



ETHNIC DERMATOLOGY

Principles and Practice

Edited by Ophelia E. Dadzie, Antoine Petit and Andrew F. Alexis

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Principles and Practice

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WILEY-BLACKWELL

A John Wiley & Sons, Ltd., Publication

This edition first published 2013, © 2013 by John Wiley & Sons, Ltd.

Blackwell Publishing was acquired by John Wiley & Sons in February 2007. Blackwell's publishing program has been merged with Wiley's global Scientific, Technical and Medical business to form Wiley-Blackwell.

Registered Office

John Wiley & Sons, Ltd, The Atrium, Southern Gate, Chichester, West Sussex,
PO19 8SQ, UK

Editorial Offices

9600 Garsington Road, Oxford, OX4 2DQ, UK
The Atrium, Southern Gate, Chichester, West Sussex, PO19 8SQ, UK
111 River Street, Hoboken, NJ 07030-5774, USA

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Library of Congress Cataloging-in-Publication Data

Ethnic dermatology : principles and practice / edited by Ophelia E. Dadzie, Antoine Petit, Andrew F. Alexis.
p. ; cm.

Includes bibliographical references and index.

ISBN 978-0-470-65857-4 (hardback : alk. paper) – ISBN 978-1-118-49778-4 (O-book) –

ISBN 978-1-118-49779-1 (Mobi) – ISBN 978-1-118-49783-8 (epub) – ISBN 978-1-118-49784-5 (ePDF/ebook)

I. Dadzie, Ophelia E. II. Petit, Antoine. III. Alexis, Andrew F.

[DNLM: 1. Skin Diseases–ethnology. 2. Ethnic Groups. 3. Skin Diseases–diagnosis.

4. Skin Diseases–therapy. WR 140]

616.5–dc23

2012029833

A catalogue record for this book is available from the British Library.

Wiley also publishes its books in a variety of electronic formats. Some content that appears in print may not be available in electronic books.

Cover image: © Sergej Khackimullin – Fotolia.com

Cover design by Andy Meaden

Set in 9/12pt Minion by SPi Publisher Services, Pondicherry, India

Printed and bound in Singapore by Markono Print Media Pte Ltd

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Principles and Practice



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Foreword

Ethnic Dermatology is being published during a renaissance in the study of human variation, when studies of the significance of variation in human skin have gained new importance and legitimacy. For most of the history of dermatology, human skin was "White," northern European skin. White skin was the normal human condition, from which all others deviated. Dermatology rose as an independent discipline during the late 18th and early 19th centuries, at the same time as naturalists and anthropologists were describing human races and philosophers were arguing for hierarchical ranking of those races. People with moderately or darkly pigmented skin were viewed by many at that time as lesser beings and the normal properties of their skin were seen as pathological by definition. The need for books like *Ethnic Dermatology* today arose from the misconceptions about the nature of normal variation in human skin that developed in those benighted times. As institutional and governmentally sanctioned racism declined worldwide in the late 20th century, knowledge and appreciation of the importance of variation in the properties of human skin increased. This promising trend was retarded, ironically, by the power of popular social movements which advocated equality among races and sexes in all matters and which viewed the study of human variation as inherently divisive and socially destructive. Dermatology, more than other medical specialties, is subject to the vicissitudes of social and political movements because it deals with the organ that is humankind's most visible interface with the physical and social environment.

Dermatologists working to describe and study "ethnic" skin or skin of color and its diseases face many practical problems, one of the most serious being an impoverished vocabulary with which to describe variation. The glossary of descriptive medical terms for skin pigmentation is bereft of accurate and precise words to describe hues, shades, and tints of skin color. "Darkly," "richly," and "moderately" pigmented are commonly used in medicine

