ORIGINAL RESEARCH PAPER

Dermatology

KEY WORDS: dermoscope , hyperpigmented and hypopigmented skin lesions , nevus

HYPERPIGMENTED AND HYPOPIGMENTED LESIONS – THROUGH THE EYES OF DERMOSCOPE.

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ABSTRACT

Dermoscope is a very useful and non-invasive technique for diagnosis of pigmentary skin lesions. It helps in diagnosis of skin lesions like seborrheic keratosis , spitz nevus which may clinically simulate melanoma. It involves a complementary examination of pigmented lesions on the skin, increasing the chance of an accurate diagnosis of cutaneous melanoma. It is a relatively simple technique that can be carried out in a doctor's office, clinic, or hospital, with the use of a portable device (manual dermatoscope).In this article we are presenting the dermoscopic features of common hyper and hypopigmented skin lesions .The goal is to introduce this subject to those not yet familiar with it, in order to instigate and encourage the training and practice of this technique of growing importance for everyday usage.

INTRODUCTION –

Disorders of pigmentation are quite common in brown skin. Almost 11% of patients attending the dermatology outpatient department in Western India present with pigmentary disorders[1]

Skin color affected by many agents as it is determined by several chromophores such as melanin, hemoglobin and carotenoids. Among these, melanin is the main one responsible for different skin colors.

Melanin is produced by special skin cells called melanocytes and packed in organelles called melanosomes. Sometimes, human skin may present a non-uniform melanin distribution in two different ways,leading to pigmentary disorders.

In the first, melanin concentration increases to levels above normal resulting in hypermelanosis. In the second, the melanin concentration decreases to levels below normal, resulting in hypomelanosis. melanogenesis is acomplex process when disturbed ,it results into various pigmentary disorders either hypo or hyper pigmentation.

Dermoscopy

Also known as surface microscopy or epiluminescent microscopy, dermoscopy is a technique that allows the visualization of pigmented cutaneous lesions in vivo right to the starting edge of the reticular dermis[2][3]. The usual magnification provided by the dermatoscope is 10-fold, but digital dermatoscopes already exist with magnifications of up to 70-fold, with maintenance of image definition[4]

Dermoscopy was introduced and is most commonly used as a tool to differentiate benign nevi from malignant melanoma in Caucasian skin. Malignant melanoma is uncommon in darker skin, with the exception of acral lentiginous melanoma. Over the years, dermoscopy has been used for the diagnosis of various other dermatoses like papulosquamous disorders, infections, and infestations.

It has also become an invaluable tool in the assessment of pigmentary disorders other than melanomas in brown skin. Dermoscopy can be used for diagnosis, prognosis, and treatment monitoring in pigmentary disorders.

Depending on the location of melanin the colour on dermoscopy are as follows -

Table no 1

	Colour	Impression
1	Black	Melanin in spinous layer.
2	Light or dark brown	Melanin in dermo-epidermal junction .
3	Greyish blue	Melanin in papillary dermis .
4	Blue	Melanin in reticular dermis .
5	Red	Hemoglobin inside the vessel

Herein we are reporting dermoscopic features of some common hyperpigmented and hypopigmented dermatological lesion.

AIM –

To study the dermoscopic features of some common hyperpigmented and hypopigmented lesions.

MATERIAL AND METHODOLOGY –

A total of 50 patients having hyperpigmented or hypopigmented lesions are included in our study after taking consent.

Dermoscope used is digital dermoscope .

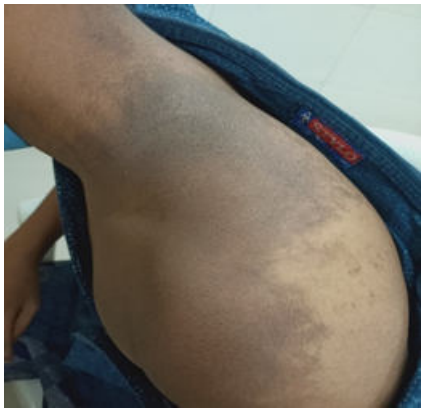
Images captured are at 10x magnification and in polarised mode .

