Review Article

Skin of Color – An Enigma: A Systematic Review

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Abstract

The color of human skin varies according to race, ethnicity, and geographic location, which leads to differing appearances of the same cutaneous condition. The nonwhite population is projected to increase worldwide in the coming decades owing to globalization and changing demographics. Thus, this review aims to focus on the varying nature of cutaneous conditions in this population, which differ from traditional descriptions in textbooks. A thorough search of PubMed, MEDLINE, Cochrane, and Google Scholar databases was done for relevant articles focusing on appearances of various dermatoses in skin of color. Erythematous diseases such as psoriasis, pityriasis rosea, and atopic dermatitis presented with inconspicuous/less conspicuous erythema in individuals with colored skin. Postinflammatory pigmentary changes were frequent in individuals with Fitzpatrick Grading III to VI and in the darker phenotypes, the hyperpigmentation may be difficult to distinguish from normal skin color. Acne hyperpigmented macules are encountered as primary lesions in colored skin, causing a considerable amount of apprehension in affected individuals. Hypopigmented disorders such as arsenicosis, macular postkala-azar dermal leishmaniasis, and dhoti or saree-induced depigmentation were particularly observed in this population. A focused review addressing the visual aspects, especially the color of skin diseases in individuals with Fitzpatrick Grading III to VI is the need of the hour to sensitize dermatologists regarding the specific dermatoses and reaction patterns occurring in this population.

Keywords: Asian, hyperpigmentation, hypopigmentation, Indian, postinflammatory hyperpigmentation, skin of color

Introduction

Colors have fascinated human beings since time immemorial. Hence, it is only natural to delve into the various shades and hues that human skin present with. The color of human skin can be attributed to the interaction of visible light with skin components such as melanin and hemoglobin in dermis and epidermis and to some extent carotene and bilirubin. The dispersion of melanin in varying proportions in humans settling in different geographic locales gave rise to such differences in skin pigmentation. In 1975, Fitzpatrick classified human skin type based on their ability to react in response to sun exposure, initially into 4 types. Later Grade IV was expanded to Grades IV, V, and VI. In Western white nomenclature this latter group has been termed as having skin of color. According to racial differences and ethnicity, individuals having African American, African, Asian, Hispanic, Pacific Islander descent, and Native American descent have been considered to have skin of color.[1] Skin is a mirror for both internal and external insults to the body, with myriads of presentation visible to us in the form of changes in color and texture.

Study Rationale

For many years, dermatology training and textbooks had concentrated on dermatoses occurring in individuals with lighter skin color. However, with globalization and changing demographics, nonwhite individuals are projected to comprise more than half of the population worldwide. There is an unmet need to focus on the appearance and attributes of dermatoses occurring in nonfair-skinned individuals. There is dearth of data in our country as well as other Asian and African countries focussing solely in color of diseased skin in dark-skinned

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individuals. Thus we aimed to collate all available data pertaining to the appearance of diseased skin in nonwhite population and fill up the void in our existing knowledge on the appearance of cutaneous conditions in skin of color.

Objectives

a. Primary objective: To compare the description of various cutaneous diseases in colored skin with that mentioned in textbooks
b. Secondary objective: To note the dermoscopic findings in such individuals.

Hypothesis

No difference exists between various skin diseases mentioned in standard dermatology textbooks and in individuals with color.

Methods

The protocol was devised in line with the preferred reporting items for systematic review and meta-analysis protocols statement. Diseases were chosen which were known to have distinct colored morphologics. Furthermore, tropical diseases endemic to the Indian subcontinent were selected, like leprosy, postkala-azar dermal leishmaniasis, arsenicosis.

Eligibility criteria

Inclusion criteria

Articles including reviews, observational studies, and longitudinal studies concentrating on appearance of skin color in various dermatoses were included.

Exclusion criteria

Articles reporting epidemiological and other clinical features and management of diseases in skin of color were excluded. Articles reporting no significant change in appearance in white and nonwhite skin were also excluded.

Information sources

PubMed, MEDLINE, Cochrane, Google Scholar databases and information pages of American Academy of Dermatology, Skin of Color Society as available on their websites, till November 30, 2020.

Search strategy

The search was conducted independently by 2 researchers who searched using the keywords and then filtered out only those relevant articles with full-text availability. Any discrepancy between the 2 researchers was resolved by a senior researcher, who was a part of the review. A thorough literature search prompted us to classify cutaneous diseases into erythematous, hyperpigmented, and hypopigmented diseases.