and are socially acceptable, but are miserably imprecise and are less exact than the rich colloquialisms they seek to replace. The Fitzpatrick scale of skin phototypes, which has dominated dermatology for nearly a half century, is also deficient because it is based on subjective assessment of one phenotypic trait, tanning ability. While this classification method can broadly inform us of an individual's sun sensitivity and likelihood of developing skin cancer, tanning ability is not determined by a single gene or a single unique set of genes nor is it necessarily informative of other immunological or physiological properties of skin that are relevant to disease susceptibility. Genetic and genomic studies have revealed that pigmentation phenotypes have evolved multiple times as modern humans have dispersed out of and back into the tropics. We now know that lightly pigmented ("White") skin seen in natives of Berlin and Beijing, for example, was the product of two independent genetic mutation events leading to the evolution of two depigmented human lineages that came to inhabit northwestern Europe and northeastern Asia. The classification of these two individuals as Fitzpatrick type II is of limited usefulness. Similarly, natives of Brasilia, Cape Town, and Naples who are classified as Fitzpatrick type IV are likely to have three different sets of pigmentation gene polymorphisms contributing to their enhanced tanning abilities. The point here is that we are in need of new ways of defining and describing the normal range of variation present in healthy human skin because the current vocabulary and scales for describing variation are inadequate and outdated. The genetic bases for the complex mixtures of melanins and keratins found in skin, and for the interaction of these with various immunoglobulin isotypes, are now beginning to be understood and their significance for health and disease appreciated. As this body of information grows, and our understanding of individual responses to environmental insults develops apace, dermatology will truly come of age.

The synthesis of knowledge on skin and skin diseases presented in *Ethnic Dermatology* is inspiring and provides the foundation for a modern and comprehensive science of dermatology that is based on an inclusive concept of “normal human skin,” including its aging and scarring characteristics and susceptibility to disease. Specialists in ethnic dermatology will find this book to be an excellent guide, but also a call to action. This field requires much

more research and many more avid clinicians and scientists interested in carrying out that research. This book is your starting point.

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Preface

In the face of life's many challenges we have to ask ourselves why do we do what we do? This simple question is one we have had to reflect upon prior to and during the writing and editing of this textbook. For us the answer to this question is simple: a need to make a difference and/or impact in our community, combined with a genuine interest and passion for the subject matter.

Broadly speaking, mainstream dermatology in most western countries continues to have a eurocentric standard and viewpoint, despite an increasing interest worldwide in the issue of ethnic dermatology. This has primarily been driven by the changing demographics of most western countries, coupled with the emerging economies of many African and Asian countries. While several textbooks now exist on this topic, most originate from the USA, giving an American perspective to this issue.

The purpose of *Ethnic Dermatology: Principles and Practice* is to provide a comprehensive, yet practical

perspective of the subject matter. Both medical and cosmetic dermatology are extensively covered in this textbook. Ample use of good-quality clinical images supplements the text, which are all clinically relevant. Furthermore, there is an excellent foreword written by Professor Nina Jablonski discussing the issue of terminologies pertaining to ethnic dermatology.

This textbook will suit clinical dermatologists, primary care physicians, physicians from other specialties, and specialist nurses. It is our hope that all will find this book of direct relevance to their daily clinical practice. Long-term, we also hope that textbooks such as this will encourage acceptance and incorporation of ethnic dermatology into mainstream dermatology forums in many western countries.

Ophelia E. Dadzie
Antoine Petit
Andrew F. Alexis

List of Abbreviations

AD	atopic dermatitis	EASI	Eczema Area and Severity Index
AJCC	American Joint Committee on Cancer	EBV	Epstein-Barr virus
AKN	acne keloidalis nuchae	ECM	extracellular matrix
ALM	acral lentiginous melanoma	EGFR	epidermal growth factor receptor
AP	actinic prurigo	ENT	ear, nose, and throat
ARV	antiretroviral drugs	EV	epidermodysplasia verruciformis
ART	antiretroviral therapy	EVCH	eruptive vellus hair cysts
ATL	adult T-cell lymphoma	FACE	facial Afro-Caribbean childhood eruption
ATLL	adult T-cell lymphoma/leukemia	FAMMM	familial atypical multiple mole melanoma syndrome
AZT	zidovudine	FBGCR	foreign body giant cell reaction
BCC	basal cell carcinoma	FPHL	female pattern hair loss
BMZ	basement membrane zone	FD	folliculitis decalvans
CAD	chronic actinic dermatitis	FDE	fixed drug eruptions
CBPL	cutaneous B-cell pseudolymphoma	FFA	frontal fibrosing alopecia
CCCA	central centrifugal cicatricial alopecia	FHP	facial hyperpigmentation
CLE	chronic cutaneous lupus erythematosus	FKN	folliculitis keloidalis nuchae
CGPD	childhood granulomatous periorificial dermatitis	FSP/FST	Fitzpatrick skin phototype/type
CPK	creatine phosphokinase	FUE	follicular unit extraction
CRP	confluent and reticulate papillomatosis	FVC	forced vital capacity
cSLE	childhood-onset systemic lupus erythematosus	G6PD	glucose-6-phosphate dehydrogenase
CTCL	cutaneous T-cell lymphoma	GA	glycolic acid
CTGF	connective tissue growth factor	GRK	G-protein-coupled receptor kinase
CTPL	cutaneous T-cell pseudolymphoma	GVHD	graft-versus-host disease
DCS	dissecting cellulitis of the scalp	GWAS	genome-wide association studies
DEJ	dermo-epidermal junction	HAART	highly active antiretroviral therapy
DFSP	dermatofibrosarcoma protuberans	HHV	human herpes virus
DLCO	diffusing capacity of the lung for carbon monoxide	HIFU	high-intensity focused ultrasound
DMSO	dimethylsulfoxide	HIV	human immunodeficiency virus
DOC	disorders of cornification	HLA	human leukocyte antigen
DPN	dermatosis papulosa nigra	HPV	human papilloma virus
DRESS	drug reactions (or rashes) with eosinophilia and systemic symptoms	HS	hidradenitis suppurativa
DRI	disseminate and recurrent infundibulofolliculitis	HSE	hydrocortisone, silicon and vitamin E lotion
		HSV	herpes simplex virus
		HT	hair transplantation
		HTLV	human T-lymphotropic virus
		HTS	hypertrophic scars

