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Dermoscopic diagnosis of seborrheic dermatitis

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Abstract

Background: Dermoscopy is a non-invasive diagnostic procedure which allows evaluation of the features of skin lesions and reveals distinct patterns in different diseases that are diagnostically relevant. Seborrheic dermatitis is an inflammatory disorder which bears considerable clinical resemblance with other papulosquamous disorders like psoriasis. Histopathological examination of these skin lesions remains the standard diagnostic method, but it is an invasive procedure and might not always be feasible to perform.

Objective: To analyze the clinical, dermoscopic and histopathological features in seborrheic dermatitis (SD) patients presenting to our outpatient clinic and to compare and correlate the resulting dermoscopic diagnosis with the clinico-histopathological diagnosis, so as to establish the significance of dermoscopy in diagnosing this condition.

Methods: This is an observational, cross sectional study including 15 patients with classical seborrheic dermatitis lesions who attended outpatient clinic of Department of DVL over a course of 24 months and were willing to participate in the study. Patients were selected by the convenience sampling method.

Results: The predominant dermoscopic findings noted were red dots (46.66%) and linear branching vessels (53.33%) in a patchy arrangement (100%), on a dull red (60%), light red (20%) or yellow (20%) background, associated with yellow (66.66%)/white + yellow (33.33%) scales in a patchy (80%) or diffuse (20%) distribution. A positive correlation between clinico-dermoscopic and histopathological diagnoses could be made in 12 of 15 patients (80%).

Conclusion: Dermoscopy is a useful diagnostic option for identifying or conforming seborrheic dermatitis and is a good adjuvant to the clinical diagnosis.

Keywords: Clods, dermatitis, dermoscopy, scales, seborrheic, vascular

Introduction

Dermoscopy is an amplified skin surface microscopy ^[1], which aids in observation of patterns within the skin lesions by their illumination and trans-illumination with a light source and studying it with a high-power magnification lens. The images can be captured using a camera and retrospectively analyzed if needed ^[2].

Clinical diagnosis of inflammatory/papulosquamous lesions is an ongoing challenge in dermatology due to overlapping features. Though histopathology remains a gold standard diagnostic test for these disorders, it is an invasive procedure and is not free of complications ^[3]. Dermoscopic observations like vascular morphology & arrangement, background color, scale color & distribution, presence of additional features can be interpreted in an algorithmic manner to reach a conclusive diagnosis ^[4].

Seborrheic dermatitis (SD) is a common papulosquamous disorder of unclear etiology. It usually affects either infants, adolescents, or adults and is thought to be associated with *Malassezia* yeasts and increased or altered sebaceous secretions. It presents clinically as erythematous patches/papules/plaques with yellowish, greasy, bran like scales. Scalp, face, post-auricular, pre-sternal and intertriginous areas are most affected ^[5]. Histopathological findings are relatively non-specific and include psoriasiform hyperplasia, focal parakeratosis, spongiosis, superficial dilation of capillaries and lymph histiocytic infiltrate around superficial dermal vasculature ^[6].

According to previous studies, the dermoscopic features of seborrheic dermatitis include patchily distributed dotted/linear/arborizing vessels and yellow serocrusts/scaling ^[4]. The characteristic yellow scales of 1-2 mm diameter are referred to as yellow clods ^[7].

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This study of a series of cases was undertaken to observe and report the dermoscopic findings in seborrheic dermatitis.

Materials and Methods

Type of study

It's a Cross-Sectional Study.

Sample size

15 patients with Seborrheic dermatitis lesions.

Setting

Outpatient Department of Dermatology and Venerology, Mamata Medical College and General Hospital, Khammam.

Study duration

18 months (2016 to 2018)

This is an observational, cross sectional study including 15 patients with classical seborrheic dermatitis lesions who attended the outpatient clinic of Department of DVL over a course of 24 months and were willing to participate in the study. Patients were selected by the convenience sampling method.

