Trichoscopic Features of Common Hair Disorders in Nigerian Females

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ABSTRACT

Background: Hair and scalp disorders are common in women of African descent. Genetics and various hair grooming practices have been implicated in its aetiopathogenesis. Excessive pulling of hair and combining hair grooming practices have been known to cause hair loss and also worsen primary alopecias. The various types of hair loss may sometimes have overlapping clinical features requiring further investigation for accurate diagnosis. Unfortunately, some of our patients cannot afford investigations such as skin biopsies, and they default from the clinic, only to return later with extensive hair loss. Trichoscopy, which is the examination of the scalp and hair using a dermoscope, has been found to increase diagnostic accuracy in the management of hair and scalp disorders. There is a paucity of data on the trichoscopy features of hair loss in our environment.

Objective: This review highlights the trichoscopic features of common causes of hair loss in dark-skinned women (Fitzpatrick V and VI) in Nigeria. It is hoped that this review will encourage the use of the dermoscope among dermatologists and improve the diagnosis and management of hair and scalp disorders for females in this environment.

Methods: Data from existing literature using PubMed/Medline /African Journal online was used to identify case reports, case series, review articles of trichoscopic features among dark-skinned women (hair dermoscopy, trichoscopy, or trichoscopic features in the dark skin). The search was limited to studies in English-language.

The clinical and dermoscopic images in this paper were taken by the authors and stored using the Handy scope (FotoFinder Systems, Bad Birnbach, Germany) and attached to the iPhone 5S (Apple Inc., Cupertino, CA, USA). Pictures were also taken using the 3Gen Dermlite 4 polarized dermoscope (California) and attached to Google Pixel 4 phone.

Results and conclusion: Findings from trichoscopic examination of dark-skinned women with hair loss globally and in this environment have been shown to aid the diagnosis of various hair disorders, especially those with overlapping clinical features. However, scalp biopsies may be required occasionally. Trichoscopy is a non-invasive and useful tool in the management of hair and scalp disorders, especially in patients from a poor resource setting like ours.

Key words: Trichoscopy, Hair Disorders, Nigerian Females

Caractéristiques Trichoscopiques des Troubles Capillaires Courants Chez les Femmes Nigérianes

ABSTRAIT

Contexte : Les troubles des cheveux et du cuir chevelu sont fréquents chez les femmes d'ascendance africaine. La génétique et diverses pratiques de soins capillaires ont été impliquées dans son étiopathogénie. On sait que l'arrachage excessif des cheveux et la combinaison des pratiques de toilettage des cheveux provoquent la chute des cheveux et aggravent les alopécies primaires. Les différents types de perte de cheveux peuvent parfois avoir des caractéristiques cliniques qui se chevauchent nécessitant une enquête plus approfondie pour un diagnostic précis. Malheureusement, certains de nos patients ne peuvent pas se permettre des examens tels que des biopsies cutanées, et ils abandonnent la clinique, pour revenir plus tard avec une perte de cheveux importante. La trichoscopie, qui est l'examen du cuir chevelu et des cheveux à l'aide d'un dermoscope, s'est avérée augmenter la précision du diagnostic dans la gestion des troubles des cheveux et du cuir chevelu. Il existe peu de données sur les caractéristiques trichoscopiques de la perte de cheveux dans notre environnement.

Objectif : Cette revue met en évidence les caractéristiques trichoscopiques des causes courantes de perte de cheveux chez les femmes à la peau foncée (Fitzpatrick V et VI) au Nigeria. On espère que cette revue encouragera l'utilisation du dermoscope chez les dermatologues et améliorera le diagnostic et la prise en charge des troubles des cheveux et du cuir chevelu chez les femmes dans cet environnement.

Méthodes : Les données de la littérature existante utilisant PubMed/Medline/African Journal en ligne ont été utilisées pour identifier des rapports de cas, des séries de cas, des articles de revue sur les caractéristiques trichoscopiques chez les femmes à la peau foncée (dermoscopie capillaire, trichoscopie ou caractéristiques trichoscopiques dans la peau foncée). La recherche a été limitée aux études en langue anglaise.

Les images cliniques et dermoscopiques de cet article ont été prises par les auteurs et stockées à l'aide du Handy scope (Le système de fotofinder, Bad Birnbach, Allemagne) et attachées à l'iPhone 5S (Apple Inc., Cupertino, CA, USA). Des photos ont également été prises à l'aide du dermoscope polarisé 3Gen Dermlite 4 (Californie) et attachées au téléphone Google Pixel 4.

Résultats et conclusion : Il a été démontré que les résultats de l'examen trichoscopique de femmes à la peau foncée présentant une perte de cheveux dans le monde et dans cet environnement facilitent le diagnostic de divers troubles capillaires, en particulier ceux dont les caractéristiques cliniques se chevauchent. Cependant, des biopsies du cuir chevelu peuvent être nécessaires occasionnellement. La trichoscopie est un outil non invasif et utile dans la prise en charge des troubles des cheveux et du cuir chevelu, en particulier chez les patients issus d'un milieu pauvre en ressources comme le nôtre.

Mots clés : trichoscopie, troubles capillaires, femmes nigérianes

INTRODUCTION

Hair and scalp disorders are common in individuals of African descent. Genetics and various hair grooming practices have been implicated in its aetiopathogenesis, amongst other mechanisms.[1] The African hair is tightly curled and dry, making it difficult to manage in its natural state. Hair grooming practices employed in making it manageable sometimes lead to structural damage and hair loss. These practices include the use of physical and chemical hair straighteners, heat, oils and various hair styling methods. Hair grooming practices are sometimes combined, e.g. perming and braiding, thus further increasing the chances of hair damage. Some hairstyling methods involve excessive pulling of hair which leads to hair loss which is worse in those with primary alopecia. Continuous traction leads to permanent damage to the follicles.[2] African hairstyles can be intricate and are left in place for months leading to dryness of the hair shafts, which may predispose to fractures and hair loss.[3,4] Anecdotally, though, Nigerian women believe that not combing the hair for prolonged periods may actually prevent them from breaking which may be an erroneous belief depending on the type of hairstyle made.

The use of the dermoscope, a non-invasive tool, in the management of hair and scalp disorders has improved the accuracy of diagnosis and follow up of patients with these disorders, especially as most of them have overlapping clinical features requiring patients to come for multiple visits.[5] Diagnosis of hair loss should be timely to stop further damage of follicles in those with scarring alopecia.