Dermoscopic features of common Hyperpigmented lesions -

1)Becker's nevus

Becker's nevus is characterized by the presence of a light or dark brown macule with a sharply outlined but irregular border that resolves into small spots reminiscent of an archipelago. In male patients, the lesion shows increased hairiness after puberty. It tends to be arranged in a

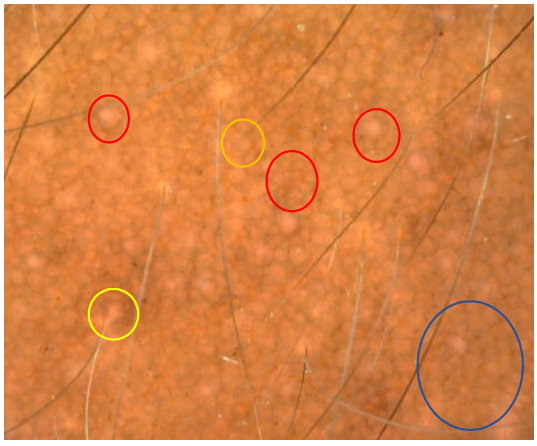
checkerboard pattern[5].



Clinical image

Dermoscopic features

1) target globules (blue circle)
2) Perifollicular hypopigmentation (yellow circles)
3) Focal hypopigmentation (red circles)

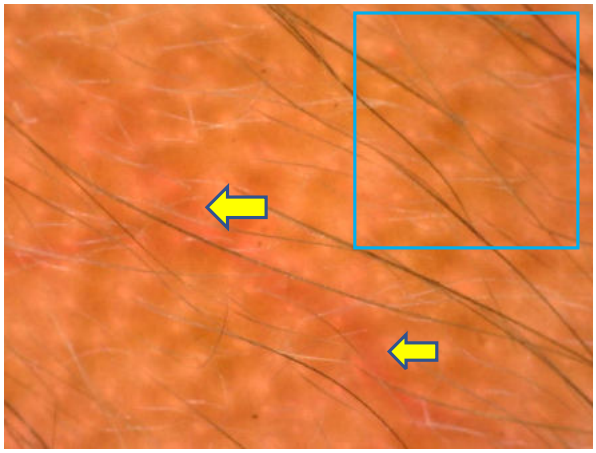


Exogenous Ochronosis

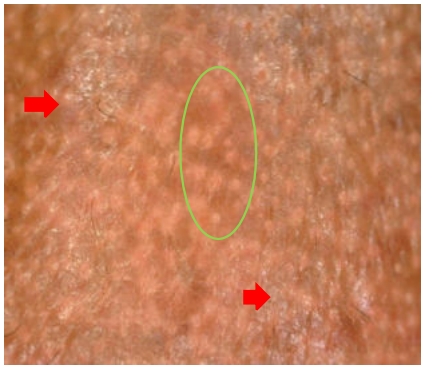
Exogenous ochronosis is a localized paradoxical hyperpigmentation of the skin due to prolonged use of bleaching agents containing hydroquinone and phenolic compounds.This entity was first described by Findlay *et al*.[6] The condition, unlike endogenous ochronosis, does not exhibit systemic involvement. The etiology of this hyperpigmentation remains unknown[7]

Dermoscopic features

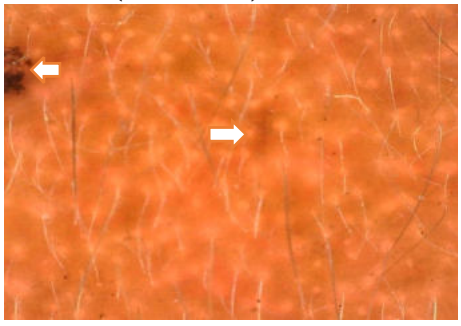
1) Linear Telangiectasia (yellow arrow)
2) Hypertrichosis (blue circle)



3) Minimal White scales (red arrows)
4) Areas of follicular obliteration (green circles)



5) curvillinear and worm like structures mainly in perifollicular area (white arrows)