Inclusion criteria

- Patients with classical seborrheic dermatitis lesions.

Exclusion criteria

- Those who have used systemic or topical medications for the condition.
- Or have undergone any invasive procedure over the lesions and
- Those with secondary infections or serious debilitating conditions were excluded from the study.

Methodology

Informed written consent of participating patients was taken and their demographics were noted. History taking, and clinical examination were carried out and a clinical diagnosis of seborrheic dermatitis was made based on the characteristic features elucidated in the literature.

- The clinical photographs of the lesions were taken using a canon digital camera. A triple light source (White, polarized, UV light) video dermoscope (model-Ultra Cam TLS, Derma India video dermoscope, India) was used to scrutinize the lesions.
- The dermoscopic evaluation was carried out based on an algorithm proposed by Zalaudek I *et al.* [8], which takes into account the number of lesions, vascular morphology, architectural arrangement of the vascular patterns within the lesions and additional dermoscopic criteria to reach a definitive diagnosis. Images and videos of these dermoscopic findings were captured and stored in the computer along with patient details and clinical images for future reference.

- Then a 4-5mm biopsied sample of the lesion was sent for histopathological examination (HPE).
- The clinical and dermoscopic findings were correlated to the histopathological features and a conclusive diagnosis was reached.

Statistical analysis

The statistical analysis was done with SPSS 21 software and the relevant statistical findings, the continuous variables are presented as mean \pm SD (standard deviations), while the discrete variables are shown as percentages.

Ethical clearance

Ethical Clearance was obtained from the institutional ethics committee prior to the commencement of the study.

Results

15 cases of seborrheic dermatitis were included in the present study and the demographic findings noted were as follows

Table 1: Distribution of SD patients based on gender

Gender	Number of patients (%)
Male	12 (80%)
Female	3 (20%)

Male predominance was seen with 80% of the cases being males and the rest 20% of the cases were females
The Male: Female ratio was 4:1.

Table 2: Distribution of SD patients based on age group

Age group	Number of patients (%)
1-20 years	4 (26.66%)
21-40 years	3 (20%)
41-60 years	6 (40%)
>60 years	2 (13.33%)

The age group most affected by SD was 41-60 years (40%) followed by 1-20 years (26.66%) with the mean age being 38.93 ± 19.09 years.

Table 3: Distribution of SD patients according to the duration of the disease

Duration of SD	Number of patients (%)
<1 month	3 (20%)
1-2 months	8 (53.33%)
3-6 months	3 (20%)
7 months-1 year	1 (6.66%)
>1 year	-

Majority of the cases had lesions for a duration of 1-2 months (53.33%). Clinically, the lesions were erythematous (100%), scaly (100%), papules (46.66%), patches (20%) and plaques (80%) distributed over face (100%), scalp (80%) and trunk (40%).

Table 4: Distribution of dermoscopic findings in Seborrheic dermatitis

Vascular morphology	Seborrheic dermatitis n = 15 (%)
Red dots	7 (46.66%)
Red globules	-
Arborizing/Linear vessels	8 (53.33%)
Vascular arrangement	
Patchy	15 (100%)
Scale color	
White + Yellow	5 (33.33%)

Yellow	10 (66.66%)
Scale distribution	
Diffuse	3 (20%)
Patchy	12 (80%)
Background color	
Light red	3 (20%)
Dull red	9 (60%)
Yellowish	3 (20%)

Table 4 shows distribution of dermoscopic features in the patients. Among vascular features, linear branching vessels and dotted vessels were seen in 53.33% and 46.66% of the cases respectively, all in a patchy distribution (100%). Yellow scales were seen in 10 patients (66.66%) and white + yellow scales in 5 patients (33.33%). The distribution of scales was patchy in 12 (80%) and diffuse in 3 (20%) patients. A dull red background was seen in 9 patients (60%) and light red, yellowish backgrounds in 3 patients (20%) each.

