



RESEARCH ARTICLE

A STUDY OF DERMOSCOPIC PATTERNS IN FLAT VERRUCOUS LESIONS; CLUES TO DIFFERENTIATE VERRUCA PLANA FROM SEBORRHEIC KERATOSIS

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ABSTRACT

Background: Seborrheic Keratosis (SK) are the most common benign epidermal lesions, which are raised brown or black papules with a "stuck on" appearance (Mackie, 2004). They may sometimes present with a plane flat verrucous surface which may be clinically confused with verruca plana (VP). Such lesions pose diagnostic challenge to the dermatologists. Since these two have significantly different etiology, treatment and prognosis, differentiation of SK from verruca is necessary.

Objective: To study the dermoscopic patterns in plane verrucous lesions and determine its use in differentiating SK from VP.

Materials and Methods: Eighteen patients with clinically plane warty lesions were selected. After obtaining consent dermoscopy was performed using a OITEZ e-Scope under white and polarized light with 20x and 200x magnifications. Dermoscopic patterns were observed and histopathological examination was done to confirm the diagnosis.

Results: Among the 18 patients, on histopathology 14 patients were having SK and 4 had VP. Among the 14 patients of SK, features found on dermoscopy were; comedo like openings – 12 patients (86%), fissures and ridges – 10 patients (71%), milia like cysts – 4 patients (28%), hair pin vessels – 2 patients (14%), fingerprint pattern – 2 patients (14%) and moth eaten border - 4 patients (28%), sharp demarcation – 10 patients (71%). Among lesions of VP, dotted vessels – 4 patients (100%) and white halo - 3 patients (75%) were seen.

Conclusion: Verruca plana being close differential to SK and having different treatment requires appropriate diagnosis. Dermoscopic patterns are characteristically specific with no overlapping findings in both the conditions. Thus we suggest the use of noninvasive, quick tool like dermoscopy in differentiating these conditions.

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INTRODUCTION

Seborrheic keratoses (SK) are the most common benign epidermal tumors composed of epidermal keratinocytes (Mackie, 2004). The condition usually occurs in middle-aged individuals and can arise as early as adolescence (Mackie, 2004). Both sexes are equally affected (Mackie, 2004). The lesion of SK can occur at any site but most frequent on face and upper trunk (Mackie, 2004). The lesions are usually well-circumscribed, dull, flat, tan, or brown patches. They are usually asymptomatic but may be itchy. As they grow, they become more papular, with a "stuck on" appearance (Mackie, 2004). Sometimes SK presents with a plane flat verrucous surface which may be clinically confused with verruca plana. Verruca Plana (VP) is a common benign skin infection that is caused by human papilloma virus (HPV).

(Treatment of Nongenital Cutaneous Warts, 2011). It is common in children, with a peak incidence in the teenage years and a sharp decline thereafter. (Treatment of Nongenital Cutaneous Warts, 2011). VP typically affects individuals with compromised immune system. (Treatment of Nongenital Cutaneous Warts, 2011). They are smooth, skin colored or pigmented, 1-5mm papules usually seen on the face, dorsa of hands and shins (Criton, 3rd edition). Such plane verrucous lesions (Image 6) pose diagnostic challenge to the dermatologists. Verruca plana is an infectious condition that can spread via person-to-person contact or indirectly by fomites (Treatment of Nongenital Cutaneous Warts, 2011). The treatment commonly involves complete excision of the skin lesion (Treatment of Nongenital Cutaneous Warts, 2011). The prognosis of Verruca Plana is generally good with appropriate treatment, (Treatment of Nongenital Cutaneous Warts, 2011) whereas SK are usually benign lesions which grow in number and size and result in marked hyperplasia with age. SK are not infectious and do not become malignant (<http://www.bad.org.uk/shared/get-file.ashx?id=231& itemtype>

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=document). Since these two conditions have significantly different etiology, treatment and prognosis, differentiation of SK from VP is necessary. Over the last few years, several studies have shown that dermoscopy may aid in the diagnosis of various dermatological disorders. It is traditionally used for the evaluation of skin tumors and melanocytic lesions, but it can also be used for such verrucous lesions. The features observed may serve as an additional tool in the diagnosis of these lesions, and exclude the need of invasive tools like skin biopsy. In literature search we found many studies evaluating the dermoscopic features of SK and variants of SK but there are very few studies differentiating SK and VP till date. We conducted this study to evaluate the different specific patterns observed in such flat verrucous lesions and determine the use of dermoscopy in differentiating SK from VP.