Eryhthema dyschromicum perstans or Ashy dermatosis

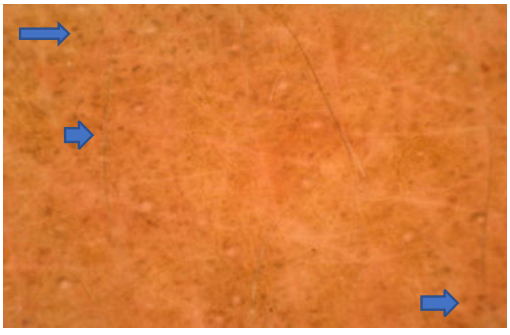
Ashy dermatosis (AD), also known as erythema dischromicum perstans (EDP), describes an acquired macular hyperpigmentation disorder with unknown etiology[8]

The entity was first described by Ramirez and the term "Ashy" is related to ashy grey color of the lesions.[9]

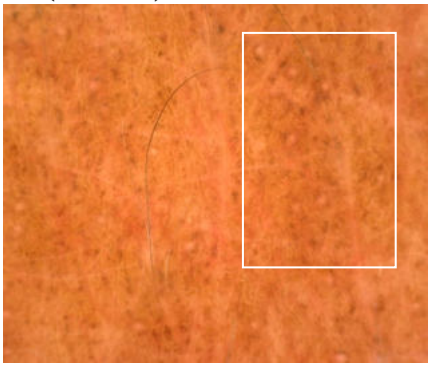
AD can involve in any site of the body.[10]

Dermoscopic features of ashy dermatosis -

1) greyish blue globules (blue arrows) arranged in irregular and bizzare pattern known as speckled pattern.



2) the globules are present over light brownish to bluish background.(white box).

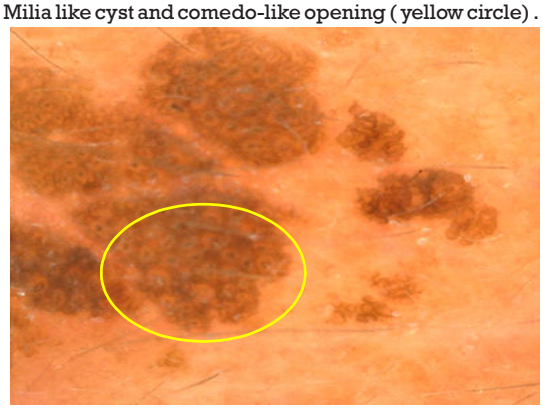


Sebhorrheic keratosis

Seborrheic keratosis is a common, multiple, benign skin tumor most commonly found on the torso and usually appears in the fourth and fifth decades of life. From 80% to 100% of people over the age of 50 years are affected. The lesions clinically appear as well-circumscribed gray-brown-to-black plaques with a "stuck-on" appearance. Later the plaques can become raised and may show a verrucous surface.

Dermoscopic features of sebboric keratosis

1) Milia like cyst and comedo-like opening (yellow circle) .



2) bluish grey globules (green arrows).

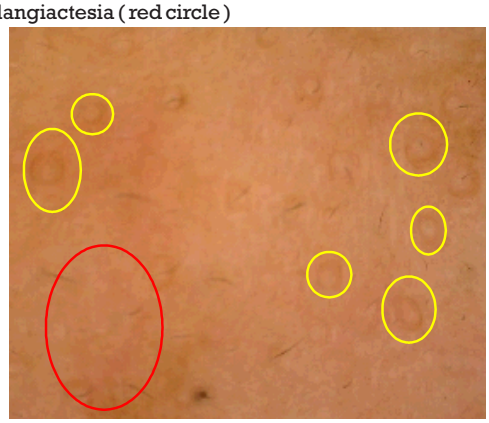
Melasma

Melasma is a common acquired hypermelanosis of the face, the treatment of which is challenging. The pathogenesis of melasma is complex and multifactorial. The classical triggering factors of melasma include positive family history, exposure to ultraviolet radiation, and hormonal factors. Apart from this, newer theories implicated in the pathogenesis of melasma include neural and vascular factors, impairment of barrier function, function of visible light, and other molecular pathways.