Trichoscopy (dermoscopy of hair and scalp) is useful in distinguishing scarring from non-scarring forms of alopecia and is a timely development in our setting with limited laboratory support.[6] It can be done during the clinical examination, not requiring another visit. It is also helpful in choosing appropriate biopsy sites and allows the patient to view the scalp disorder and enable compliance of the patients as they observe the changes during management.

This article reviews the trichoscopic features of common hair disorders in females in our environment.

TRICHOSCOPY

Trichoscopy is the examination of hair and scalp disorders using a Dermoscope or dermatoscope. Dermatoscopes enhance morphological structures which are not visible to the normal eye by using specialized illuminating systems (visible light, polarized light and ultraviolet sources) and magnifying lenses.

Types of dermatoscopes include the handheld, video and mobile connected.[7] Handheld dermatoscopes have a tenfold magnification which is suitable for viewing extensive scalp lesions.[7] Video-dermatoscopes have a higher magnification of x 20-100, allowing better visualization of blood vessels and hair shafts.[8] They can be connected to computers and allow for photo storage and analysis of the photographs using specific software.[8] Mobile connected dermatoscopes are adaptors with a magnification of x 10-20 that are connected to the mobile phone and allow for storage.[9]

Most video-dermatoscopes have polarized light sources that allow the sub-surface features to be seen without linkage fluid. When using non-polarized light, immersion fluid reduces the reflection from the skin surface. It is important to clean the dermatoscopes between patients to limit the transfer of infection between patients. Before using the dermatoscope, one needs to determine the pattern and site of hair loss, as this will guide the examination areas. It is important to note that active areas may be at the periphery of alopecic areas and should be examined.

In our environment, we have noted that infrequent hair wash or cleaning of the scalp due to various hairstyles may lead to the accumulation of scales and oils (unpublished observation). The time of last hair wash before the examination should be noted. Hair extensions should be removed, and weaves should be loosened to visualize affected and normal areas of the scalp for comparison when necessary. In patients with female pattern hair loss (FPHL), a comparison should be made between the affected area and the occipital area, which is non-androgen dependent.[10]

Structures to be examined include the interfollicular area, perifollicular skin, follicular openings (hair, sweat gland) and blood vessels. Hair shafts should also be visualized when necessary. Dermoscopy is useful in determining if hair loss is scarring (or otherwise), thus requiring urgent intervention. However, scalp biopsies may be required to confirm the diagnosis in some cases.

NORMAL SCALP

Nigerians are mostly dark-skinned (Fitzpatrick IV-VI), and the colour of the normal scalp varies from light to dark brown, similar to what has been reported in other Africans.[11] The scalp colour does not depend on skin colour. Further studies are needed to determine factors affecting scalp colour.

The normal scalp shows a perifollicular pigmented network or honeycomb pattern, which is usually present on the whole scalp and may be more obvious in adults (Figure 1).[11,12] The pigmented lines correspond to the melanocytes in the rete ridges. At the same time, the adjacent suprapapillary areas have fewer melanocytes and are less pigmented. Asterix-like hyperpigmented macules may also be seen, which may suggest chronic inflammation.[13] Loose scales may be seen on the scalp, which may increase with infrequent hair wash, while hair cosmetics such as dyes and lotions may present as artifacts.[9]

Follicular openings with multiple hairs (terminal 2-4, vellus 1-2) are also seen. Usually, terminal hairs are more than vellus hairs.[14] Pinpoint white dots corresponding to acrosyringium are regularly distributed on the pigmented network around the hair follicles all over the scalp.[12] This may be

Figure 1: Normal scalp showing the intact pigmentary network, white dots evenly distributed, and 2- 4 hairs emerging from a hair follicle

disrupted when there is scarring. Erythema may be seen over some fair-skinned Africans when there is inflammation or trauma, but blood vessels are usually not visible on the normal hair scalp.[14]

TRACTION ALOPECIA

Traction alopecia (TA) is the commonest form of hair loss in Nigerian women.[15] It results from excessive hair pulling during hairstyling, leading to "traumatic" hair follicle damage.[15,16] The trauma sets off an inflammatory process that may lead to the destruction of the follicle. Some hairs are pulled out with their roots within a couple of hours, while hair loss may be noticed after a few days to weeks of the hairstyle due to inflammation. Acute traction alopecia is reversible, but chronic traction alopecia leads to the destruction of the hair follicles.

The most common presentation of TA is marginal alopecia involving the frontoparietal region, sometimes sparing a strip of vellus hair at the hairline known as the fringe sign. Evidence of inflammation such as erythema, folliculitis and pustules may be present in individuals with acute TA. (Figure 2a)

Dermoscopic features vary with the stage of the disorder, which may be acute or chronic.

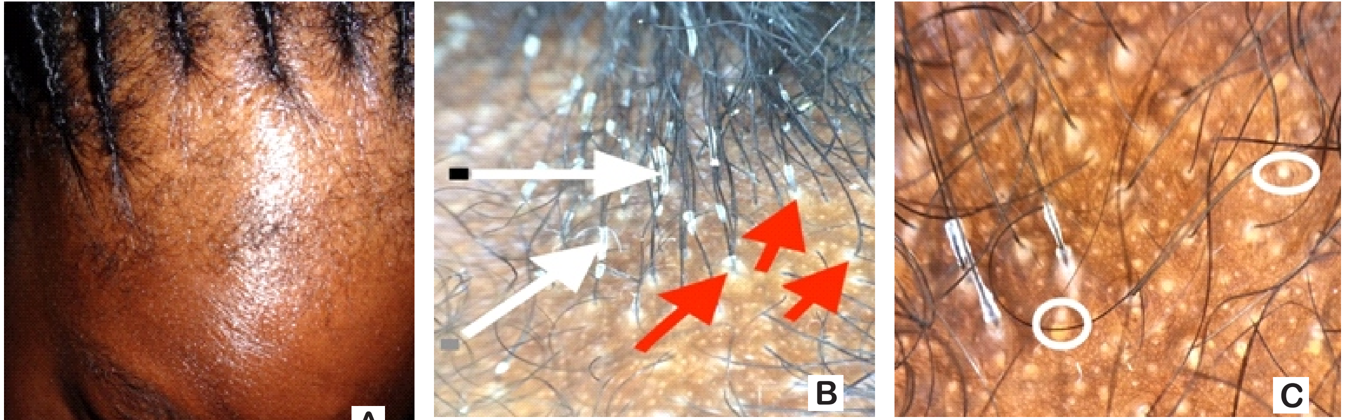
Peripilar or hair casts resulting from pulling out of the inner or outer root sheet appear as tubular structures encasing the root of the hair and signify ongoing traction (Figure 2b). They are mobile and can fragment. They are commoner in children and seen at the periphery, especially in acute traction alopecia[17] (Figure 2b). Peripilar-white halos are seen in acute traction alopecia, especially around hairs with hair cast possibly from ongoing inflammation[16] (Figure 2b). There is reduced hair density at the site of the hair loss with vellus hairs usually in the alopecic areas, and broken hairs at different lengths similar to what one will find in trichotillomania may also be seen in recent-onset TA. Empty hair follicles with preserved markings of follicular openings, highlighted in brown, that correspond on pathology to the pigmented basal cell layer of follicular infundibulum are also seen.[18]

