an erosion that heals with scarring. If hundreds of entities can individually vary in appearance and evolve through several stages, then it is necessary to recognize thousands of permutations to diagnose cutaneous entities confidently. What at first glance appeared to be simple to diagnose may later appear to be simply impossible.

Dermatology is a morphologically oriented specialty. As in other specialties, the medical history is important; however, the ability to interpret what is observed is even more important. The diagnosis of skin disease must be approached in an orderly and logical manner. The temptation to make rapid judgments after hasty observation must be controlled.

### A methodical approach

The recommended approach to the patient with skin disease is as follows:

- **History.** Obtain a brief history, noting duration, rate of onset, location, symptoms, family history, allergies, occupation, and previous treatment.
- **Distribution.** Determine the extent of the eruption by having the patient disrobe completely.
- **Primary lesion.** Determine the primary lesion. Examine the lesions carefully; a hand lens is a valuable aid for studying skin lesions. Determine the nature of any secondary or special lesions.
- **Differential diagnosis.** Formulate a differential diagnosis.
- **Tests.** Obtain a biopsy and perform laboratory tests, such as skin biopsy, potassium hydroxide examination for fungi, skin scrapings for scabies, Gram stain, fungal and bacterial cultures, cytology (Tzanck test), Wood's light examination, patch tests, dark field examination, and blood tests.

### Examination technique

**DISTRIBUTION.** The skin should be examined methodically. An eye scan over wide areas is inefficient. It is most productive to mentally divide the skin surface into several sections and carefully study each section. For example, when studying the face, examine the area around each eye, the nose, the mouth, the cheeks, and the temples.

During an examination, patients may show small areas of their skin, tell the doctor that the rest of the eruption looks the same, and expect an immediate diagnosis. The rest of the eruption may or may not look the same. Patients with rashes should receive a complete skin examination to determine the distribution and confirm the diagnosis. Decisions about quantities of medication to dispense require visualization of the big picture. Many dermatologists now advocate a complete skin examination for all of their patients. Because of an awareness that some patients are uncomfortable undressing completely when they have a specific request such as treatment of a plantar wart, other dermatologists advocate a case-by-case approach.

**PRIMARY LESIONS AND SURFACE CHARACTERISTICS.** Lesions should be examined carefully. Standing back and viewing a disease process provides valuable information about the distribution. Close examination with a magnifying device provides much more information. Often the primary lesion is identified and the diagnosis is confirmed at this step. The physician should learn the surface characteristics of all the common entities and gain experience by examining known entities. A flesh-colored papule might be a wart, sebaceous hyperplasia, or a basal cell carcinoma. The surface characteristics of many lesions are illustrated throughout this book.

### Approach to treatment

Most skin diseases can be managed successfully with the numerous agents and techniques available. If a diagnosis has not been established, medications should not be prescribed; this applies particularly to prescription of topical steroids. Some physicians are tempted to experiment with various medications and, if the treatment fails, to refer the patient to a specialist. This is not a logical or efficient way to practice medicine.

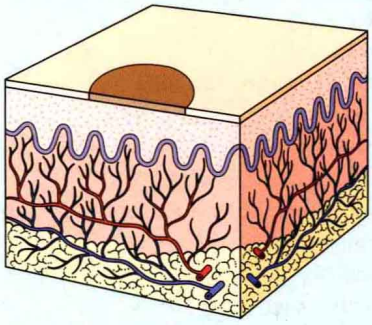
### Primary lesions

Most skin diseases begin with a basic lesion that is referred to as a primary lesion. Identification of the primary lesion is the key to accurate interpretation and description of cutaneous disease. Its presence provides the initial orientation and allows the formulation of a differential diagnosis. Definitions of the primary lesions and their differential diagnoses are listed and illustrated on pp. 3 to 11.

### Secondary lesions

Secondary lesions develop during the evolutionary process of skin disease or are created by scratching or infection. They may be the only type of lesion present, in which case the primary disease process must be inferred. The differential diagnoses of secondary lesions are listed and illustrated on pp. 12 to 16.

## PRIMARY LESIONS—MACULES



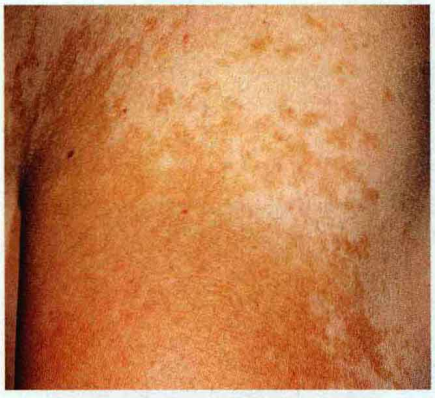
**Macule**
**A circumscribed, flat discoloration that may be brown, blue, red, or hypopigmented**