IGA	Investigator Global Assessment	PDGFR	platelet-derived growth factor receptor
IGH	idiopathic guttate hypomelanosis	PDIR	premature desquamation of the inner root sheath
IH	infantile hemangioma	PDL	pulsed dye laser
IK	inverse keratoderma	PET	positron emission tomography
IP	inflammatory pigmentations	PFB	pseudofolliculitis barbae
IPL	intense pulsed light	PHACES	Posterior fossa abnormalities, Hemangioma-large, segmental, Arterial lesions, Cardiac/coarctation findings, Eye abnormalities, and Sternal abnormalities
IRS	immune reconstitution syndrome	PIH	postinflammatory hyperpigmentation
ISD	infantile seborrheic dermatitis	PMLE	polymorphous light eruption
IUS	intense ultrasound	PPARγ	peroxisome proliferator-activated receptor gamma
IVIG	intravenous immunoglobulin	PPD	paraphenylenediamine
KP	keratosis pilaris	PPE	papular pruritic eruption
KPC	keratosis punctata of the palmar creases	PPK	palmoplantar keratoderma
KS	Kaposi's sarcoma; keloid scars	PR	pityriasis rosea
LE	lupus erythematosus	PUVA	psoralen plus ultraviolet light-A
LED	light-emitting diode	PUVAsol	psoralen plus sunlight
LN	lichen nitidus	PV	pityriasis versicolor
LP	lichen planus	RegisCAR	Registry of severe cutaneous adverse reactions to drugs and collection of biological samples
LPP	lichen planopilaris	RF	radiofrequency
MAI	<i>Mycobacterium avium-intracellulare</i>	RLX	relaxin
MAP	magnesium-L-ascorbyl-2 phosphate	RSTL	relaxed skin-tension line
MASI	Melasma Area and Severity Index	SA	<i>Staphylococcus aureus</i>
MB	multibacillary	SCC	squamous cell carcinoma
MED	minimal erythema dose	SCLE	subacute cutaneous lupus erythematosus
MF	mycosis fungoides	SCORAD	Scoring Atopic Dermatitis Scale
MFU	multifollicular unit	SD	seborrheic dermatitis
MK	marginal keratoderma	SJS	Stevens-Johnson's syndrome
MKTP	melanocytes-keratinocytes transplantation	SLE	systemic lupus erythematosus
MPHL	male pattern hair loss	SLNB	sentinel lymph node biopsy
MSH	melanocyte stimulating hormone	SM	subungual melanoma
MTB	<i>Mycobacterium tuberculosis</i>	SMAS	superficial musculoaponeurotic system
MTZ	microthermal zone	SNP	single-nucleotide polymorphism
NB-UVB	narrowband-UVB	SPF	sun protection factor
NLE	neonatal lupus erythematosus	SS	Sézary's syndrome
NNRTI	non-nucleoside reverse transcriptase inhibitor	SU	solar urticaria
NRTI	nucleoside reverse transcriptase inhibitor	SV	segmental vitiligo
NSV	nonsegmental vitiligo	TA	traction alopecia
OTC	over-the-counter	TAC	triamcinolone acetate
PA	pityriasis alba	TC	tinea capitis
PAR-2	protease-activated receptor 2	TCA	trichloroacetic acid
PASI	psoriasis area and severity index	TEN	toxic epidermal necrolysis
PB	paucibacillary		
PCA	primary cutaneous amyloidosis; principal component analysis		
PCBCL	primary cutaneous B-cell lymphoma		
PCFCL	primary cutaneous follicle centre lymphoma		
PCMZL	primary cutaneous marginal zone lymphoma		
PDGF	platelet-derived growth factor		