As a result of repeated cycles of acute TA, scarring may occur. In chronic traction alopecia, There may be an absence of follicular openings (follicular drop out) while vellus hairs may remain (Figure 2c). The differential diagnosis will include other marginal forms of scarring alopecia especially frontal fibrosing alopecia discussed below.[19] (next page)

TRICHORRHEXIS NODOSA

Trichorrhexis nodosa (TN) is characterized by the development of one or more swellings along the hair shaft due to structural abnormalities (cuticular cell disruption) leading to increased fragility at the proximal or distal portion of the hair shaft. It may be congenital or acquired and may affect all hair-bearing areas, including the scalp, pubic area, moustache, beard. The affected hair shaft is prone to

Figure 2: Traction alopecia



2a. Frontal hair under traction, hair loss in the frontotemporal region, excluding a thin rim of vellus hairs at the margin.

2b. White arrows, Peri-pilar hair casts; red arrows, peri-pilar white halo

2c. Chronic traction alopecia, empty hair follicles (white circles), single vellus hairs with peripilar white halo, preserved markings of follicular openings.

chemical and physical trauma. The acquired proximal form is common in Africans, possibly as a result of their excessive hairstyling methods [20] and has a genetic predisposition.[21]

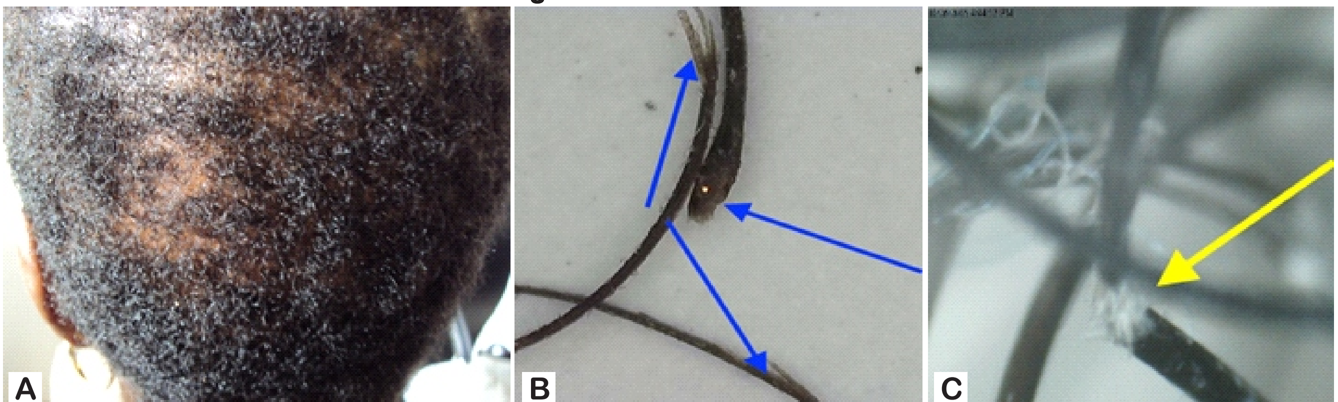
Clinical features include a history of patchy or diffuse areas of hair breakage proximally, leaving a short patch of hair after using hair cosmetics. Some patients claim their scalp hair is not growing while it is actually breaking. Nodes may also present as whitish specks (Figure 3a). Dermoscopic features show breaks in hair shafts at multiple levels and longitudinal splits or frays (trichoptilosis Figure 3b).[20,22,23] At the nodes, the cortical fibres splay outward and fracture, giving the appearance of two brooms or paint brushes placed "end to end." At lower powers, the nodes may appear as light-coloured nodules or gaps along the hair shafts. Figure 3c shows an incomplete fracture appearing as two brooms apposed.

ALOPECIA AREATA

Alopecia areata (AA) is a chronic autoimmune disease characterized by increased hair shedding. Hair loss is non-scarring and can affect any hair-bearing area, particularly the scalp. Various types of clinical patterns exist. The most common variant is the patchy type, in which there are single or multiple patches.[24] Other variants include the ophiasis pattern (Figure 4a) with a band-like pattern of hair loss on the occipital, temporal and parietal scalp regions and the inverse ophiasis (sisaipho) with hair loss affecting the frontal, temporal and parietal regions.[24] Total hair loss of the scalp (totalis) and generalized hair loss all over the body (universalis) may occur.[24]

Trichoscopy features of AA may vary with the stage of the disease. It includes reduced hair density,

