Dermoscopy of Non-melanocytic and Pink Tumors in Brown Skin: A Descriptive Study

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Abstract

Introduction: Skin tumors are classified as melanocytic and non-melanocytic based on presence of melanocytes and melanin pigment in the tumor. Dermoscopy, being a non-invasive technique, is a proven method in recognizing the non-melanocytic and pink tumors by showing specific patterns. In Indian subcontinent, reports on dermoscopy of non-melanocytic and pink tumors are confined only to case reports. Authors studied dermoscopic features of non-melanocytic and pink skin tumors in dermoscopy. Materials and Methods: Study was carried in a tertiary hospital attached to S.Nijalingappa Medical College, Bagalkot, between January and December 2016. It was a descriptive study. Patients with signs of non-melanocytic and pink tumors were selected. Demographic data, such as age, gender, and clinical variables in terms of site of tumor and duration were documented. Manual DermLite 3 and videodermoscopy were employed. Both polarized and non-polarized versions were used for examination. Results: Totally 128 patients were present with 75 females and 61 males. Study included pyogenic granuloma (39), squamous cell carcinoma (4), basal cell carcinoma (30), keratoacanthoma (3), seborrhoeic keratosis (15), trichoepithelioma (2), syringoma (5), apocrine hidrocystoma (2), fibrokeratoma (5), dermatofibroma (6), epidermal cyst (7), sebaceous hyperplasia (2), Bowen’s disease (1), sebaceous cyst multifocal (1), Lymphangioma circumscriptum (3) and milia (3). Numbers in parenthesis indicate number of patients. Conclusion: Dermoscopy of non-melanocytic and pink tumors demonstrates characteristic patterns which vary from white, yellow, brown to blue and red depending on presence of keratin and hemoglobin. Patterns differ based on the type skin color. Recognition of distinctive vascular and keratin related pattern is of great help in the diagnosis of skin tumors. To the best our knowledge, this is first report of dermoscopy of non-melanocytic and pink tumors on a larger scale from Indian subcontinent.

Keywords: Dermoscopy, non-melanocytic tumor, patterns, pink tumors

INTRODUCTION

Skin tumors are classified as melanocytic and non-melanocytic based on presence of melanocytes and melanin pigment in the tumor. The non-pigmented tumors can be referred to as non-melanocytic tumors because they lack melanin pigment and color perceived is due to keratin or hemoglobin. Keratin appears as yellow or orange and hemoglobin looks red, purple, blue and black under dermoscopy. Lesions with predominantly red or purple or whitish-red color, they are called as pink tumors. Pink tumors are benign or malignant in nature. Clinical appearance is similar. Histopathology is a confirmatory diagnostic method. However, there is a hesitation on doing biopsy on the face on part of both physician and patient because of scarring. Dermoscopy, being a non-invasive technique, is a proven method in recognizing the non-melanocytic and pink tumors by showing specific patterns. In Indian subcontinent, reports on dermoscopy of non-melanocytic and pink tumors are confined only to case reports. Studies on larger scales are required to validate the utility of dermoscopy of non-melanocytic and pink tumors in this part of the World.

OBJECTIVES

To study dermoscopic features of non-melanocytic and pink skin tumors in dermoscopy among Indian population.

MATERIALS AND METHODS

The study was carried out in the Department of Dermatology in a tertiary hospital attached to S. Nijalingappa Medical College at Bagalkot, Southern India between January and December 2016. It was a descriptive study. Patients with signs of non-melanocytic and pink tumors were selected. Demographic data, such as age, gender, and clinical variables in terms of site of tumor and duration were documented. Manual DermLite 3 and videodermoscopy were employed. Both polarized and non-polarized versions were used for examination. Results: Totally 128 patients were present with 75 females and 61 males. Study included pyogenic granuloma (39), squamous cell carcinoma (4), basal cell carcinoma (30), keratoacanthoma (3), seborrhoeic keratosis (15), trichoepithelioma (2), syringoma (5), apocrine hidrocystoma (2), fibrokeratoma (5), dermatofibroma (6), epidermal cyst (7), sebaceous hyperplasia (2), Bowen’s disease (1), sebaceous cyst multifocal (1), Lymphangioma circumscriptum (3) and milia (3). Numbers in parenthesis indicate number of patients. Conclusion: Dermoscopy of non-melanocytic and pink tumors demonstrates characteristic patterns which vary from white, yellow, brown to blue and red depending on presence of keratin and hemoglobin. Patterns differ based on the type skin color. Recognition of distinctive vascular and keratin related pattern is of great help in the diagnosis of skin tumors. To the best our knowledge, this is first report of dermoscopy of non-melanocytic and pink tumors on a larger scale from Indian subcontinent.