MATERIALS AND METHODS

We conducted a cross-sectional single centre descriptive study. The source of the study population was patients attending outpatient department of a tertiary care centre. A total of 18 patients were included in the study. Inclusion criteria were age more than 18 years of either sex, clinically presenting with plane verrucous lesion and who were willing to participate in the study. Informed written consent was taken of all the subjects. Patients whose lesions could not be confirmed histopathologically and who failed to give consent for the same were excluded from the study. A detailed history and clinical examination was done. Clinical photographs of the lesions were taken. Dermoscopic examination of the lesions was performed using OITEZ e-scope (DP-M17 filter e-scope pro (optical 200x)). We evaluated the findings under polarized and non-polarized light with 20x and 200x magnification. Different patterns observed in the lesions were studied and categorized into data. The patterns observed were comedo like openings, fissures and ridges, milia like cysts, fingerprint pattern, vasculature like dotted vessels and hair pin vessels; while patterns at the borders of lesions studied were sharp demarcation, moth eaten border or a white surrounding halo. Comedo-like openings are 'black head like' plugs of brown to black color. Milialike cysts are round, whitish, or yellowish structures. Fissures are irregular linear keratin-filled depressions. Fingerprint-like structures are thin, brown, parallel lines resembling fingerprint pattern. Moth eaten border is the concave border of the SK which has been compared to Moth eaten garment. Hair pin blood vessels correspond to long capillary loops, mainly found at the border of SK. Sharp Demarcation is the abrupt cut-off of the pigmented border (Malvey *et al.*, 2006; Braun *et al.*, 2002). Skin biopsy of the lesions was performed for histopathological confirmation. Descriptive analysis was used to analyse the data obtained.

RESULTS

Out of the 18 patients, on histopathology, 14 patients had seborrheic keratosis while 4 patients had verruca plana lesion. The most common dermoscopic pattern observed in seborrheic keratosis were comedo like openings (Image 1). The second commonly pattern observed was fissures and ridges which formed a brain like appearance (Image 2). Few other findings in SK lesions were milia like cysts (Image 3) and fingerprint pattern. Amongst vasculature in SK lesions hair pin vessels were seen. The frequency of these findings in SK were as in (Figure 1). Borders of most of the lesions of SK showed sharp demarcation and few showed a moth-eaten border (Figure 2).

Among the 4 patients of verruca plana, the most specific and constant finding was dotted vessels seen as black thrombosed dots (Image 4) and a surrounding white halo (Image 5) in most of the patients (Figure 3).