Table 5: Distribution based on biopsy outcomes in percentages

Outcomes	%
Prominent parakeratosis	75%
Follicular plugging	33.33%
Dilation of infundibulum	33.33%
Shoulder parakeratosis	25%
Spongiosis	100%
Perivascular inflammatory cell infiltrate	100%
Dilated capillaries	100%
Extravasated RBCs	50%
Papillary dermis edema	50%
Thinning of supra papillary plates	33.33%

Biopsy was done in 12 of 15 patients, all of whom showed HPE features suggestive of SD, i.e. prominent parakeratosis (75%), follicular plugging (33.33%), dilation of infundibulum (33.33%), shoulder parakeratosis (25%), spongiosis (100%), perivascular inflammatory cell infiltrate (100%), dilated capillaries (100%), extravasated RBCs (50%), papillary dermis edema (50%), thinning of supra papillary plates (33.33%).

Legends for figures



Fig 1: [A], [B], [C], [D]: Clinical photographs showing erythematous scaly plaques on face and scalp in patients with seborrheic dermatitis

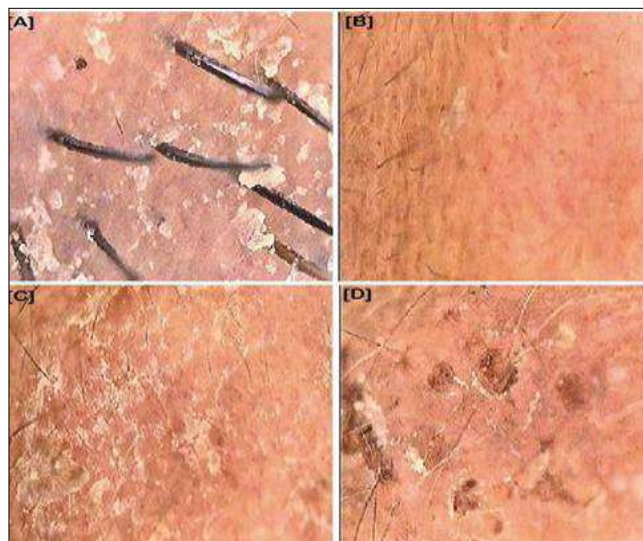


Fig 2: Dermoscopic images of seborrheic dermatitis lesions under polarizing light mode showing: Patchy White + Yellow greasy scales

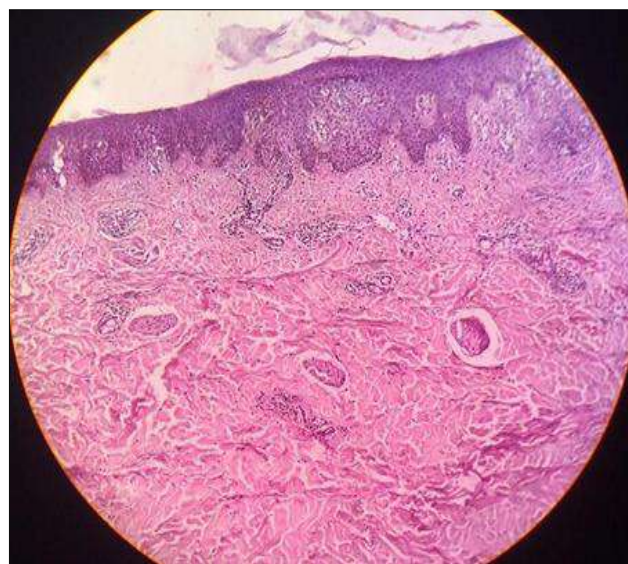


Fig 3: Image showing histopathological features in a case of seborrheic dermatitis (40x magnification, Haematoxylin and Eosin staining) i.e. spongiosis, perivascular inflammatory cell infiltrate, papillary dermal edema, thinning of suprapapillary plates

Discussion

Seborrheic dermatitis (SD) shows considerable clinical overlap with psoriasis or other inflammatory skin diseases and might be difficult to diagnose based solely on clinical findings. This may necessitate a need for invasive skin biopsy, which may not always be feasible. Algorithmic assessment of dermoscopic features, as suggested in the literature, helps in differentiating SD from other inflammatory dermatoses.