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December 2016. It was a descriptive study. The ethical clearance was obtained by the institutional ethical committee. The patients gave written informed consent. Patients with signs and symptoms of non-melanocytic and pink tumors fulfilling inclusion criteria were selected. Demographic data, such as age, gender, and clinical variables in terms of site of tumor and duration were documented. Tumors were selected for dermoscopic examination. Histopathology was carried out to confirm the diagnosis. When multiple lesions were present biopsy was done from target lesions. Same dermatologist (BSA) evaluated dermoscopic patterns and was unaware of clinical diagnosis. The pathologist (MHP) was unaware of clinical diagnosis and same pathologist evaluated histopathological changes. Data was collected and analyzed. The results were statistically described as types of dermoscopic patterns.

**Inclusion criteria**

1. Patients with non-melanocytic and pink tumors,
2. Patients with tumorous growths of infective origin (molluscum contagiosum) and of hereditary condition (neurofibromatosis).

**Exclusion criteria**

1. Patients with melanocytic nevus and melanoma
2. Tumorous growths with secondary infection.

**Dermoscopic examination**

A manual DermLite 3 (3Gen, San Juan Capistrano, CA) dermoscope attached to a Sony (Cyber Shot DSC-W800, Sony Electronics Inc., San Diego, California, USA, digital, 14 mega pixels) camera and FotoFinder videodermoscopy (FotoFinder Systems GmbH, Industriestraße, Bad Birnbach, Germany) were employed. Both polarized and non-polarized versions were used for examination. For non-polarized mode, ultrasound gel was put on the lesions and face plate was held gently on the lesion so that blood vessels were not blanched.

**Results**

Totally 144 patients were present with 75 females and 69 males. It is a descriptive study. Dermoscopic patterns are highlighted in each tumor. Study included basal cell carcinoma (30), dermatofibroma (6), Bowen’s disease (1), neurofibroma (4), fibrokeratoma (5), steatocystoma multiplex (1), syringoma (5), trichoepithelioma (2), epidermal cyst (7), apocrine hydrocystoma (2), lymphangioma circumscriptum (3), milia (3), sebaceous hyperplasia (2), seborrheic keratosis (15), angiofibroma (4), angiookeratoma (1), pyogenic granuloma (39), cherry angioma (10), keratoacanthoma (3) and squamous cell carcinoma (4). Numbers in parenthesis indicate number of patients. It is a descriptive study; hence importance was given dermoscopic patterns observed in each tumor. Non-melanocytic and pink tumors exhibited different color patterns that helped in diagnosis. Color patterns under dermoscopy are depicted in Table 1 and 2. Frequency of characteristic dermoscopic patterns in non-melanocytic and pink tumors is presented in Graph 1 and 2 respectively. Graph 3 represents different patterns non-melanocytic and

### Table 1: Showing red and white color patterns in non-melanocytic and pink skin tumors

| Color under dermoscopy | Skin tumor          |
|------------------------|---------------------|
| Red color              |                     |
| Homogeneous areas      | PN, BD, LC, SCC     |
| Vessels                |                     |
| Dots                   | AF, BD, SCC         |
| Branching or arborizing| BCC, EC, AH, KA, SCC, SH, TE, SCM |
| Atypical               | SCC, KA, BCC        |
| Linear                 | SH, BCC, KA, ML, TE |
| Irregular              | SCC, KA             |
| Looped (hair pin)      | SCC, KA             |
| Unspecific             | SCC, KA             |
| Lagoons                | PN, LC, AF, CA      |
| Blood spots            | SCC, KA, BD         |
| Ulceration             | SCC, BCC, KA, BD    |
| White color            |                     |
| Structureless areas    | KA, SCC, BD, ML, BCC, DF, FK, EC, NF |
| White globules         | NF, DF, AH          |
| Whitish-red veil       | CA, AK              |
| White septa            | PN, CA, LC          |
| Star burst pattern     | DF, NF              |
| Whitish halo or collarette | FK, PN              |

