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Original Research Article

Follicular keratotic diseases: a retrospective study of 50 cases in a tertiary care center of rural South India with dermoscopy and histopathology evaluation

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ABSTRACT

Background: Follicular keratotic diseases involve abnormal keratinization in hair follicles, causing follicular papules, hyperkeratosis, and perifollicular erythema. These disorders include diseases like phrynoderma, keratosis pilaris, lichen spinulosis psoriasis, eczema, and lichen planus. Dermoscopy is a non-invasive tool which can be used to differentiate diseases without the need of invasive procedures.
Methods: This study is a hospital based cross sectional study of 50 patients diagnosed with follicular keratotic diseases irrespective of age, sex, and duration of disease. Histopathological and dermoscopic findings of these disorders were noted.
Results: Keratosis pilaris was the most common follicular keratotic disease (FKD), predominantly affecting adolescent and young adult females. Lesions appeared mainly on the arms (92%), legss (48.3%), and lateral part of thigh (31.3%). Other follicular keratotic diseases observed were follicular eczema (10%), phrynoderma (10%), pityriasis rubra pilaris (10%) follicular lichen planus (2%), follicular psoriasis (2%), and lichen spinulosus (2%). Dermoscopy showed perifollicular scaling, erythema, keratin plugs, and white halos, while histopathology confirmed hyperkeratosis, follicular dilation, and minimal inflammation.
Conclusion: The study highlights keratosis pilaris as the most common FKD, with dermoscopic and histopathological correlations playing a crucial role in accurate diagnosis. As all the FKD and clinically similar confirmation of diagnosis depends on dermoscopy and histopathology. The findings also emphasize the importance of non-invasive techniques like dermoscopy in distinguishing KP from other follicular disorders and guiding effective management strategies.

Keywords: Follicular keratotic diseases, Keratosis pilaris, Dermoscopy, Histopathology, Phrynoderma, Lichen spinulosis, Follicular lichen planus, Follicular psoriasis

INTRODUCTION

Follicular keratotic disorders involve abnormal keratinization of follicular orifices, presenting as hyperkeratotic follicular papules. These disorders are classified into primary follicular keratotic diseases (e.g., phrynoderma, keratosis pilaris, lichen spinulosis) and follicular variants of other conditions (e.g., psoriasis, eczema, and lichen planus).[1,2]

This study mainly focuses on a clinic-epidemiological approach to help with diagnosing different follicular keratotic disorders and correlates clinical findings with histopathology and dermoscopy, improving diagnostic accuracy and guiding targeted treatment and possibly eliminate the need of an invasive procedure for diagnosing.[3,4]

METHODS

Type of study

It was a cross sectional study.

Study duration

The duration of the study was for 18 months (from April 2023 to September 2024).

Study was conducted in Rajarajeswari Medical Collee and Hospital, Kengeri Satellite Town, Bengaluru, Karnataka.

Inclusion criteria

All cases diagnosed clinically with follicular keratotic papules of all age groups whoever was consenting to the study were included.

Exclusion criteria

Patients who underwent systemic treatment and topical treatment in last 4 weeks and 2 weeks respectively were excluded.

A hospital based cross-sectional study of follicular keratotic diseases among 50 patients attending Dermatology department irrespective of age, sex or duration of the disease were included in the study. Informed consent was obtained from all the participating subjects. Institutional ethical committee clearance (IEC/111/2023) was obtained for the study. Clinical photographs of all patients were taken with prior consent as per Helisinki declaration. Biodata of the patients, relevant history, clinical and dermoscopic examination findings were to be recorded. Skin lesions were evaluated using DermLite™ DL4 under polarized mode, followed by a skin biopsy for histopathological examination. Dermoscopic and histopathological features of follicular keratotic disorders were analyzed. Data were processed using statistical package for the social sciences (SPSS) 23, with results presented as mean±SD, counts, and percentages.

RESULTS

Among the 50 patients clinically diagnosed with follicular keratotic diseases, the clinical subtype distribution showed that keratosis pilaris was the most prevalent condition, affecting 64% of participants (Figure 1). Other notable conditions included phrynoderma (10%), pityriasis rubra pilaris (10%), follicular eczema (10%), follicular lichen planus (2%), follicular psoriasis (2%), and lichen spinulosus (2%) (Figures 3-6 and Table 1).

In the present study, the study observed a mean age of 36.68±17.619 years. The highest prevalence of follicular keratotic disorders was observed in the 41-50 years age group, accounting for 22% of cases, followed by the 21-30 years age group, which comprised 20% of cases (Table 2).

Table 1: Clinical subtypes.

Clinical subtype	Frequency	Percentage
Keratosis pilaris	32	64
Follicular eczema	5	10
Phrynoderma	5	10
Pityriasis rubra pilaris	5	10
Follicular lichen planus	1	2
Follicular psoriasis	1	2
Lichen spinulosus	1	2
Total	50	100

Table 2: Follicular keratotic disorders.