The Boolean operator AND was interposed between the key words "skin of color," "Indian," "Asian," "African" and different other diseases such as "acne," "acanthosis nigricans," "arsenicosis," "atopic dermatitis," "erythrasma," "hyperpigmentation," "hypopigmentation," "kwashiorkor," "leprosy," "melisma," "postinflammatory hyperpigmentation," "pityriasis alba," "pityriasis rosea," "pityriasis versicolor," "postinflammatory hyperpigmentation," "postinflammatory hypomelanosis," "post kala-azar dermal leishmaniasis," "psoriasis," "rosacea," "vitiligo" in these search platforms [Figure 1].

Data items

Only the difference in color of the diseased skin was noted.

Erythematous Cutaneous Diseases

Erythema is the most common change in skin color which can be readily understood on skin with less pigmentation. However, in darker skin types, this redness is perceived as a rather dusky violaceous hue.[2] This can be comprehended in the urticarial plaques of bullous pemphigoid, erythroderma, pityriasis rubra pilaris or even in extensive dermatophytosis. The enigma surrounding skin of color can be appreciated in the following cutaneous diseases, purportedly manifesting erythema.

Acne

Available literature projects acne vulgaris as a common infliction in skin of color. While there is no difficulty in recognizing the comedonal, papulopustular, or nodulocystic lesions, caution needs to be exercised while treating such patients as there is a higher propensity to develop postacne hyperpigmentation and keloidal scarring. In a survey conducted at the Skin of Color Centre in New York City, acne hyperpigmented macules were prominent in majority of African-Americans, Asians, and Hispanics and were of primary concern in many of them.[3] They primarily present like postinflammatory pigmented macules, with evidence of inflammation on histopathology and can persist for more than 4 months. In India, over 70% young adults with/with a history of acne vulgaris presented with postacne pigmentation, with recurring episodes inducing more intense and long-lasting pigmentation[4] [Figure 2a].

Atopic dermatitis

Atopic dermatitis is a global disease, with varying prevalence. In contrast to the easily visible erythema and flexural involvement in light-skinned individuals, skin of color individuals having atopic dermatitis have less conspicuous erythema, more scattered papular lesions, and extensor involvement, lichenification, and pigmentary