**Hypopigmented**
Idiopathic guttate hypomelanosis (p. 769)
Nevus anemicus (p. 770)
Piebaldism
Postinflammatory psoriasis
Radiation dermatitis
Tinea versicolor (p. 537)
Tuberous sclerosis (p. 987)
Vitiligo (p. 764)

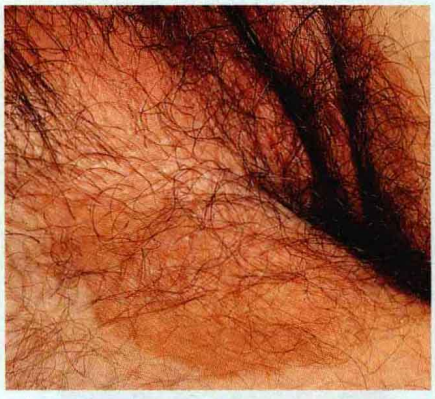
**Brown**
Becker's nevus (p. 854)
Café-au-lait spot (p. 983)
Erythrasma (p. 501)
Fixed drug eruption (p. 576)
Freckles (p. 771)
Junction nevus (p. 848)
Lentigo (p. 771)
Lentigo maligna (p. 868)
Melasma (p. 772)
Photoallergic drug eruption (p. 764)
Phototoxic drug eruption (p. 761)
Stasis dermatitis (p. 122)
Tinea nigra palmaris

**Blue**
Ink (tattoo)
Maculae ceruleae (lice)
Mongolian spot
Ochronosis

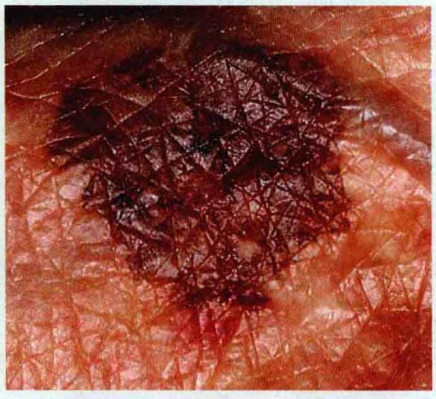
**Red**
Drug eruptions (p. 568)
Juvenile rheumatoid arthritis (Still's disease)
Rheumatic fever
Secondary syphilis (p. 400)
Viral exanthems (p. 558)



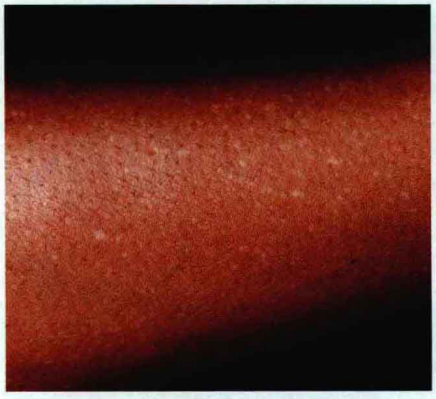
Becker's nevus



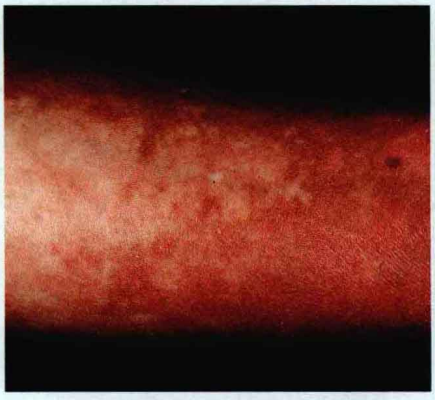
Erythrasma



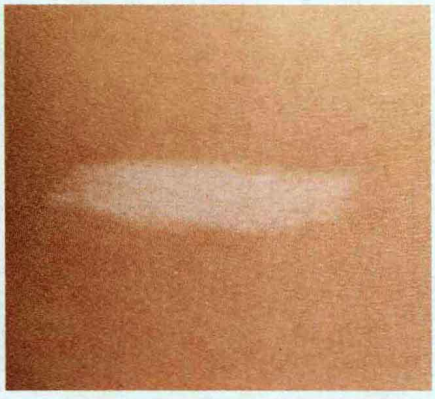
Lentigo



Idiopathic guttate hypomelanosis

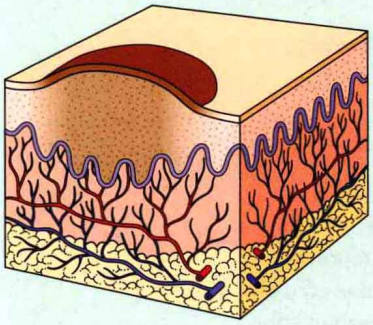


Phototoxic drug eruption

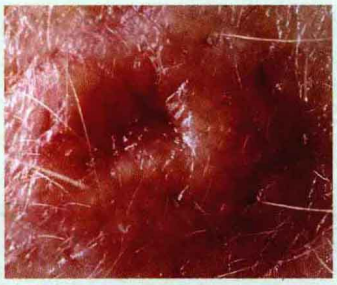


Tuberous sclerosis

## PRIMARY SKIN LESIONS—PAPULES



**Papule**
**An elevated solid lesion up to 0.5 cm in diameter; color varies; papules may become confluent and form plaques**