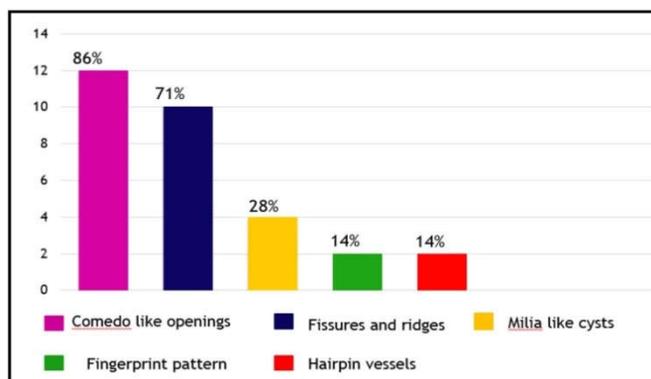


Figure 1. Frequency of dermoscopic patterns in SK

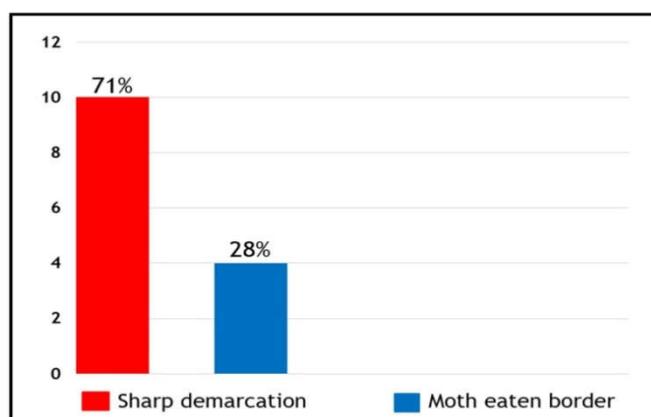


Figure 2. Frequency of dermoscopic patterns at borders of SK

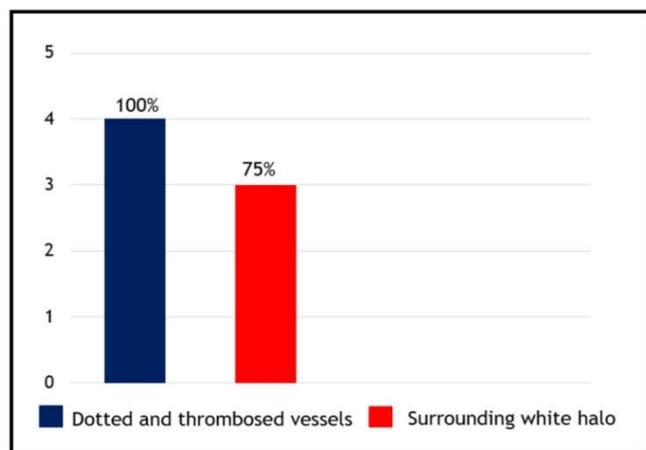


Figure 3. Frequency of dermoscopic patterns in VP

ON DERMOSCOPY	SEBORRHEIC KERATOSIS	VERRUCA PLANA
Border	Sharp demarcation ++ Moth eaten border +	Surrounding white halo
Vasculature	Hairpin vessels (Few)	Dotted; thrombosed (Many)
Characteristic finding	Comedo like openings	Thrombosed vessels

Figure 4. Dermoscopic clues to differentiate SK from VP

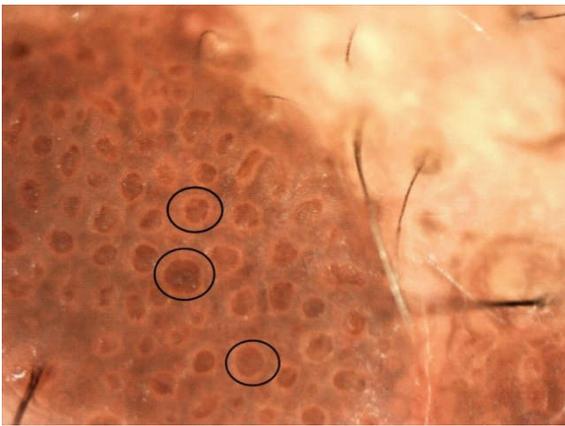


Image 1. Dermoscopic image under polarized light; 200x; Comedo like openings



Image 2. Dermoscopic image under polarized light; 20x; Fissures and ridges (brain like pattern)



Image 3. Dermoscopic image under polarized light; 20x; Milia like cysts



Image 4. Dermoscopic image under polarized light; 200x; dotted and thrombosed vessels

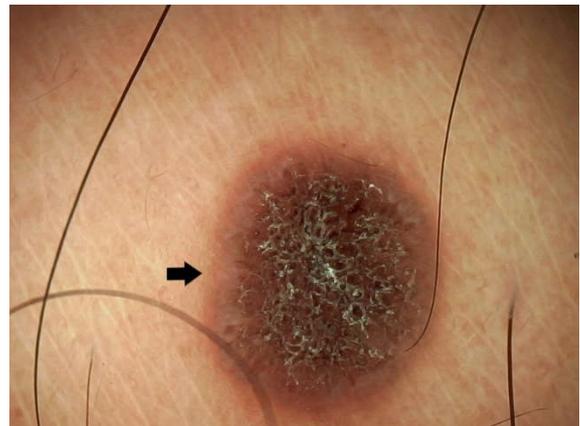


Image 5. Dermoscopic image under polarized light; 20x; White surrounding halo

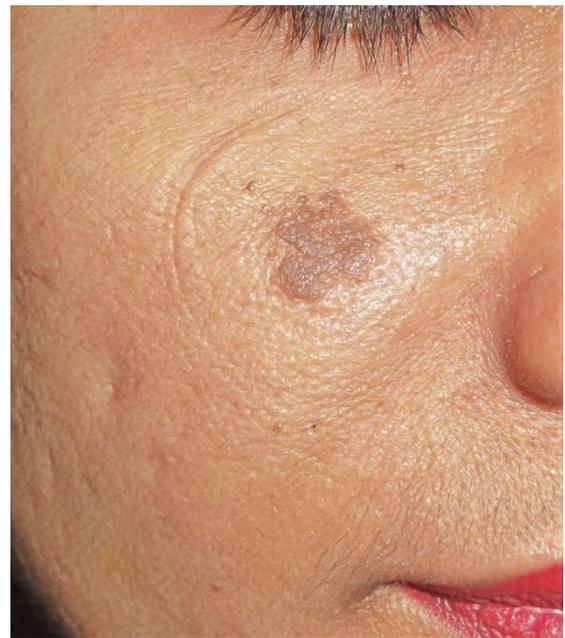


Image 6. Flat verrucous lesion on face; SK or VP?