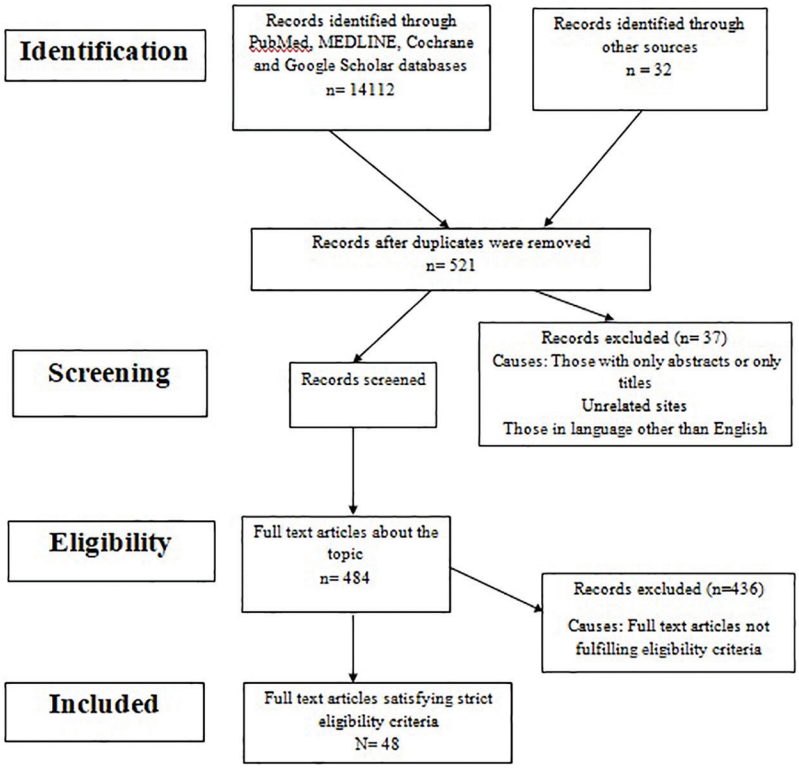

Figure 1: Flow diagram for the systematic review

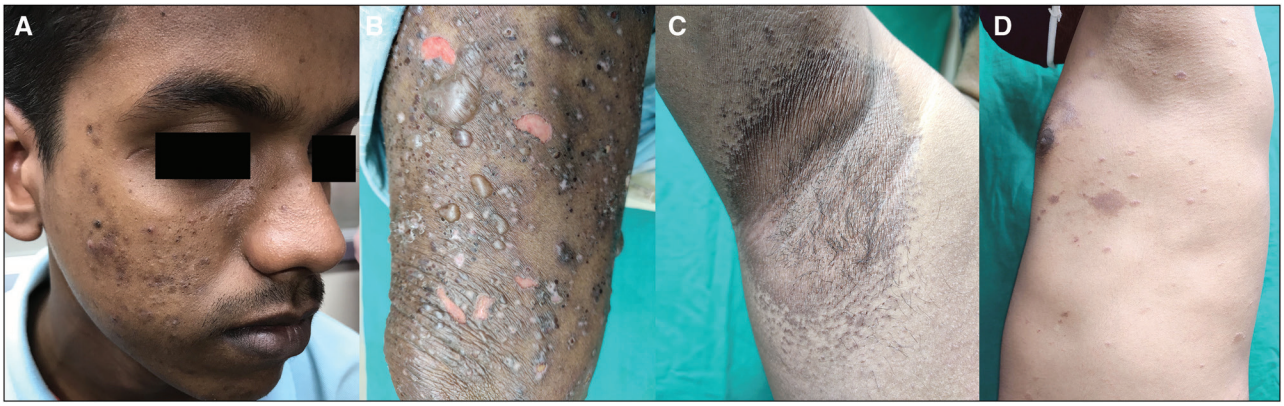

Figure 2: Erythematous diseases of skin: (a) Papular eruptions with hyperpigmented macules and postacne hyperpigmentation and scarring; (b) Tense bullae of bullous pemphigoid on a brownish base with accompanying erosions and prurigo-like hyperpigmented lesions; (c) Mild scaly brown patch of erythrasma in axilla (d) Multiple light brown papules of pityriasis rosea with a reddish-brown herald patch

changes.[5] In a London-based longitudinal study, Ben-Gashir *et al*. observed disease intensity to be more severe in dark-skinned children than their white counterparts, with erythema being a misleading factor in diagnosis.[6] Zhao *et al*. obtained excellent results using Eczema Area Severity Index (EASI) as an outcome measure in skin of color patients by adapting a grayscale instead of the erythema scale.[5]

Autoimmune bullous diseases

Tamazian and Simpson documented varied presentations of bullous diseases in individuals with skin of color. Bullous pemphigoid presented either with tense blisters without surrounding erythema or hyperpigmented patches with blisters in periphery. Hypopigmented and hyperpigmented plaques and patches with crusting, erosions, and blistering dominated the clinical picture in pemphigus foliaceus and vulgaris.[7] Histopathology and immunofluorescence were crucial in diagnosis in each case [Figure 2b].

Erythrasma

Erythrasma is a superficial bacterial infection presenting as well-defined red patches, which later become brown.

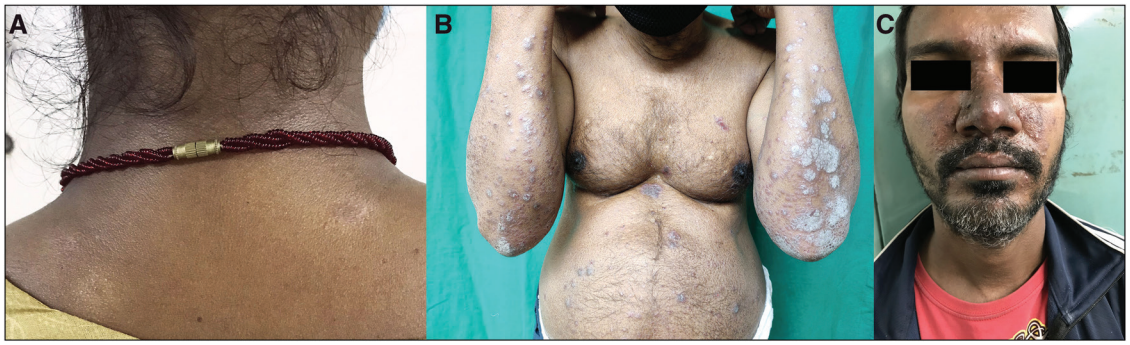

Figure 3: Erythematous diseases of skin (II): (a) Shiny hypopigmented papules of PMLE over nape of neck; (b) Thick scaly psoriatic lesions with minimal erythema, over extensors and trunk; (c) Papulopustular lesions of rosacea over central face