TEWL	transepidermal water loss	UVA	ultraviolet light-A
TIS	Three-Item Severity Scale	UVB	ultraviolet light-B
TGF	transforming growth factor	UVR	ultraviolet radiation
TLR	toll-like receptors	VDRL	Venereal Disease Reference Laboratory
TNM	tumor-node-metastasis	VETF	Vitiligo European Task Force
TNPM	transient neonatal pustular melanosis	VZV	varicella zoster virus
TPMT	thiopurine S-methyltransferase		

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Defining Ethnic Dermatology: Challenges, Limitations, and Merits

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Ethnic dermatology is a term used to describe an aspect of dermatology pertaining to individuals of diverse racial and ethnic backgrounds, who have richly pigmented skin and who share broadly similar cutaneous characteristics, notably the risk of scarring and dyspigmentation in response to cutaneous trauma. The term is analogous to skin of color, which is commonly used in North America. Defining the ethnic dermatology/skin of color cohort is challenging. However, broadly speaking and in this textbook, this cohort equates to individuals with Fitzpatrick skin phototypes (FSP) IV–VI and/or those of African, Asian, Middle Eastern, and/or Hispanic ancestry [1–2].

Unfortunately the use of terminologies such as ethnic dermatology and/or skin of color is not without its critics [3–4]. This is because of the problems and limitations of defining individuals by race, ethnicity, and/or skin pigmentation (an inherent problem in any scientific endeavor, which Richard Dawkins refers to as “the tyranny of the discontinuous mind”) [5]. Essentially humans do not fit into neat racial or ethnic categories, but represent a continuum. Thus, at what point does someone become “black” or “white”? Since evidence indicates that modern humans originate from Africa [6], are we not all of African ancestry? Furthermore, in advocating separating and defining specific groups based on racial, ethnic and/or skin pigmentation, are we contributing to a divisive society? After all, at a genetic level, humans share more similarities than differences [6]. In addition, the use of FSP has specific limitations when applied to pigmented skin (see Box 1.1 for discussion on this issue).

There is also a risk that terms such as ethnic dermatology will justify studies that use skin color and/or ethnicity to validate a biological construction of race that is actually rooted in socio-historical processes [7], e.g., “scientific studies” that supported the notion that people of African race are less prone to contact sensitization and hence better able to handle certain noxious substances [8].

All the above represent challenging questions and difficulties that we have had to navigate before embarking on this ethnic dermatology/skin of color “journey.” In response to these challenges we first have to consider the problems faced by practicing dermatologists.

First, epidemiological studies and data obtained from hospital and/or private practices indicate that there are differences in the observed dermatoses in different ethnic/racial groups [9–10]. For instance, hair and scalp disorders are one of the major concerns in individuals with Afro-textured hair. Cultural factors also impact the range of dermatoses observed (e.g., the misuse of skin lightening agents in certain racial and/or ethnic groups and the occurrence of prayer nodules in Muslims [Fig. 1.1]). Thus, as practicing dermatologists, we need to be aware of these observed differences and the implications for managing our patients. Second, studies have highlighted deficiencies in dermatological educational resources and the training of dermatologists with regard to the field of skin of color/ethnic dermatology [11–12]. Finally, the demographics of most western countries is changing. This means that