PN: Pyogenic granuloma, SCC: Squamous cell carcinoma, BCC: Basal cell carcinoma, KA: Keratoacanthoma, SK: Seborrheic keratosis, TE: Trichoepithelioma, SR: Syringoma, AH: Apocrine hydrocystoma, FK: Fibrokeratoma, DF: Dermatofibroma, EP: Epidermal cyst, SH: Sebaceous hyperplasia, BD: Bowen’s disease, SC: Steatocystoma multiplex, LC: Lymphangioma circumscriptum, ML: Milia

### Table 2: Showing blue, brown and yellow color patterns in non-melanocytic and pink skin tumors

| Color under dermoscopy | Skin tumor          |
|------------------------|---------------------|
| Blue color             |                     |
| Blue gray globules     | BCC, AF, DF         |
| Blue grey ovoid nests  | BCC                 |
| Blue-white veil        | BCC, CA             |
| Lagoons                | AF                  |
| Brown color            |                     |
| Peripheral rim         | CA, DF, ML, SCM, NF |
| Peripheral pigment network | CA, DF, NF         |
| Globules at centre     | TE, FK, SR          |
| Homogeneous area       | AH                  |
| Yellow color           |                     |
| Yellowish structureless areas | DF, SCM         |
| Yellow globules        | SH                  |

PN: Pyogenic granuloma, SCC: Squamous cell carcinoma, BCC: Basal cell carcinoma, KA: Keratoacanthoma, SK: Seborrheic keratosis, TE: Trichoepithelioma, SR: Syringoma, AH: Apocrine hydrocystoma, FK: Fibrokeratoma, DF: Dermatofibroma, EP: Epidermal cyst, SH: Sebaceous hyperplasia, BD: Bowen’s disease, SC: Steatocystoma multiplex, LC: Lymphangioma circumscriptum, ML: Milia
pink tumors. New dermoscopic observations are presented in Graph 4 and 5.

**Discussion**

Dermoscopy is a non-invasive technique that allows **in vivo** examination of the skin and is especially used for the differential diagnosis of pigmented and non-pigmented skin tumors. This is because dermoscopy permits the visualization of key vascular structures that are usually not visible to the naked eye. Apart from vascular elements, white and brown structures give valuable information for diagnosis. White structures are very important in keratinizing tumors and they reveal specific patterns such as white circle, white pearl and white scale.

Here authors have described dermoscopic patterns in each condition separately and key points in respect with brown skin color are highlighted.

**Non-melanocytic Tumors**

**Basal cell carcinoma**

Dermoscopy of Basal cell carcinoma (BCC) is well documented. Specific criteria are described for the accurate diagnosis of BCC by dermoscopy. There are few differences in dermoscopic patterns of superficial, nodular and pigmented BCC (pBCC). This study included only pigmented and nodular BCC (nBCC). Dermoscopy in all pBCC revealed blue-gray ovoid nests, maple leaf like structures, whitish-blue veil, ulcerations, spoke wheel patterns. Nodular BCC demonstrated arborizing vessels, blue gray globules and white areas. One lesion showed atypical vessel running across the lesion [Figure 1]. Superficial BCC reveals homogeneous reddish-white and branching vessels. Negative pigment network which is characteristic of BCC was noted in all lesions. Notably, blue gray ovoid nests, whitish blue veil, leaf like structures, ulcerations, arborizing vessels were prominent. Some authors have mentioned comma vessels in
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pBCC. However, comma vessels in pBCC were not found in this study. This is probably due to small sample size.

**Dermatofibroma**

Dermatofibroma (DF) is fibrous tumor characterized by increased fibrocytes in the dermis. Dermatofibroma can mimic malignant melanoma and other pigmented tumors. Hence it is necessary to differentiate DF from other tumors. Dermoscopy reveals many patterns which help in the diagnosis. In this study, it demonstrated white scar like areas and yellow homogeneous areas in the centre, delicate peripheral pigment network and peripheral striations [Figure 2]. One lesion showed central, distorted pigment network and authors believe that it as atypical pigment network. It must be noted that DF with atypical pigment network should be sent for histopathological evaluation.

Delicate pigment network is hallmark of DF. DF lesions show delicate network at periphery and in the centre. In our study, identical findings were observed. However, vessels were not noted. This is probably due to the age of the lesion and color of the skin. Total homogeneous area; total white scarlike patch; multiple white scarlike patches; peripheral homogeneous area and central white scarlike patch; peripheral homogeneous area and central white network; and atypical pattern are the described dermoscopic features of DF.