Badri *et al*. had described 16 cases of erythrasma from Tunisia with erythematous patches in 6 cases and yellowish patches in 10 cases.[8] In such cases, Wood's lamp and Gram stain facilitate confirmation of diagnosis [Figure 2c].

Pityriasis rosea

It has been described classically as a self-limiting disease of acute onset beginning with a well-defined erythematous plaque called herald patch followed by generalized eruption of "discrete oval lesions dull pink in color and covered by fine dry silvery-grey scales." Amer *et al*. described the condition in 50 black American children and found no discernible erythema. Rather profound scaling was visible. One-third of children had purely papular morphology and 4% had papulovesicular lesions and residual pigmentary changes were observed in 62% (31) of them.[9] In a clinicoepidemiological study from Varanasi, India, Sharma and Srivastava reported a cohort of 200 patients with pityriasis rosea, who had multiple erythematous to light brown lesions followed by pigmentary changes in nearly 50% (103) of them[10] [Figure 2d].

Polymorphic light eruption

Indian and Japanese literature have noted pinpoint variants of PMLE with 1–2 mm vesicular to erythematous papules. However, in darker Indian skin, it may appear as shiny hypopigmented papules over sun-exposed areas of elbow, nape of neck, and face.[1] A classical distribution and history aids in clinching the diagnosis [Figure 3a].

Psoriasis

It has been observed to be more in children with Malay and Indian descent than Africans. In contrast to the classical pictures, black Americans exhibit psoriatic plaques with less erythema but with increased thickness and scaling and more body surface area involvement.[11] The presence of hyperpigmented lesions[12] rather than the typical erythema may lead to inaccurate assessment of disease activity and PASI may be miscalculated. Dyspigmentation is a common occurrence post resolution [Figure 3b].

Rosacea

Classically rosacea has been characterized as a chronic entity with flushing and erythema as its prominent features. However, in European and North American countries, Asians and Africans often suffer a delay in diagnosis as the erythema and telangiectasia are barely discernible on darker pigmented skin. This may lead to improper treatment and increased risk of disfigurement like phymatous changes. The increasing incidence of rosacea in tropical countries may be related to risk factors such as hotter climate and prolonged sun exposure. In skin of color, there is female preponderance, increased frequency of papules and pustules, and associated demodiciosis.[13] Prior steroid use leading to rosacea-like features has consistently been reported from India[14] [Figure 3c].

Seborrheic dermatitis

Seborrheic dermatitis is typically described as a recurring dermatitis with erythematous patches and mild scaling affecting areas with prominent sebaceous glands. Hypopigmentation is a prominent feature of seborrheic dermatitis in skin of color. Arcuate and petaloid lesions involving the hairline are particularly observed in darker skin.[15]

Pigmentary Dermatoses

Pigmentary changes are found to be more frequent in skin of color and have a bearing on the psychosocial well-being of an individual. Asian skin including those from Far East, South-east Asia, and the Indian subcontinent tends to present with postinflammatory hyperpigmentation, melasma, lentigines, nevus of Ota, and Hori nevus.[16] In a cross-sectional study from Durban, South Africa, there was a 7.97% prevalence of pigmentary disorders of which vitiligo, postinflammatory hyperpigmentation, and melasma were found to be the most common.[17]

Hyperpigmented disorders

Acanthosis nigricans

Acanthosis nigricans has been typically described as symmetrical darkening having a velvety texture involving

the neck and other intertriginous areas, with underlying obesity and insulin resistance in majority and a higher prevalence in dark-skinned individuals.[18] Even though the clinical appearance remains similar in skin of color, the intensity of darkness varies and it tends to merge with constitutive skin color in those with darker skin. Unless there is a strong index of suspicion, the diagnosis may be missed [Figures 4a].