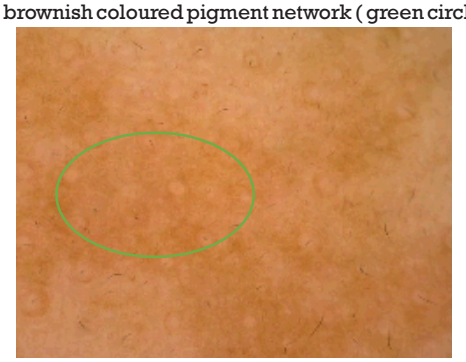
Epidermal melamsa – dermoscopic features

1) multiple annular structures sparing the follicular opening (yellows circles)

2)Telangiactesia (red circle)



1) thin brownish coloured pigment network (green circle)

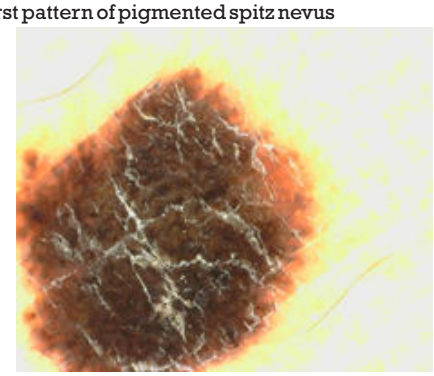


Spitz nevus

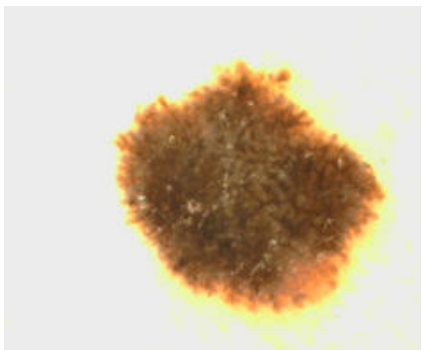
Spitz nevus, a type of acquired melanocytic nevus, is common among children but rarely observed in adults .

Dermoscopic features

Starburst pattern of pigmented spitz nevus



Hyperpigmented centre with symmetrical peripheral pseudopods



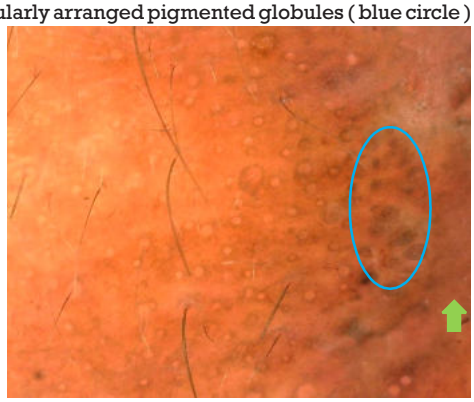
Frictional hypermelanosis

Frictional hypermelanosis is an acquired localized pigmentary disorder which develops at sites of repeated friction and commonly detected in darker skin types.

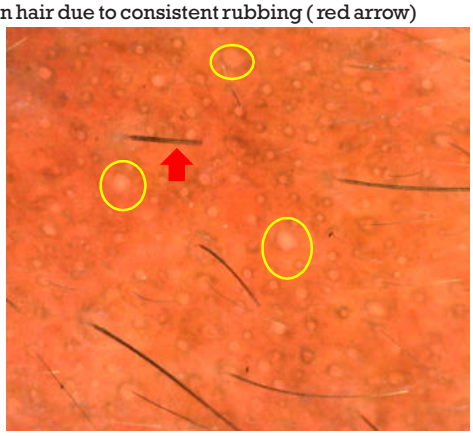
Dermoscopic features

Brownish structureless area (green arrow).