Box 1.1 Fitzpatrick skin phototype

The Fitzpatrick skin phototype (FSP) classification system (see also Box 1.2) [15] is used routinely by dermatologists to categorize and classify different skin types. It was initially developed by Thomas Fitzpatrick in 1975 to classify persons with "white skin" in order to select the correct initial dose of UVA for an upcoming large-scale oral PUVA photo-chemotherapy trial in the US in the mid-1970s. It was based primarily on a brief personal interview to evaluate individuals' history of sunburn and tanning and not on phenotype (hair and eye color) [15]. The initial classification system placed all non-white/pigmented skin in one category, skin type V. Over time this classification system evolved and skin type V was divided into three sub-groups (IV, V, and VI) to encompass the diversity observed in those with pigmented skin. Furthermore, over time phenotype has had a greater impact on this classification system. It is the author's opinion that often phenotype is the prime method used to categorize skin types, instead of proper evaluation of ultraviolet radiation response. This is one of the main limitations of FSP as a method of classifying individuals with pigmented skin. Furthermore, studies have shown a lack of a direct correlation between constitutive skin color and response to ultraviolet radiation. For instance, individuals originating from various Asian countries encompass a diverse group and skin color does not always predict their skin phototypes [16,17]. Another limitation of FSP is that it is based on self-reported erythema sensitivity and tanning ability, and hence it is not quantitative or reliable. Furthermore, it cannot be applied for *in vitro* conditions. For this reason, new classification systems have been developed, such as the colorimetric classification of constitutive pigmentation by individual typology angle [18,19] and the Roberts skin classification system [20] (Box 1.2). The former is of relevance in the research setting, while the latter is of practical relevance in predicting response to trauma, prior to procedural dermatology. There are four elements to the Roberts skin classification system, which should be evaluated based on a thorough history, examination, and evaluation of test site reaction.

most practicing dermatologists need to be competent in the diagnosis and management of cutaneous disorders in people of diverse racial and ethnic backgrounds. For example, in 1990 the United States census revealed that 76% of the population was white; 12% black; 9% Hispanic; 2.8% Asian/Pacific Islander; and 0.7% American Indian, Eskimo, and Aleut [6]. Projections for the US population in 2050 forecast a substantial decline in the white population to approximately 53%, with an increase in other racial groups (black 14%; Hispanic 25%; Asian 8%; American Indian, Eskimo, and Aleut

Box 1.2 Roberts skin type classification system

Fitzpatrick (FZ) scale: measures skin phototype

- FZ₁ White skin. Always burns, never tans
- FZ₂ White skin. Always burns, minimal tan
- FZ₃ White skin. Burns minimally, tans moderately and gradually
- FZ₄ Light brown skin. Burns minimally, tans well
- FZ₅ Brown skin. Rarely burns, tans deeply
- FZ₆ Dark brown/black skin. Never burns, tans deeply

Roberts hyperpigmentation (H) scale: propensity for pigmentation

- H₀ Hypopigmentation
- H₁ Minimal and transient (<1 year) hyperpigmentation
- H₂ Minimal and permanent (>1 year) hyperpigmentation
- H₃ Moderate and transient (<1 year) hyperpigmentation
- H₄ Moderate and permanent (>1 year) hyperpigmentation
- H₅ Severe and transient (<1 year) hyperpigmentation
- H₆ Severe and permanent (>1 year) hyperpigmentation

Glogau (G) scale: describes photoaging

- G₁ No wrinkles, early photoaging
- G₂ Wrinkles in motion, early to moderate photoaging
- G₃ Wrinkles at rest, advanced photoaging
- G₄ Only wrinkles, severe photoaging

Roberts scarring (S) scale: describes scar morphology

- S₀ Atrophy
- S₁ None
- S₂ Macule
- S₃ Plaque within scar boundaries
- S₄ Keloid
- S₅ Keloidal nodule

approaching 1%) [6]. In the United Kingdom, the 2001 census demonstrated that ethnic minorities made up 7.9% of the population, an increase of 53% compared to the previous 1991 census [13].

Based on the above and despite the valid limitations and difficulties in defining ethnic dermatology, the use of this term is helpful, given that it enables interested parties (dermatologists, other physicians, nurses, scientists, and patients) to come together to help advance this aspect of dermatology [2]. In time it is likely that advances in genomics will increase our understanding of the role of genetic variation among human populations, thereby influencing our use of terminologies such as ethnic dermatology and skin of color [14].



(A)



(B)



(C)

Figure 1.1 (A,B) A prayer nodule (talar callosity) located on the dorsal aspects of the left foot associated with the specific prayer stance undertaken by this devout Muslim (C).

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