Clofazimine induced pigmentation

Clofazimine is an iminophenazine dye used in combination with dapsone and rifampicin as a component of multidrug therapy for leprosy. It is known to induce an orange-brown discoloration of skin within a month of initiating therapy. However, in the Indian skin, this color is barely appreciated and mostly appears as a reddish-brown hue. Chopra *et al*. observed a diffuse hyperpigmentation over the face and trunk, which on dermoscopy gave a honeycomb pattern of yellow and white globules in a dark backdrop.[19] An observational study from Brazil noted this as a dusky pigmentation[20] whereas a dark brown color was noted by Job and colleagues[21] [Figure 4b].

Lichen planus pigmentosus

Dr. Bhutani first reported this entity from India in 1974 and since then it has been reported in individuals with skin color Type IV–V from the Middle East, South America, and the Indian subcontinent. It is usually present as slate-grey to brownish-black pigmentation starting over the face as a consequence of photo-exposure.[22] Erythema dyschromicum perstans also has predilection for dark-skinned middle-aged individuals, in the photo-protected areas. Mustard oil has been postulated to induce similar pigmentary changes in Indians[23] [Figure 4c].

Melasma

Melasma is a common acquired hypermelanosis that presents as light to dark brown or grayish-brown pigmented macules or patches usually over face. In darker Indian skin types, these pigmented patches may not be evident unless closely inspected and may sometimes be indistinguishable from pigmentary demarcation lines. Wood's lamp and dermoscopy are useful tools to rule in a diagnosis of melasma in such cases[24] [Figure 5a].

Periorbital hyperpigmentation

Periorbital hypermelanosis is a common but ill-defined entity which presents with moderate to dark brown macules or patches in the periorbital skin. Despite a worldwide distribution, it is commoner in dark-skinned individuals, with the constitutive type being common in Indians and Malays[25] [Figure 5b].

Pigmented contact dermatitis/Riehl's melanosis

Pigmented contact dermatitis can often be found in the Indian setting induced by kumkum, bindi or sindoor. It may also present in the form of brown or slate gray pigmentation and lichen planus pigmentosus. Nath and Thappa noticed pigmented variant in 76.1% cases of kumkum-induced dermatitis.[26] Cultural and traditional practices are also responsible for pigmentary changes in the Middle-East, following the use of henna, kohl, threading, cupping, local remedies, and prayer marks.

Postinflammatory hyperpigmentation

Postinflammatory hyperpigmentation is a common pigmentary change usually observed in individuals with Fitzpatrick skin types III to VI as tan to black macules or patch, in the same distribution following a multitude of dermatoses like acne vulgaris, lichen planus, atopic dermatitis, psoriasis, and contact dermatitis, external stimuli (like photoexposure) and dermatologic procedures including lasers[27] [Figure 5c]. The ensuing pigmentation is more bothersome to the patient than the underlying inflammatory process and has a significant impact on the quality of life.

Figure 4: Disorders of hyperpigmentation: (a) Acanthosis nigricans over axilla, almost flushing with normal skin color; (b) Clofazimine-induced hyperpigmentation in a patient with Lepromatous leprosy; (c) Lichen planus pigmentosus affecting face and upper chest

Figure 5: Disorders of hyperpigmentation (II): (a) Dark brown patches and macules of melasma over nose, cheeks and part of forehead; (b) Dark brown periorbital hyperpigmentation; (c) Hyperpigmentation following burn injury over left side of forehead and temporal area