Figure 3: Trichorrhexis nodosa



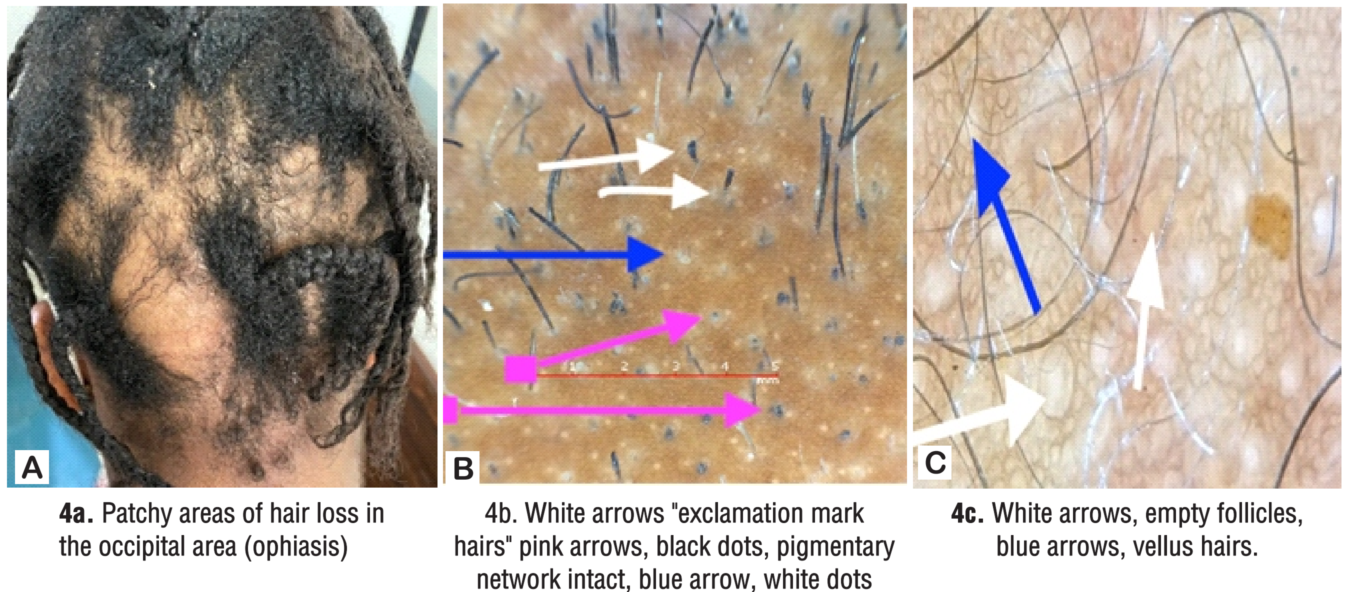
3a. Patchy hair loss with unequal hair length

3b. Longitudinal splitting of hair (trichoptilosis) and fractured node.

3c. Node with an incomplete fracture

broken hairs, curved hairs and exclamation mark hairs and black dots.[25-27] The latter two are commonly seen in active lesions.[28] Yellow dots were considered the most sensitive dermoscopic feature in AA; however, they are not commonly seen in dark-skinned individuals.[7] Intact pigmentary network and regularly spaced white dots suggestive of non-scarring alopecia are present (Figure 4b).[25,27] Other less commonly seen features include upright regrowing hairs and pigtail hairs.[29] None of these features are pathognomonic. Important differential diagnoses include tinea capitis, which also presents with black dots. However, perifollicular scaling, zigzag, and corkscrew hairs serve as distinguishing features.[29] Additionally, there is a lack of perifollicular erythema, scaling, and pustules, suggestive of inflammation. Vellus hairs are common when hair is regrowing (Figure 4c).

Figure 4: Alopecia areata



4a. Patchy areas of hair loss in the occipital area (ophiasis)

4b. White arrows "exclamation mark hairs" pink arrows, black dots, pigmentary network intact, blue arrow, white dots

4c. White arrows, empty follicles, blue arrows, vellus hairs.

FEMALE PATTERN HAIR LOSS

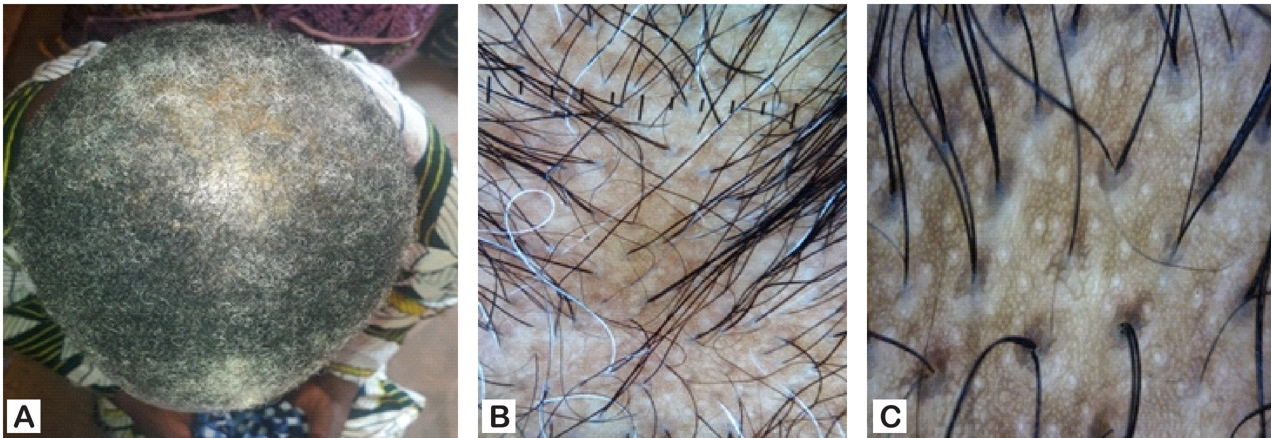
Female pattern hair loss **(**FPHL), previously known as androgenetic alopecia in females, is characterized by progressive thinning and hair loss, especially in the central (midline), frontal and parietal scalp regions.[30] Aetiology is believed to be genetic, hormonal, micro-inflammation, among others.[31] Clinical presentations include diffuse thinning of the upper bi-parietal and vertex regions, preserving the anterior hair margin (Figure 5a).[31] Deep recession of the frontal-temporal hairline and true vertex balding, which is typically seen in men, may occasionally occur in women, although it is uncommon.[32]

Trichoscopic features include variability in hair shaft diameter; the presence of 10% and above is diagnostic (Figure 5b).[33] Hair diameter variation in the affected area can be compared with that in the occipital region, which is not androgen-dependent.[32] Other features include short vellus hairs and yellow dots. The Peri-pilar sign is a subtle brown halo encircling the hairs (Figure 5c). It has been described as a specific finding in the early stages of the disease and reflects perifollicular inflammation.[34] White peri-pilar halo has also been described. Focal areas of baldness (atrichia) can be seen in post-menopausal women.[33,34] Regularly distributed white dots (acrosyringium) in keeping with non-scarring alopecia are also seen (Figure 5d).[35] (next page)

CENTRAL CENTRIFUGAL CICATRICIAL ALOPECIA

Central Centrifugal Cicatricial Alopecia (CCCA) is a primary form of lymphocytic scarring alopecia characterized by the progressive hair loss on the central part of the scalp. It is reported to be the commonest cause of scarring alopecia among black females.[36] The unifying hypothesis is that it results from an uncertain interplay between genetics, hair fragility and environmental factors (hairstyling practices).[37,38]