**Bowen’s disease**

Bowen’s disease (BD) is a pre-malignant tumor affecting older individuals. Clinically, it is characterized by well defined pigmented plaque with scaling and crusting. Slow growth is characteristic of BD. Histopathologically, it is characterized by atypical keratinocytes that involve the full thickness of the epidermis. Differences of BD include pigmented BCC, melanoma and seborrheic keratosis. Therefore, distinction of BD is difficult clinically requiring histopathology for confirmation. Pigmented BD (pBD) reveals brown regular globules, structureless brown and blue pigmentation, glomerular vessels, hypopigmented regression-like areas, and scaling, gray homogenous pigmentation. Dermoscopic diagnosis of pBD is based on the absence of criteria for a melanocytic lesion in the presence of glomerular vessels, regular brown globules and keratosis.

Authors noticed similar features except blue pigmentation [Figure 3], glomerular vessels, and gray homogenous pigmentation. Interestingly, erythematous background and thick scaling was prominent. This is probably explained by repeated trauma.

**Neurofibroma**

Neurofibroma (NF) originates from nerve sheath and is characterized by a solitary soft to firm papule. Clinical diagnosis is not difficult when multiple lesions are present; however, solitary and pigmented lesions are difficult to diagnose. Dermoscopy demonstrates pink-red homogeneous areas, peripheral pigment network, fingerprint-like structures, fissures, scar-like white areas and blood vessels of any type. Similar patterns were present in this study [Figure 4]. Fingerprint like structures and blood vessels were not observed. Scar-like white areas were arranged in star burst appearance. This difference may be related to age of the lesion.
Fibrokeratoma

Fibrokeratoma (FK) is a benign fibrous tumor that usually occurs in adults as a solitary lesion. Diagnosis is usually based on the clinical findings; however, it can mimic neurofibroma and other non-pigmented tumors. Dermoscopy shows a central homogeneous rosy-white area, surrounded by thin dark linear concentric structures with several dotted vessels.\textsuperscript{13} In this study, white structureless areas were arranged as if they were running like tree branches. Dotted and linear vessels were noted [Figure 5]. White areas correspond to fibrous tissue in the dermis. White structureless areas may turn to pink-red areas due to trauma. This entity must be kept in mind. One lesion showed such pattern along with blood spot at tip of tumor.

Steatocystoma multiplex

Steatocystoma multiplex (SCM) is an uncommon disorder of the pilosebaceous unit characterized by the development of numerous sebaceous-containing dermal cysts.\textsuperscript{14} Dermoscopy of SCM in this study showed yellow homogeneous area covering entire lesion, linear vessels, and peripheral brown rim [Figure 6]. These were similar to the patterns described in the literature.\textsuperscript{14} Sweat duct openings were intact on the lesion and were seen as glistening white dots on the tumor.

Syringoma

Syringoma (SR) are sweat duct tumors present as skin colored papules on the face especially below the eyes. They can be confused with xanthoma, hydrocystoma, milia, trichoepithelioma. Reports on dermoscopy of syringoma are scanty in the literature. In a report, homogeneous light brown pigmentation with multifocal whitish areas and a delicate pigment network at the periphery was noted in linear syringoma on lower limb.\textsuperscript{15} In this study, all lesions were present on the face and dermoscopy revealed brownish pseudo network occupying whole lesion and tiny white dots [Figure 6]. White dots correspond to sweat duct openings. Size of white dots was bigger in lesional skin as compared to uninvolved skin. This compounds ductal pathogenesis in syringoma. This is a new observation made by the authors.

Trichoepithelioma

Trichoepitheliomas (TE) are benign neoplasms of follicular differentiation. Solitary lesions are often confused with BCC. Authors compared dermoscopic and reflectance confocal microscope pattern in trichoepithelioma and found arborizing vessels. Desmoplastic lesions showed ivory...
In this study, homogeneous brown structures corresponding to pseudo network, white globules and arborizing vessels [Figure 2]. Vessels were crossing the midline. These are new dermoscopic patterns.

**Epidermal cyst**
Epidermal cyst (EC) is a common keratin-filled epithelial-lined cyst. Diagnosis is generally based on physical findings; however, excision biopsy is required to differentiate from subcutaneous nodules. Dermoscopic patterns of EC are described and pore sign is characteristic of it. The area where the pore sign appears is filled with keratin and it can be of white, yellow, brown or black color.[17] In this study, yellow and black colored pore, branching vessels traversing across the lesion, ivory white homogeneous area were noted [Figure 7]. Pore sign correspond to central crater and follicular opening.