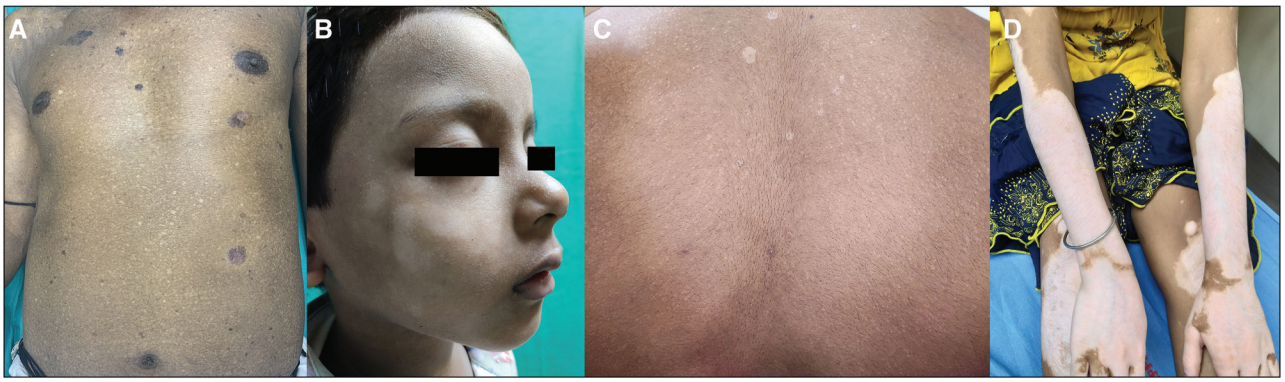

Figure 6: Disorders of hypopigmentation: (a) Hypopigmented macules of Arsenicosis in a dark background; (b) Mild scaly hypopigmented patches and macules of Pityriasis alba; (c) Hypopigmented perifollicular macules and patches of pityriasis versicolor; (d) Chalky white patches of vitiligo

Hypopigmented disorders

Arsenicosis

Arsenicosis is a distinct entity found in the lower Gangetic plains of India and Bangladesh. To the untrained eye, the discrete hypopigmented macules may be mistaken for idiopathic guttate hypomelanosis, especially in tanned individuals on a background of diffuse hyperpigmentation[28] [Figure 6a].

Bier spot (physiological anemic macule)

Bier spots are asymptomatic irregular white macules usually over the extremities and have mostly been reported in individuals of Chinese descent.[29]

Chronic sarcoidodsis

Young adults of Scandinavian or African descent have been reported to present with hypopigmented macules, patches, or plaques.[30] with hypopigmented alopecic patches over scalp being described as an unsual presentation of longstanding sarcoidosis.

Kwashiorkor

Undernutrition contributes to a huge disease burden in children of resource-poor countries in the form of kwashiorkor and protein-energy malnutrition. Skin manifestations of kwashiorkor have been described as blanchable erythematous, small dusky scattered petechiae-like spots, with depigmented alternate bands of pale and dark, dry, sparse, brittle, easily pluckable hair.[31]

Pityriasis alba

Pityriasis alba has been classically described as rounded oval or irregular hypopigmented patch which is usually not well marginated. Lesions are often slightly erythematous and have fine scaling. In a study by Vinod *et al*., Indian patients of pityriasis alba presented with hypopigmented macules and hypopigmented macules with central hyperpigmentation.[32] Hypopigmentation is most conspicuous in pigmented skin and lighter skin may become more evident after sun tanning[33] [Figure 6b].

Pityriasis versicolor

Pityriasis versicolor has been described as sharply demarcated macules which may be slightly erythematous but characterized by fine branny scaling. Ghosh *et al*. observed most lesions of Tinea versicolor to be hypopigmented, followed by mixed hypo and hyperpigmented lesions.[34] Wood's lamp examination revealed yellowish fluorescence. Jena and colleagues reported similar findings in children from Eastern India[35] [Figure 6c].

Vitiligo

Vitiligo is a discoloration of skin characterized by well-circumscribed ivory or chalky white macule which are flush to the skin surface. Patch looks startling especially in person with dark skin. The patch can be mistaken for dirty mark and considered a social deviance, In India, it is called *"safed dag"* or "*Kod"* and carries a social stigma[36] [Figure 6d].

Infective etiologies

Eruptive hypomelanosis

Within days to weeks after a prodromal coryza phase, symmetric discrete hypopoigmented macule (often with fine powdery scale) distributed over extensor surfaces, trunk and face are manifest.[37]

Indeterminate leprosy

A smooth well-defined hypopigmented macular patch on extremities or face is the presentation.[38]

Macular PKDL

It is found in East Africa or the Indian subcontinent. Prominent perioral hypopigmented macules, coalesce to form well-demarcated irregular patches are more common with Indian variant.[39] Hypopigmentation is so severe that it may mimic vitiligo. Lesion usually begins on face and then spread to other areas. Decrease in melanocytes is observed as well.