Figure 5: Female pattern hair loss



5a. Reduced hair density at the vertex

5b. Reduced hair density, empty follicles, hair shaft diameter variability >10%

5c. brown peri-pilar depressions (peri-pilar brown halo), intact hyperpigmented network and regularly spaced white dots

Clinical features of CCCA vary, and symptoms include pruritus, pain and tenderness at the site of hair loss. [39] Hair loss may also be asymptomatic, while breaking hair giving a short hair patch may predate the bald patch. A common feature of CCCA is the chronic progressive central scalp hair loss which expands in a symmetrical centrifugal fashion (Figure 6a). Other less clinical common patterns of CCCA are irregular patches of hair loss on the posterior and marginal hair loss around the lateral scalp region.39 The scalp may be smooth and shiny with a few hair strands in the bald patches in long-standing cases. 40 Pustules and scaling may be present at the periphery in early disease.[40]

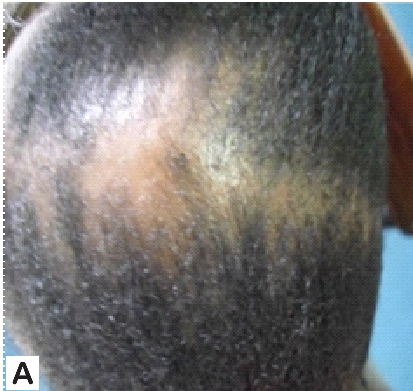
Trichoscopy is helpful in establishing the diagnosis of CCCA as well as excluding other causes of common central scalp hair loss. Common trichoscopic features in the dark skin include the disruption of the normal honeycomb pigment network on the scalp by irregular brown asterisk like blotches and scattered interfollicular pigmentation (Figure 6b). 40 A peripilar halo, usually whitish, greyish or frequently dark brown, circles around a single or 2-3 terminal and vellus hairs measuring about 0.3-0.5mm (Figure 6b). It is considered a specific and sensitive sign of CCCA (Figure 6b).[13, 40] Histology shows concentric perifollicular fibrosis seen in both early and late stages of CCCA.[13, 40]

We have noticed a ring of dark brown hyperpigmentation surrounding the peri-pilar white halo, which we describe as a target like perifollicular pigmentation. The pathologic connotation of this finding is yet to be determined (Figure 6c). The pinpoint white dots (acrosyringium) are irregularly distributed suggestive of scarring[13] while white patches (fibrotic areas) corresponding to areas of follicular dropout and follicular scarring are seen especially at the later stages of CCCA.[13] Some degree of hair shaft variability may also be seen in CCCA, and patients with CCCA may also have FPHL. [13] Short, broken hairs and white or yellow scales perifollicular scales may also be present. [13] Tubular hair cast may also be present, most likely due to ongoing traction (Figure 6c). Important distinguishing features from other causes of central scalp hair loss and hair disorders with similar trichoscopic features include peri-pilar casts in traction alopecia, often showing peri-pilar halo in late stages. Other features are the exclamation mark hairs in the sisaipho pattern of alopecia areata, peripilar sign, and the absence of fibrotic white dots in male pattern hair loss. This has been documented as one of the trichoscopic findings in the late stage of male pattern hair loss when there will be some fibrosis histologically.[13]

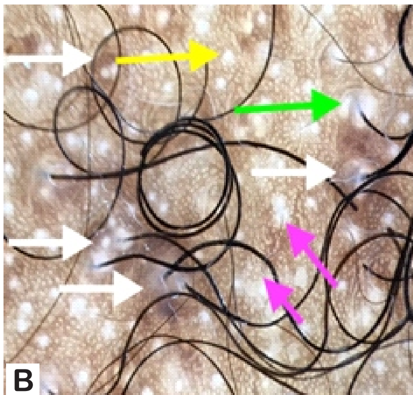
LICHEN PLANOPILARIS (LPP)

LPP is a form of primary lymphocytic cicatricial alopecia, commoner in women.[41] It can be described as lichen planus affecting the hair follicle. The aetiology is unclear, although it is believed to be due to hair specific autoimmunity. [42] Multiple variants have been described based on the clinical features.[43, 44]

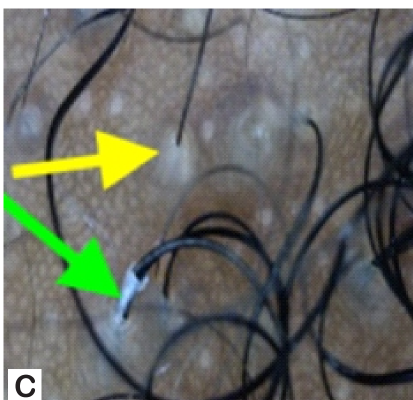
Figure 6. Central centrifugal cicatricial alopecia



6a. Hair loss on the vertex and frontotemporal regions revealing a smooth, shiny scalp. Some hairs are still present in the alopecic patch.



6b. Reduced hair density, altered pigmented network in areas of white patches (pink arrows), altered distribution of pinpoint white dots and single hair units with peri-pilar white halo surrounded by hyperpigmentation (white arrows), known as "target hyperpigmentation." The green arrow shows peripilar hypopigmentation without hyperpigmentation.



6c. Pilar casts (green arrow) suggesting ongoing traction. The yellow arrow shows peri-pilar hypopigmentation.

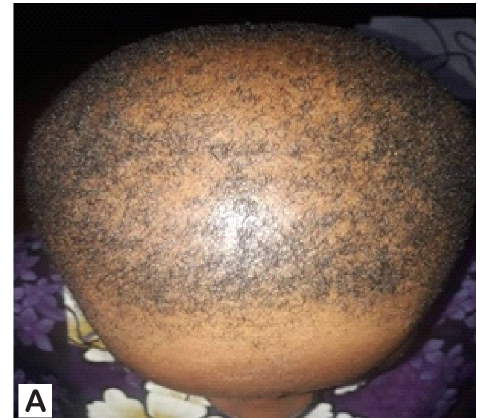
The classic form presents with scarring patchy hair loss on the scalp, especially the parietal region and vertex. Itching, burning, and pain are commonly associated symptoms (Figure 7a).[43]

Dermoscopy reveals an area of reduced hair density, loss of follicular ostia, pale or white patches of fibrosis with altered pigmentary network and irregular distribution of pinpoint white dots. Perifollicular hyperkeratosis and erythema are prominent at the periphery of hair loss. Tufted hairs (hair follicles containing more than five hair shafts) may also be present (Figure 7b). Features are suggestive of scarring alopecia; however, a few vellus hairs may be seen in the alopecic patch.