Irregularly arranged pigmented globules (blue circle)



Patulous follicular opening (yellow circles)
Broken hair due to consistent rubbing (red arrow)



Perifollicular scaling due to follicular hyperkeratosis (blue circles)
Hypopigmented halo with hyperpigmented rim (white circle)

Dermoscopic features of common hypopigmented lesions -

Hypopigmented tinea versicolor

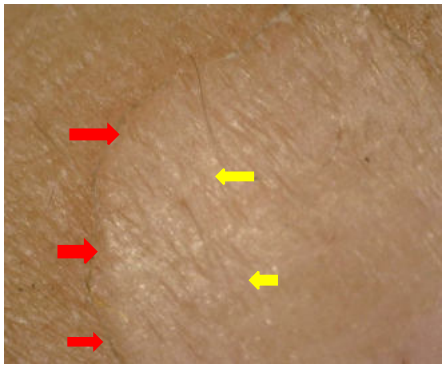
Pityriasis versicolor, also known as tinea versicolor is a superficial chronically recurring fungal infection of the stratum corneum, characterized by scaly, dyspigmented irregular macules most often occurring on the trunk and extremities[11]

Pityriasis versicolor is caused by Malassezia yeast, a dimorphic fungus. A mycelial phase of the organism predominates in lesions of pityriasis versicolor. According to the taxonomic revision carried out in 1996 on the genus Malassezia, it comprises seven different species[12]

Malassezia is a member of normal skin flora of human beings. Under certain conditions, the commensal yeast transforms into filamentous pathogenic forms[13]

Dermoscopic features

1) Reduced pigment network in the lesion (yellow arrow)
2) Scaling at the periphery of the lesions(red arrow)

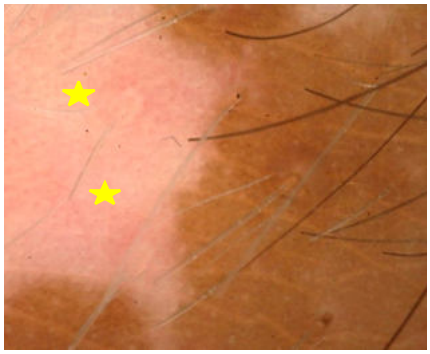


Vitiligo

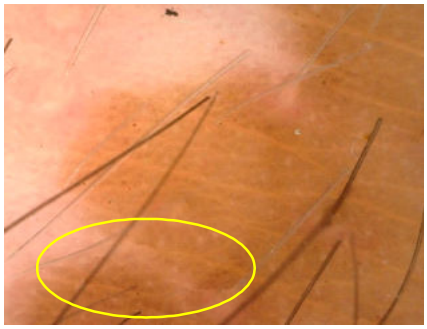
It is a common depigmenting skin disorder, characterized by acquired, idiopathic, progressive, circumscribed hypomelanosis of the skin and hair, with total absence of melanocytes microscopically.

Dermoscopic features-

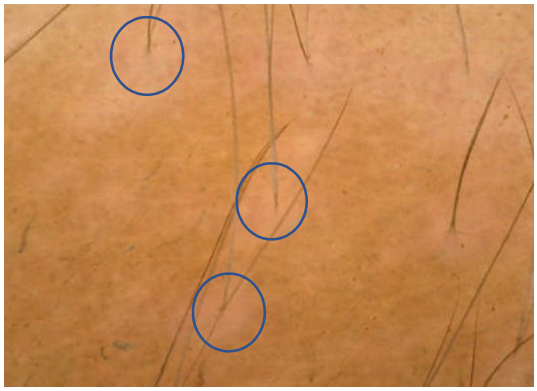
1) white structureless area(yellow stars)



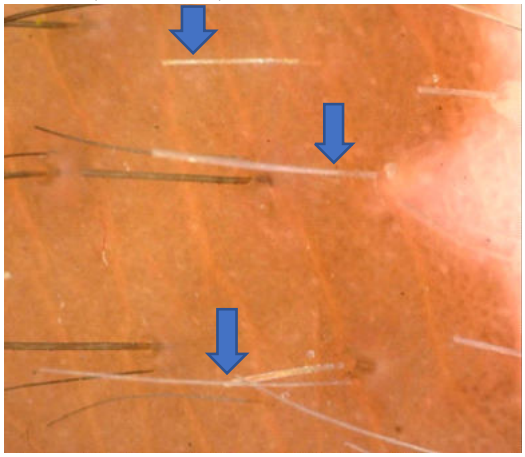
2) comet tail appearance (microscopic koebners phenomenon) (yellow circle), suggestive of active and progressive disease.