Dermoscopy helps in the differentiation of ruptured and unruptured cyst. Peripheral erythema with linear vessels and ivory white color in the centre indicate ruptured cyst. Branching vessels with bluish areas in the centre indicate an unruptured cyst.[18]

Similar observations were made in this study. Interestingly, duration of lesion gives different dermoscopic patterns. Authors observed bright yellow area in very early lesion and structureless whitish-blue areas in late lesions.

**Apocrine hydrocystoma**
Apocrine hydrocystoma (AH) is a translucent to skin colored cystic tumor occurring on the face. It can be solitary or multiple. Most important differentials are nBCC, amelanotic melanoma and blue nevus.[19] Dermoscopic patterns of AH are translucent to opaque homogeneous areas that occupies entire lesion, brown pigment globules, white areas and arborizing blood vessels.[20]

In this study, AH were present on the cheek and eyelids. Dermoscopy demonstrated yellowish-brown homogeneous area covering whole lesion, linear irregular vessels running across the lesion and white globules [Figure 8]. Homogeneous areas may be skin-colored or yellow or blue. In this study, it was yellowish-brown and it is due to color of the skin. The greatest pitfall of dermoscopy of AH is that it greatly mimics nBCC. Nonetheless, presence of blue gray globules favors the diagnosis of nBCC. In doubtful cases, excision biopsy is the best approach.

**Lymphangioma circumscriptum**
Lymphangioma circumscriptum (LC) is congenital lymphatic malformation characterized by grouped translucent vesicle mimicking frog spawn. Main differentials are molluscum contagiosum, hemangioma, Angiokeratoma and metastatic carcinoma of the skin.[21]

Two dermoscopic patterns were described in the literature. Yellow lacunae surrounded by pale septa without blood and yellow to pink lacunae due to inclusion of blood.[22] In this study, pale yellow, pale pink lacunae were noted predominantly and some of the lacunae were filled with purplish globules.

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**Figure 4:** Dermoscopy patterns of neurofibroma (a and b) demonstrates pink-red homogeneous areas, peripheral pigment network (yellow arrow), fissures (black arrows), star burst appearance of scar-like white areas (red star). Milia (e and f) show whitish-yellow homogeneous area, brownish peripheral rim and linear vessels (red arrow). Histopathology shows neurofibroma (c and d: H and E, ×4 and ×10)

**Figure 5:** Dermoscopy of angiokeratoma (a) shows pink to purplish lagoons underneath whitish ground and prominent septa. Fibrokeratoma shows homogeneous brownish-white and rosy-white area (b and c). Inset clinical images
representing blood. Lesions of long duration demonstrated surface keratosis which was seen as white areas [Figure 11].

**Milia**

Milia (ML) are epidermal inclusion cyst and they present as dome shaped rubbery yellow to white papules on the face. They are confused with molluscum contagiosum and comedones. Authors found white to yellow homogeneous areas occupying whole lesion. Brownish peripheral rim was distinctly present in all the lesions [Figure 4]. Linear vessels were noted in higher magnification with polarized mode. This is first description on dermoscopy of milia; however, milia-like cysts (MLC) are described in seborrheic keratosis and invasive melanoma.

**Sebaceous hyperplasia**

Sebaceous hyperplasia (SH) is benign tumor of sebaceous glands affecting middle aged persons. Clinically presents as asymptomatic white to yellowish papule on the face and neck. Differentials include molluscum contagiosum, trichilemmoma and other non-pigmented tumors affecting the face. Dermoscopy of SH demonstrates specific patterns that include yellow to white globules occupying whole of the lesion and linear vessels running from periphery to the centre. These are called as ‘crown vessels’. Vessels are pushed to the periphery due to hyperplastic glands. Yellow globules correspond to sebaceous glands.

In this study, identical dermoscopic patterns were noted, however, lesion in a darker individual showed pale yellow globules surrounded by pale white septa [Figure 3]. Patulous follicles were noted at the periphery. Crown vessels were also noted. Variation in the presentation can be explained due to darker skin type.

**Seborrheic keratosis**

Seborrheic keratoses (SK) are the most common benign epidermal tumors composed of epidermal keratinocytes. Dermoscopic criteria for SK are moth eaten borders, comedo-like openings, milia-like cysts (MLC), hairpin vessels; fat fingers, cerebriform pattern and fingerprint patterns. Recently pigment network like structures were described which look like pigment network (melanocytic criteria) but not actually a pigment network. Hence SK is considered as non-melanocytic lesion.