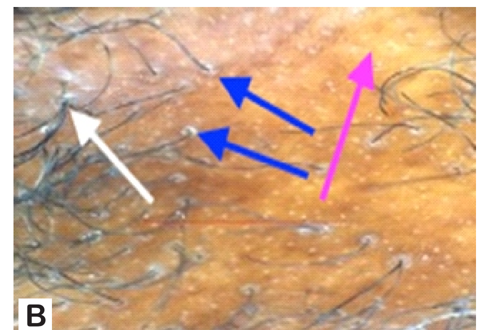
FRONTAL FIBROSING ALOPECIA

Frontal fibrosing alopecia (FFA) is a clinical variant of LPP seen more often in post-menopausal women, although it can occur at any age.[44] There are increasing reports of its occurrence in Caucasians and Blacks. It has overlapping clinical features with chronic traction alopecia (CTA), which is very common in our environment and can be easily missed.[45] FFA presents clinically with the progressive frontal recession of the hairline and sometimes loss of eyebrows.[45, 46] The fringe sign is usually absent in well-established cases of FFA [46] (Figure 8a). Clinically the skin from where the hair receded is usually smooth and pale and devoid of photo ageing changes. Blood vessels seen commonly in Caucasians are not prominent in Blacks. Dermoscopy reveals the

Figure 7: Lichen planopilaris

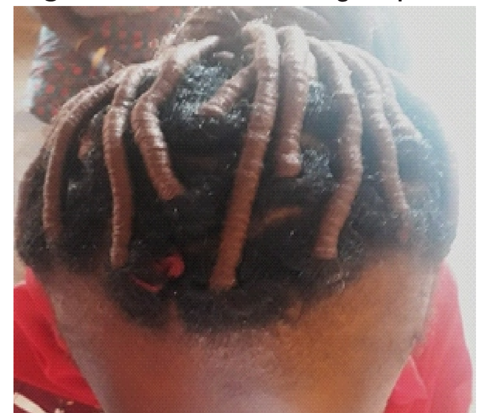


7a. Patient with diffuse hair loss on the vertex and frontotemporal regions



7b. Blue arrows show perifollicular hyperkeratosis of single hair units. There is reduced hair density and loss of follicular ostia. Pink arrows show pale patches with altered pigmentary networks and distribution of pinpoint dots). The white dots show perifollicular hyperkeratosis with multiple hairs.

Figure 8: Frontal fibrosing alopecia:



Frontal recession of the hairline, leaving smooth pale skin behind

absence of follicular openings, corresponding to areas of follicular dropout, absence of vellus hairs, and lonely hairs[47] (presence of one or a few isolated terminal hairs in the middle of the forehead). Lonely hair signs are seen in FFA but are not specific for FFA (Figure 8b). Perifollicular scales and perifollicular erythema may be seen around the periphery of the alopecic area. The presence of vellus hairs, intact eyebrows, absent lonely hairs and absent perifollicular hyperkeratosis are more in keeping with CTA.[45] Biopsies may be required to ascertain the diagnosis in some cases.

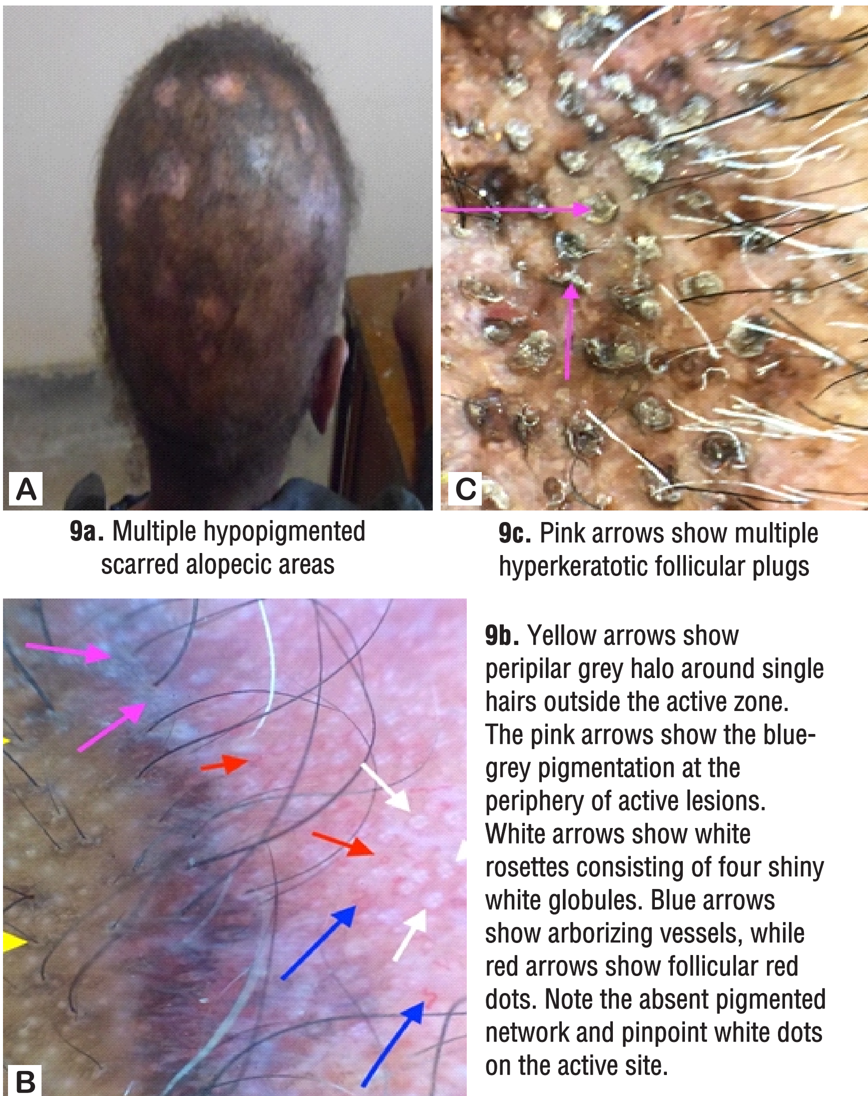
DISCOID LUPUS ERYTHEMATOSUS

Discoid lupus erythematosus (DLE) is an inflammatory cutaneous disorder that results in significant scarring if left untreated. It is a variant of cutaneous lupus and has a predilection for the scalp causing scarring alopecia.[48] Clinical features vary with the stage of the lesions. Early lesions present with erythema, papules and plaques and follicular hyperkeratosis. Central atrophy with peripheral hyperpigmentation and follicular plugging with telangiectasia may be seen. The resulting hypopigmentation makes the erythema visible in the dark skin. Removal of scales may lead to ulceration (Figure 9a).