Neoplastic etiology

Mycoses fungoides

In Indian skin, it can present as hypopigmented or depigmented patches in children or young adult, with visible telangiectasia on surface.[40]

Postinflammatory hypomelanosis

Dhoti or saree depigmentation

Drawstring dermatitis is a frictional dermatitis due to a tightly worn string of a petticoat or salwar. It may result in lichenified grooves, postinflammatory depigmentation, and in some cases koebnerization of conditions like vitiligo.[41]

Radiation injury

Radiation therapy has been reported to induce depigmentation as well as vitiligo in Indian patients with breast cancer.[42]

Aging in skin of color

Signs of aging differ considerably in skin of color. Photoageing in Asian skin usually presents with mottled pigmentation and uneven skin tones and also solar lentigines and seborrheic keratoses.[43] These changes rather than fine lines and wrinkling should prompt clinicians to advise photoprotection and provide therapeutic options to treat aging skin [Figure 7].

The statement "looks can be deceptive" fits the current topic of review aptly. Our current knowledge regarding the visual aspects of various dermatoses is largely based on textbook descriptions based on Western literature. The appearance of color varies considerably in Indian skin and other individuals with skin of color [Tables 1-3]. The peculiarities observed in skin with increased melanin result are mostly pigmentary disturbances which are of immense concern in these groups of individuals. More than the underlying disorders, patients seek consultation for the resulting hyperpigmentation. India comprises the bulk of the global industry for skin-lightening agents and the rampant OTC availability and marketing of such agents containing steroids perpetuate the use of these agents in our population. Fitzpatrick classification of skin phototype is based on the response of skin to sun exposure, not to define race or ethnicity. Within the same race and ethnicity, the post-inflammatory pigmentary change may vary within individuals. Thus it is imperative to devise and validate new scales depending on the capacity of the skin to cause pigmentation following an inflammatory condition. The Taylor hyperpigmemtation scale may be useful in this regard to assess skin color and keep track of pigmentary changes with therapy.[49]

Conclusion

There is an increasing global population – people travel, visit and emigrate. Thus in this era of a world without borders, it is important to be accustomed to all skin types. An awareness of the exact morphology of the lesion, i.e., its texture, contours also the site should lead

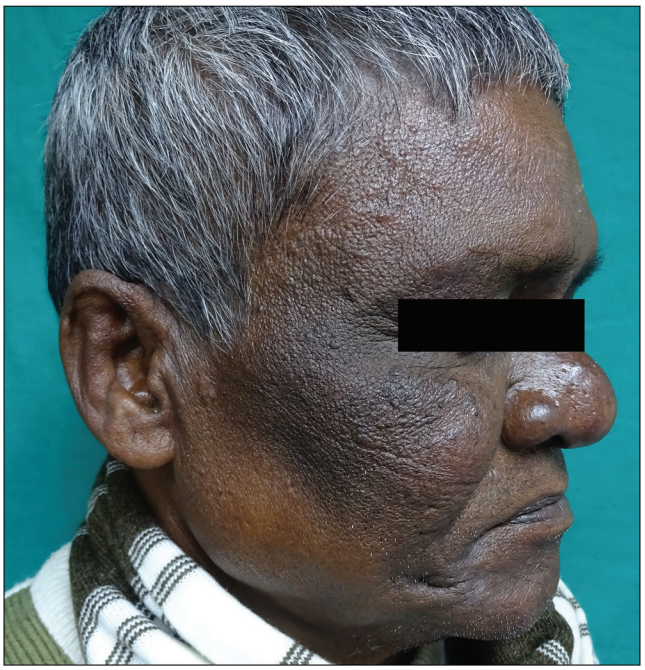

Figure 7: Ageing in Indian skin: solar elastosis, senile milia and seborrheic keratosis on a background of hyperpigmentation

Table 1: Comparison of classical findings with skin of color–erythematous diseases

Disease	Textbook description	Description in skin of color	Dermoscopic/wood's lamp finding
Acne	Erythematous papulopustular and nodular lesions	Hyperpigmented macule–may be primary or postacne hyperpigmentation	Round structured lesion with well-defined white center with thin brown border and erythematous periphery (inflammatory acne)
Atopic dermatitis	Easily visible erythema with flexural involvement	Erythema less conspicuous Lichenification and pigmentary changes are more pronounced	Yellow scales, dotted vessels in a patchy arrangement over a dull red background[44]
Erythrasma	Well defined red patches which later become brown	Dry brown slightly scaling patch	Coral red fluorescence
Pityriasis rosea	Salmon colored papular or macular lesions	Multiple erythematous light brown lesions	White scales at margins with patchy dotted vessels[44]
Psoriasis	Circumscribed, erythematous dry plaque, with silvery scaling	Less conspicuous erythema Hyperpigmented lesions common Postresolution dyspigmentation	Uniform dotted vessels in patchy distribution on pinkish backdrop and diffuse white scale[44]
Rosacea	Persistent erythema, telangiectasia, flushing	Erythema and telangiectasia barely discernible Dusky brown discoloration Yellowish-brown hard bumps around mouth, eyes or both	Arborizing vessels in a polygonal network[44]
Seborrheic dermatitis	Recurring dermatitis with erythematous patch		"Dotted vessels in a patchy distribution"[44]