DISCUSSION

The flat verrucous lesions morphologically have plane flat verrucous surface, a defined border and a pigmented brown to black colour, which may be seborrheic keratosis or verruca plana (Image 6). Dermatologists often have difficulty in the diagnosis of these cases. Although there is a study differentiating these two disorders using confocal laser scanning microscopy (CLSM) (Liu *et al.*, 2010), limited availability of CLSM in most of the clinics excludes its use on daily basis. A single report of dermoscopic clues along with clinical algorithmic approach to differentiate these cases is reported. (Kim *et al.*, 2015). However no study was conducted to evaluate the use of dermoscopic examination alone to differentiate these cases. There are only a few studies on the dermoscopy of SK. Braun *et al.* evaluated 203 pigmented SK (from 192 patients) and reviewed dermoscopic criteria of pigmented SK. The authors found high prevalence of classic dermoscopic criteria of SK, i.e., comedo like openings (70%) and milia like cysts (66%), in addition they suggested four other dermoscopic criteria (fissures (61%), hair pin blood vessels (63%), sharp demarcation (90%) and moth eaten border (46%)) (Braun *et al.*, 2002) Similarly in our study we recorded these criteria in SK and found consistent findings

comedo like openings being the most common finding (86%), fissures and ridges (71%), milia like cysts (28%). Rajesh *et al* has carried out a study to establish correlation between the clinical and dermoscopic appearance of SK and its variants (Rajesh *et al.*, 2011). He reported the findings in variants of SK, comedo like openings were the most common finding in classical SK lesions, while the flat SK showed no fissures and ridges pattern (Rajesh *et al.*, 2011). However in our lesions of flat SK we reported fissures and ridges forming a brain like pattern in 10% of patients. Also, KIM *et al* reported fissures and ridges forming a brain like appearance to be the most common finding in his subjects having the verruca plana like seborrheic keratosis (Kim *et al.*, 2015). However in our study of such lesions (Flat SK) we found comedo like openings to be the most common dermoscopic finding followed by second most common finding being fissures and ridges.

Amongst vasculature pattern observed RajeshG *et al* in flat SK have reported no hair pin vessels (Rajesh *et al.*, 2011) and Kim *et al* have not reported such a finding in SK. (Kim *et al.*, 2015) We found hair pin vessels in 4% of the patients having flat SK. After reviewing the previous studies, we found few studies regarding dermoscopic findings of VP reported “regularly distributed red dotted vessels on a light brown background” as a characteristic dermoscopic finding of VP. (Hui *et al.*, 2017; Zalaudek *et al.*, 2008; Yoong, 2009; Dong *et al.*, 2011; Micali *et al.*, 2011; Tanioka *et al.*, 2009). Our findings are consistent with previous reports. A differentiating clue between VP and SK were the findings of vasculature in these lesions. We found characteristically very few SK lesions have vessels but VP abundantly shows dotted and thrombosed vessels. We found an additional finding in many of our VP lesions and that was a white surrounding halo around the lesion (75%). We suggest that along with the dotted vessels on a light brown background, a white surrounding halo on dermoscopy helps to diagnose VP. This can be an additional clue to differentiate SK from VP. Dermoscopy is a very handy, easy and a noninvasive diagnostic tool. It aids in differentiating these flat verrucous lesions and patients can avoid invasive procedures like skin biopsy for benign conditions like these (SK and VP). The limitation was a small number of patients were involved in our study.

Conclusion

Dermoscopic patterns are characteristically specific to SK and VP. From our study, there were no overlapping dermoscopic findings in both hence we could confirm the use of dermoscopy in differentiating these conditions. (Figure 4) Moreover, dermoscopy being a noninvasive, easy to use tool, we suggest its use in flat verrucous lesions obviating the need for a skin biopsy.

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