The frequently observed dermoscopic features of DLE include reduction in hair density, reduced follicular ostia, single hairs, tufted hairs, perifollicular hyperpigmentation and black dots.[49] There is also dilatation of some follicles filled with sebum and keratin, follicular plugging (yellow and white plugs)[50] (Figure 9b). The pigment network is reduced or absent in affected areas. The white dots, perifollicular hyperpigmentation, interfollicular blue-grey hyperpigmentation and diffuse hypopigmentation may also be seen.[51] Active lesions may have diffuse erythema, follicular red dots or arborizing vessels in areas of hypopigmentation and atrophy.[50] Others occurring less frequently in the scalp of patients of African descent are perifollicular and/or diffuse scaling, broken hairs, arborizing vessels and black dots.[6, 29, 48]

Another striking pattern in DLE is "white rosettes", representing four oval-shaped whitish structures oriented together at a centre point (Figure 9b). The optical phenomenon of polarization in the follicular and perifollicular structures results in white rosettes. Notably, white rosettes are not found in other cicatricial alopecias[29]

Figure 9: Discoid lupus erythematosus



9a. Multiple hypopigmented scarred alopecic areas

9c. Pink arrows show multiple hyperkeratotic follicular plugs

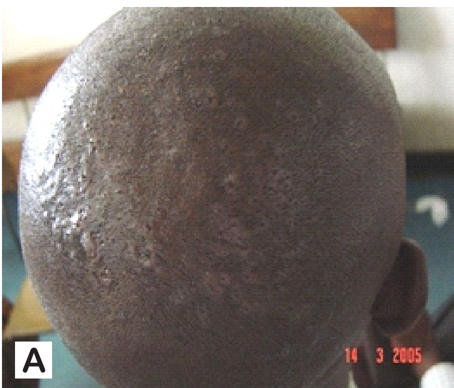
9b. Yellow arrows show peripilar grey halo around single hairs outside the active zone. The pink arrows show the blue-grey pigmentation at the periphery of active lesions. White arrows show white rosettes consisting of four shiny white globules. Blue arrows show arborizing vessels, while red arrows show follicular red dots. Note the absent pigmented network and pinpoint white dots on the active site.

FOLLICULITIS DECALVANS (FD)

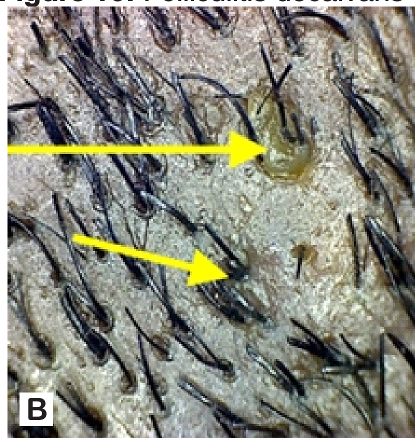
Folliculitis decalvans (FD) is a chronic inflammatory disorder of the scalp characterized by

perifollicular papules and pustules and patchy, cicatricial hair loss. It is seen more in Blacks of African descent, with a slight predominance in men.[52] Clinical features include painful, sometimes itchy follicular papules and pustules with spontaneous bleeding involving the vertex and occipital areas. (Figure 10a) Hyperkeratotic, erythematous plaques with erosions and hemorrhagic crusts may be seen in some patients with extensive disease.[53] Trichoscopic features include tufted hairs (hair follicles with 5-20 hairs), perifollicular erythema, sometimes in a starburst appearance and perifollicular hyperkeratosis, including casts. In long-standing lesions, ivory-white and milky-red areas without follicular orifices predominate in trichoscopic images[54] (Figure 10c.). Some have reported yellow dots as well.[50] Tufted folliculitis is also seen in patients with LPP, dissecting folliculitis of the scalp and acne keloidalis.[54]

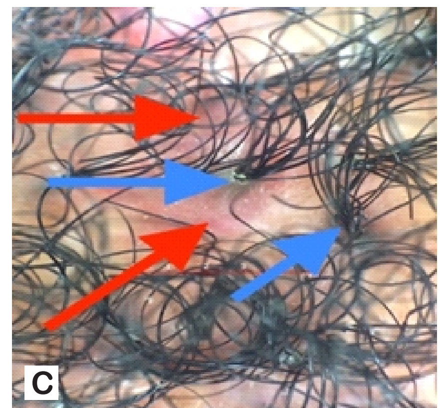
Figure 10: Folliculitis decalvans



10a. Multiple papules and pustules with scarring on the vertex and occipital area



10b. Multiple areas of folliculitis are shown in yellow arrows.



10c. Blue arrows show tufted hairs (hair follicles with 5-20 hairs) with perifollicular hyperkeratosis. Red arrows show perifollicular erythema.

DISSECTING CELLULITIS OF THE SCALP (DCS)

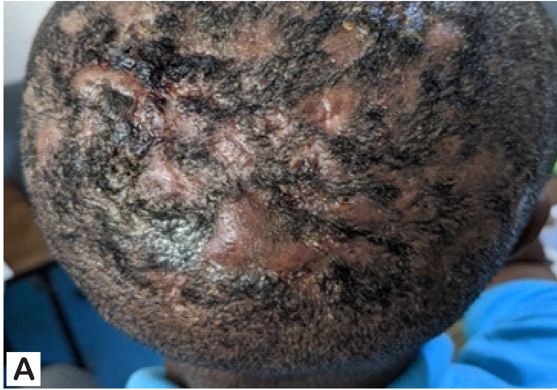
This condition, also known as perifolliculitis capitis abscedens et suffodiens or Hoffman disease, is a chronic inflammatory disorder of the scalp characterized by abscesses and suppurative nodules which heal with patchy hair loss.[7] It is reversible in early disease and occurs with other disorders associated with follicular occlusion such as acne conglobata, hidradenitis suppurativa and pilonidal cysts[7] (Figure 11a). Trichoscopic features vary with the stage of the disease. Early features include broken hairs, black dots, empty follicles, yellow and brown dots (plugged follicles) which tend to be larger in FD[55-57] (Figure 11b). As the disease advances, empty follicles are replaced by white fibrotic patches, which predominate.[58-60] Pigmentary network and pinpoint white dots are irregular in distribution.