Table 2: Comparison of classical findings with skin of color–hyperpigmented disorders

Disease	Textbook description	Description in skin of color	Dermoscopic/wood's lamp finding
Acanthosis nigricans			Hyperpigmented dots and sulcus cutis[45]
Clofazimine induced pigmentation	Orange-brown discoloration	Reddish-brown hue or dusky pigmentation	Honeycomb pattern of yellow and white globule in a dark background[19]
Lichen planus pigmentosus	Slate gray pigmentation	Slate gray to brown black pigmentation	Dot and/or globule in different patterns, with diffuse brownish pigmentation[45]
Melasma	Sharply demarcated brown patch typically on malar prominence	Light to dark brown or greyish brown pigmented macule	Diffuse light to dark brown dot granule, globule, arcuate and annular structure with sparing of perifollicular region[45]
Periorbital hyperpigmentation	Brown to dark color pigmentation in bilateral periorbital area	Moderate to dark brown macule and patches in the peri-orbital skin	Vascular – diffuse erythema Pigmented–multiple dot with different size and color or a diffuse network of pigment[46]
Post-inflammatory hyperpigmentation	Asymptomatic hyperpigmented macule and patch ranging from tan to dark brown (epidermal) to gray brown (dermal)		No consistent pattern, dermoscopy aids in determining epidermal or mixed type pigmentation[45]
Riehl's melanosis	Brownish gray facial pigmentation	Brown or slate graypigmentation	Diffuse pseudonetworks, gray dot/granule, liquefaction of basal cell incontinence of pigment[45]

a strong case for suspicion of a colored dermatological disorder though it may not be in alliance with the description in standard textbooks of the same skin disease. Bedside noninvasive tools like the Woods lamp and the dermoscope come in handy to strengthen the physician's suspicion in such cases and should be readily used to confirm a clinical suspicion.

Limitations

Full-text articles were not available for many suitable titles. Literature review was more focused on articles from the Indian subcontinent and other Asian countries. The current study could not focus on the appearances of autoimmune connective tissue diseases in skin of color due to paucity the literature. However, in the authors' experience, peculiar hyperpigmentation is particularly observed in patients with systemic sclerosis and systemic lupus erythematosus.

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Nil.

Conflicts of interest

The authors declare no conflict of interest.

Table 3: Comparison of classical findings with skin of color–hypopigmented disorders

Disease	Textbook description	Description in skin of color	Dermoscopic/wood's lamp finding
Leprosy	Hypopigmented or reddish spot in skin (rare)	Well-defined hypopigmented macule or patch	Loss of hair and skin pigment along with absence of white dot[45]
Mycosis fungoides	Erythematous or brownish scaly patch, may show slight atrophy	Hypopigmented to depigmented patch (children, young adults)	Dotted and linear component (spermatozoa like structure)[44]
Parapsoriasis en plaque	Oval to circular erythematous to hyperpigmentedmacule and patch	Smooth or oval round hypopigmentedmacule or patch	Busy glomerular or dotted vessels, regularly arranged in a reddish background
Pityriasis alba	Irregular hypopigmented patch, not well-marginated, often slightly erythematous	Asymptomatic superficial hypopigmented macule	Ill-demarcated area with diffuse fine white scales[47]
Pityriasis versicolor	Sharply demarcated macule, sometimes slightly erythematous untanned white skin	Hypopigmented macule	Nonuniform pigmentation (in stripes/diffuse), with fine scaling[46]
Vitiligo	Amelanotic/hypomelanotic macule	Ivory or chalky white macule, looks striking in person with dark skin	White structureless area (absence of pigment network) –appear to glow, and perilesional pigmentation[45]
Sarcoidosis	Red brown macule and papule	Hypopigmented macule patch plaque (10%) along with other type of lesion	Orange yellow translucent globular like or structureless area or in combination with linear vessels[48]

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