In our study, among vascular features linear branching

vessels (53.33%) and red dots (46.66%) were seen in a patchy distribution in 100% cases. Yellow scales were seen in 66.66% in a patchy (80%) or diffuse (20%) distribution on a dull red (60%), light red or yellowish background (20% each).

These findings were in tandem with the findings of Lallas A, Argenziano G *et al.* [3], Lallas A *et al.* [4] and Xu C *et al.* [9], who noted that yellow scales, dotted vessels in a patchy distribution over a dull red background were indicative of dermatitis rather than psoriasis. Doghaim NN *et al.* [10], Ross EK *et al.* [11], Kim GW *et al.* [12], described arborizing/linear branching vessels to be the predominant finding in SD (35.7%, 62%, 49% respectively). Arborizing vessels are branching red lines and are indicative of the dilated capillaries in hyperplastic rete ridges. But the dilated vessels

in SD are not as tortuous, numerous or homogenous as in psoriasis [4].

In our study, both dotted and linear branching vessels were noted. These features along with a patchy vessel arrangement on a dull red background, associated with yellow/white + yellow patchy scales were found to be significant and reflective of the underlying pathology of SD. Of the 15 patients who were diagnosed as seborrheic dermatitis based on the clinical and dermoscopic findings, biopsy was done in 12 cases and all of them showed histological features consistent with dermatitis and were consistent with the findings of Park JH *et al.* [13]. A positive correlation between the clinico-dermoscopic-histopathological diagnoses was found in 12 of the 15 patients (80%).

Table 6: Dermoscopic features of Seborrheic dermatitis as described in other studies vs the present study

Dermoscopic features	Lallas A <i>et al.</i> [4] n = 41 (%)	Argenziano G <i>et al.</i> [3] n = 22 (%)	Doghaim NN <i>et al.</i> [10] n = 14 (%)	Present case series n = 15 (%)
Vascular				
Red dots/globules	39 (95)	19 (86.4)	-	7 (46.66%)
Linear	-	1 (4.5)	5 (35.7)	8 (53.33%)
Dots + Linear	2 (5)	-	-	-
Regular	14 (34)	-	-	-
Patchy	24 (59)	20 (90.9)	-	15 (100%)
In clusters	3 (7)	-	-	-
Background		Not noted	Not noted	
Light red	6 (15)	-	-	3 (20%)
Dull red	27 (66)	-	-	9 (60%)
Yellow	7 (17)	-	-	3 (20%)
Scales				
White	10 (24)	6 (27.3)	14 (100)	-
Yellow	8 (20)	17 (77.3)	-	10 (66.66%)
White + Yellow	17 (41)	-	-	5 (33.33%)
Patchy	27 (66)	-	-	12 (80%)
Diffuse	7 (17)	-	-	3 (20%)
Central	1 (2.4)	-	-	-

Limitations of the study include the facts that dermoscopic examination was conducted by a single observer without heed to the interobserver variability and that the number of cases included was relatively small. These concerns should be addressed in future studies.

Conclusion

The findings of the present study support the fact that dermoscopy is an effective, easy to perform, non-invasive, and usable tool for confirming a diagnosis of seborrheic dermatitis and differentiating it from other inflammatory or papulosquamous disorders, especially psoriasis. Further studies are warranted to elucidate and establish characteristic dermoscopic findings in seborrheic dermatitis lesions, which can be used in an algorithmic manner to make a definitive diagnosis thus negating the need for invasive procedures like biopsy.

Declaration of patient consent

The authors declare that they have obtained the required consent forms in which the patients have given consent for their pictures and other relevant information to be published in the journal, with the understanding that their names will not be used, and that all efforts will be made to conceal their identity.

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Conflicts of interest: There are no conflicts of interest.

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