TRICHOTILLOMANIA

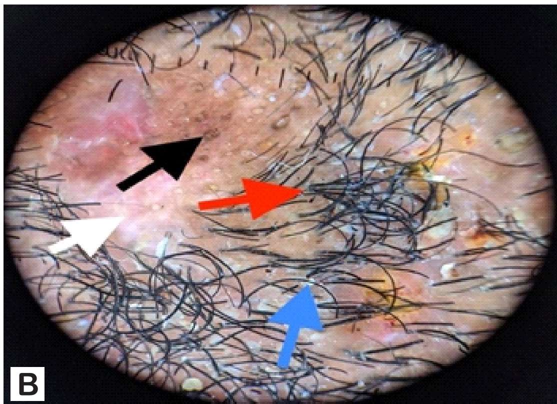
Trichotillomania (TTM) is an impulse control disorder characterized by compulsive pulling and plucking of hairs from the scalp and other hair-bearing areas resulting in noticeable patches of hair loss. It is commoner in females and is usually associated with anxiety.[61] Clinically, there are patchy areas of hair loss on areas of the scalp accessible to the individual, especially the vertex. The hair loss patterns may be bizarre, resulting from the tugging force on the hair anchored to the scalp. (Figure 12a)

Trichoscopic features of trichotillomania in dark skin individuals include reduced hair density,[62] broken hairs of varying lengths, including exclamation hairs, and black dots. (Figure 12b) Other morphologies include coiled, hook, and tulip hairs.[13, 33] Coiled and hook hairs occur from contraction and coiling of the residual distal part of the hair shaft fixed to the scalp and are highly specific findings in trichotillomania.[33, 62] Tulip hair occurs when the pull leads to a diagonal fracture of the hair shaft resulting in an appearance similar to the tulip flower.[33] The V-sign are two hairs emerging from a single follicular opening broken at the same

Figure 11: Dissecting folliculitis of the scalp

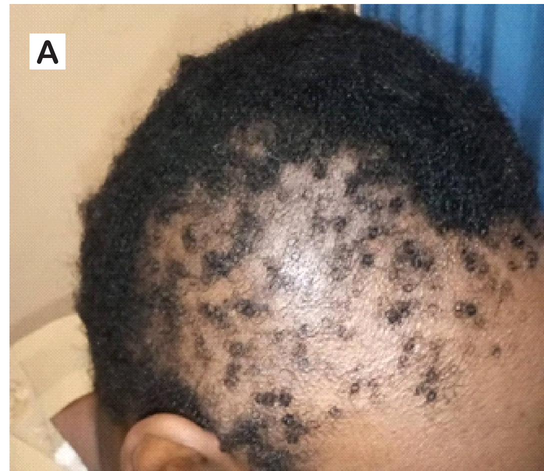


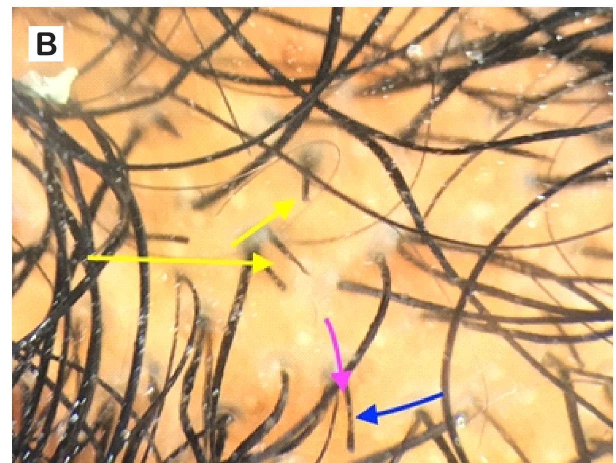
11a. Suppurative nodules and boggy abscess with areas of patchy hair loss



11b. The black arrow shows brown dots (plugged follicles). The white arrow shows white fibrotic patches. Pigmentary network and pinpoint white dots are irregularly distributed. The red arrow shows tufted hairs; the blue arrow shows perifollicular scales. Other features include broken hairs, black dots and empty follicular follicles.

Figure 12: Trichotillomania





12a. Patchy hair loss on the frontotemporal area
12b. Yellow arrows show broken hairs of different lengths, pink arrow shows V shape hairs, while the blue arrow shows exclamation mark hair.

length.[13, 33] Hair powder represents completely damaged hair shafts visualized as hair dust particles that may be similar to artefacts from hair care products, which can be cleaned off).[23] A differential diagnosis of TTM is alopecia areata. A positive hair pull test, yellow dots and hypopigmented regrowing hair after months of follow up are suggestive for Alopecia areata.[33] The black dots in AA are also notably regular but irregular in TTM.[31] Another important differential diagnosis is tinea capitis which can be clearly distinguished by the characteristic comma hairs, the hallmark feature.[33,63]

TELOGEN EFFLUVIUM

Telogen effluvium (TE) is a reversible form of hair loss due to increased shedding. Many hairs go into the telogen phase of the hair cycle due to environmental, dietary, hormonal and medicinal factors.[35] Clinically, diffuse hair loss may be more obvious on the vertex (Figure 13a). Trichoscopic features include a reduction in the hair density, and many empty follicles may be present.[35] It can be easily differentiated from FPHL due to the absence of hair shaft diameter variability and the absence of the peripilar brown halo[64] (Figure 13b). The presence of upright regrowing hairs and predominance of hair follicle openings with only one emerging hair shaft may indicate TE in the absence of features characteristic of other causes of hair loss.[22] The hair pull test is usually positive in TE.[22,64]

CONCLUSION

Trichoscopy is a non-invasive tool that improves the diagnostic accuracy of hair and scalp disorders with overlapping features in our environment. It is helpful in the follow-up and treatment of patients. At the

same time, the trichoscopic images serve as an educational tool for increasing awareness regarding the aetiopathogenesis of these disorders and can help improve their adherence and compliance in management.

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