perifollicular depigmentation (blue circles)



leukotrichia (blue arrows)



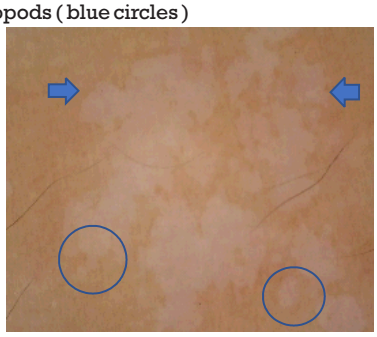
Nevus dipigmentosus

Nevus depigmentosus (ND) is defined as a congenital nonprogressive hypopigmented macule or patch that is stable in its relative size and distribution throughout life. Sporadic case reports have been documented, beginning with the first report in 1884 by Lesser.

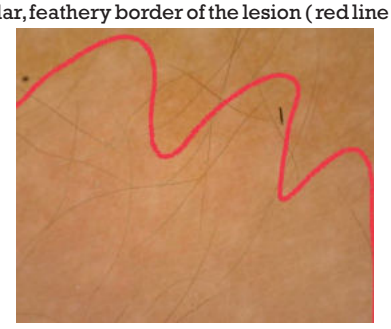
There has been no report on familial tendency, but its pathophysiology is probably associated with a developmental defect of the fetal melanocyte[14-16]

Dermoscopic features

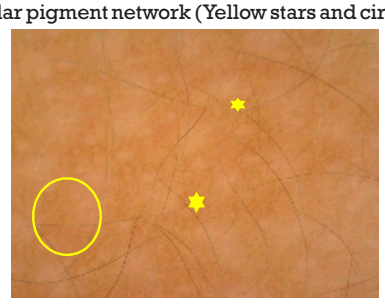
1) serrated border of the lesion (blue arrow)
2) pseudopods (blue circles)



3) irregular, feathery border of the lesion (red line)



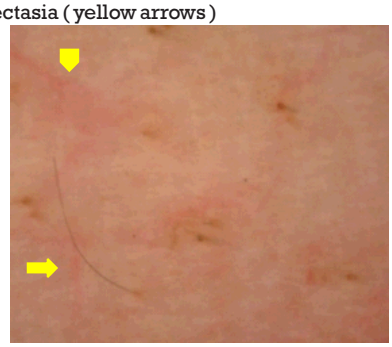
4) Reticular pigment network (Yellow stars and circles)



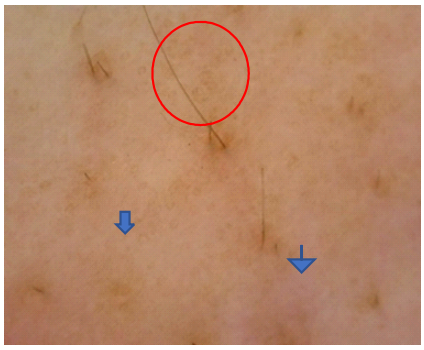
Steroid induced depigmentation

Hypopigmentation after topical use is quite common, but not noticed frequently in very light skinned individuals. People with Type IV to VI are particularly affected. Topical steroid probably interfere with the melanin synthesis by smaller melanocytes, causing patchy areas of hypopigmentation which are reversible after discontinuation of steroid.

Telangiectasia (yellow arrows)



Area of reduced pigmentation(bluearrow)
Area of normal pigmentation (red circle)



CONCLUSIONS

Dermoscopy is evolving as an important tool for diagnosis, prognosis, and monitoring of pigmentary disorders.

A handheld dermoscope is cheap, noninvasive, and does not require much infrastructure for its use; it can be connected to widely available smart phones, and images can be captured easily making it a popular instrument to be used in developing countries.

Dermoscopy helps is diagnosis of common hyper and hypopigmented lesions at the same time it enhances the accuracy of diagnosis.

It is helpful in evaluating the response to the treatment given in common conditions like melasma and vitiligo.

Dermoscope is evolving as the stethoscope in the world of dermatology .

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