In this study, dermoscopy showed similar features. Nevertheless, hairpin vessels were not evident in all the lesions. This is may be related to the brown color. Surface white scaling and thick crusts were noted. Thick crusts under dermoscopy appeared as ‘parchment-like’ pattern [Figure 9]. MLC are of two types: starry and cloudy. Cloudy MLC are seen in benign lesions and smaller starry MLC are noted in invasive melanoma.
In one lesion, starry MLC were noted, but size was bigger and histopathology proved it to be SK.

Pink Tumors

Angiofibroma

Angiofibromas (AF) are small, reddish brown smooth and shiny tumors occur on the face and genitalia. There is report of dermoscopy of AF affecting nose and penis. White globules on the whitish-red or pinkish background are the patterns. In this study, AF on the penis, also called pearly penile papules, showed similar findings. However, AF affecting the face as in tuberous sclerosis (TS) and a linear variant, demonstrated bluish-white lacunae, red dots and white globules [Figure 8]. Bluish-white lacunae and white globules correspond to proliferative vessels and to fibrosis respectively. This is the first description of dermoscopic patterns of angiofibroma in TS.

Angiokeratoma

Angiokeratomas (AK) are benign vascular tumors present as solitary or multiple red to black colored papules. Histopathology shows dilated vessels and acanthosis and hyperkeratosis. Deroscopic patterns of AK include peripheral erythema, dark blue lagoons, whitish veil appears as ground glass film that corresponds to acanthosis and hyperkeratosis. These patterns are described in solitary angiokeratoma. In this study, pink to purplish lagoons underneath whitish ground glass film were noted. However, septae which separate each lacuna were thick and prominent [Figure 5]. This is probably due to long duration and multiple lesions.

Pyogenic granuloma

Pyogenic granuloma (PG) is a common, vascular tumor of the skin and mucous membranes that presents as pink colored nodule and bleeds on manipulation. Clinically it is a simulator of amelanotic melanoma, poroma, and other vascular tumors. It is very important to confirm the diagnosis by microscopy. Specific dermoscopic patterns are described in the literature that includes reddish homogeneous areas, white collarette, white rail line, and vascular structures.

In this study, similar findings were noted in all lesions of PG [Figure 10]. Red areas correspond to dilated vessels and white structures suggest collagen bundles separating vascular lobules in the dermis. One should be alert to observe individual vessels in red areas, as it is suspicious of melanoma.
Cherry angiomas
Cherry angioma (CA) is red colored skin growth due to the proliferation of blood vessels. Usually, their presence is not of any concern, but if changes in size and shape occur, intervention is needed in respect with diagnosis. Because of pink color, lesions are similar to melanoma and PG. Dermoscopy of CA shows numerous round or oval red-bluish lacunae that are generally well-demarcated. Histologically, these structures correspond to large dilated vascular spaces in the superficial dermis. Appearance of lacunae is dependent on depth and integrity of blood vessels in the dermis. Thrombosed and involuted hemangioma tend to have dark lacunae and scar-like appearance.

In this study, all lesions showed red to purplish lagoons that varied in size from round to oval. Milky-white veil was prominent in older lesions. Importantly, a rim pigment network was noted in two lesions [Figure 3]. This may be due to brown color of the skin. This feature is not described previously in the literature.

Keratoacanthoma
Keratoacanthoma (KA) is a rapidly evolving benign tumor of the skin, composed of keratinizing squamous cells originating in pilosebaceous follicles. Clinically presents as a dome shaped nodule with inflamed border and a crater. It closely resembles nodular squamous cell carcinoma, nBCC, desmoplasmic melanoma.

Dermoscopic predominantly reveals keratin related structures that include keratin crust or scale, central white areas, white circles, white pearls. Vascular elements like blood spots, glomerular, linear irregular, hairpin and atypical vessels are characteristic of KA.

Similar findings including crust, white areas, and radially arranged hairpin vessels were observed in this study [Figure 11]. Authors noticed yellowish crust and brown areas that could be explained on basis of color the skin or discharge from the lesion. However, signs of invasion such as white circle and white pearls were not observed.

Squamous cell carcinoma
Squamous cell carcinoma (SCC) is most commonly occurring cutaneous malignancy. Variants include nodular and invasive. Nodular type shows the dermoscopic patterns which are identical to KA with variable frequencies and include vascular and keratin related features. White areas are prominent as compared to KA.

Other keratinizing lesions, including actinic keratosis and Bowen’s disease exhibit similar dermoscopic features. However,
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**Conflicts of interest**

There are no conflicts of interest

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