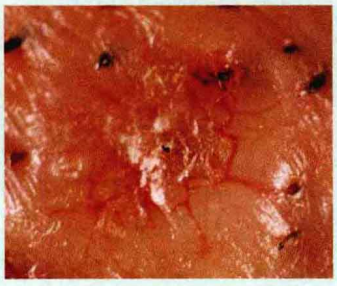
Sebaceous hyperplasia

**Flesh colored, yellow, or white**
Achrochordon (skin tag) (p. 785)
Adenoma sebaceum (p. 988)
Basal cell epithelioma (p. 804)
Closed comedone (acne) (p. 226)
Flat warts (p. 459)
Granuloma annulare (p. 976)
Lichen nitidus
Lichen sclerosus (p. 327)
Milia (p. 251)
Molluscum contagiosum (p. 465)
Nevi (dermal) (p. 848)
Neurofibroma (p. 984)
Pearly penile papules (p. 423)
Pseudoxanthoma elasticum
Senile sebaceous hyperplasia (p. 799)
Skin tags (achrochordon) (p. 784)
Syringoma (p. 800)

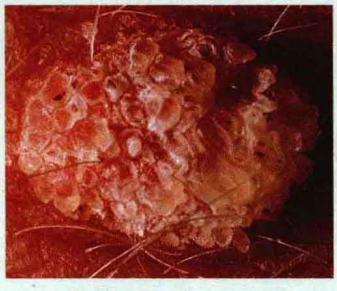
**Brown**
Dermatofibroma (p. 787)
Melanoma (p. 860)
Nevi (p. 847)
Seborrheic keratosis (p. 776)
Urticaria pigmentosa (p. 212)
Warts (pp. 419, 454)

**Red**
Acne (p. 219)
Atopic dermatitis (p. 157)
Cat-scratch disease (p. 614)
Cherry angioma (p. 904)
Cholinergic urticaria (p. 197)
Chondrodermatitis nodularis (p. 795)
Eczema (p. 91)
Folliculitis (p. 351)
Insect bites (p. 622)
Keratosis pilaris (p. 168)
Leukocytoclastic vasculitis (p. 727)
Miliaria (p. 263)
Polymorphous light eruption (p. 751)
Psoriasis (p. 264)
Pyogenic granuloma (p. 971)
Scabies (p. 583)
Urticaria (p. 183)

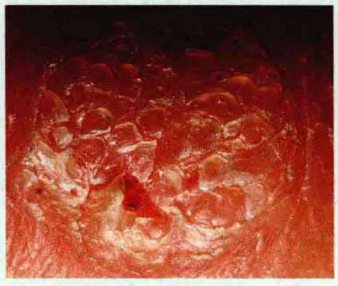
**Blue or violaceous**
Angiokeratoma (p. 904)
Blue nevus (p. 856)
Lichen planus (p. 320)
Lymphoma
Kaposi's sarcoma (p. 907)
Melanoma (p. 860)
Mycosis fungoides (p. 832)
Venous lake (p. 905)



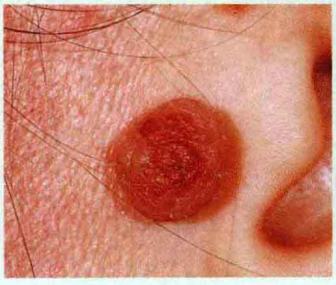
Basal cell epithelioma



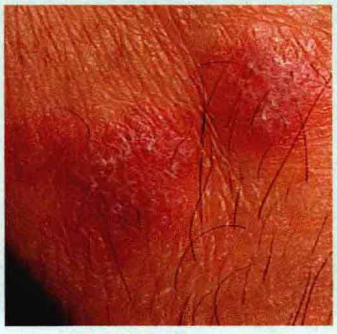
Wart (cylindrical projections)



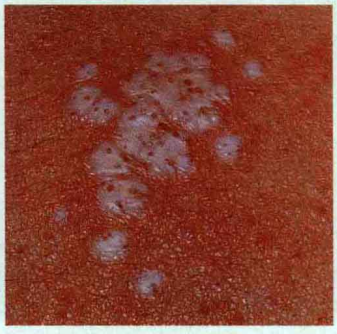
Wart (mosaic surface)



Nevi (dermal)



Lichen planus



Lichen sclerosus