Variables	Frequency	Percentage
Age group (years)		
<10	3	6
11-20	8	16
21-30	10	20
31-40	6	12
41-50	11	22
51-60	6	12
61-70	6	12
Total	50	100
Mean±SD	36.68±17.619	
Gender		
Female	24	48
Male	26	52
BMI (kg/m^2)	**Mean**	**SD**
	25.06	6.17
Height and weight	**Mean**	**SD**
Height (cm)	159.64	12.812
Weight (kg)	64.72	19.408

Dermoscopic findings

This study revealed distinct dermoscopic features across various follicular disorders (Table 3). Perifollicular scaling and keratotic plugs were seen in all cases of phrynoderma, pityriasis rubra pilaris (PRP), follicular lichen planus, follicular psoriasis, and follicular eczema, with 65% of keratosis pilaris (KP) cases also showing scaling (Figures 1, 3 and 4). Perifollicular erythema was most common in KP (56.3%) and PRP (60%), but less frequent in phrynoderma (20%) and rare in follicular lichen planus. Interfollicular hyperpigmentation was noted in 50–60% of phrynoderma, KP, and PRP cases, while normal interfollicular skin was more common in KP (43%) and PRP (40%). White scales were consistently present in all disorders except KP (65.6%). Hair abnormalities were prominent in KP (100% coiled, 68.8% twisted hair) and phrynoderma (60% coiled). Red dots were seen in all follicular eczema cases, and brown dots in 40% of PRP cases. Skin markings were observed in 40% of follicular eczema and 20% of phrynoderma.

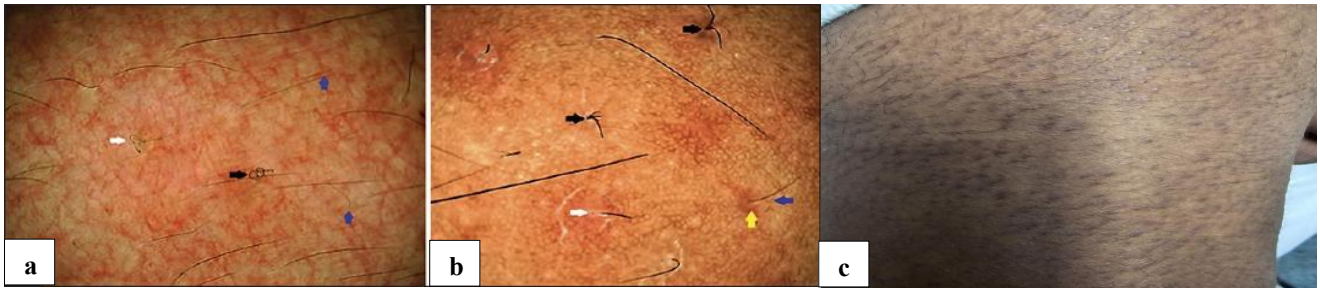

Figure 1: Keratosis pilaris-dermoscopy and clinical image, (a) dermoscopic findings from the thigh revealing faint reddish-light brown background with scattered vascular ectasias, twisted hairs forming loops (white arrow) and irregular coils (black arrow), and presence of vellus hairs (blue arrows); (b) from the outer arm showing scattered vellus hairs (blue arrow), perifollicular papular erythema (yellow arrow), hairs emerging in groups of 2–3 (black arrow), and focal peri-pilar cast (white arrow), appreciate the additional presence of scattered pigmented brown-colored globules (E-scope videodermoscope, polarized mode, ×20); and (c) clinical image showing multiple hyperkeratotic papules over the lateral aspect of arm.

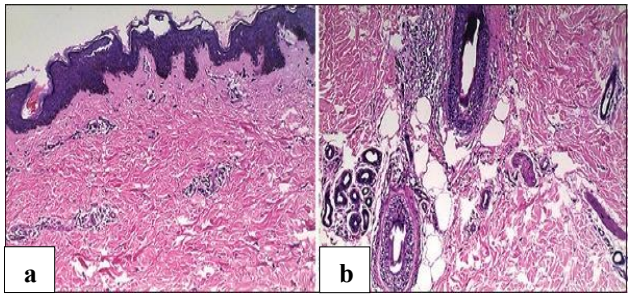

Figure 2: Histopathological findings of keratosis pilaris (a) (a) basket weave and lamellated orthokeratosis, and (b) follicular infundibular dilatation and plugging with focal peri-infundibular parakeratosis, and perifollicular lymphocytic infiltrate confirming the diagnosis of active keratosis pilaris (hematoxylin and eosin, ×100 and ×400).

Histopathological findings

Hyperkeratosis was universal in phrynoderma and follicular eczema, common in KP (81.25%) and PRP (60%) (Figures 2-5). Parakeratosis was exclusive to PRP (100%) and phrynoderma (40%) (Figure 4). Orthokeratosis was most frequent in KP (43.8%) and also seen in lichen spinulosus (Figure 6). Acanthosis was found in 80% of phrynoderma and 12.5% of KP. Spongiosis was specific to follicular eczema (80%) (Figure 5). Rete ridge prominence was seen in 40% of PRP and one case of follicular psoriasis. Hair changes were universal in all disorders except PRP (20%). Keratin and follicular plugs were present in all cases of phrynoderma, KP, and follicular eczema; PRP showed keratin in 80%. Perifollicular orthokeratosis was seen in 20% of follicular eczema; parakeratosis in 12.5% of KP; spongiosis in 80% of follicular eczema. Inflammation was found in KP (31%) and PRP (40%).

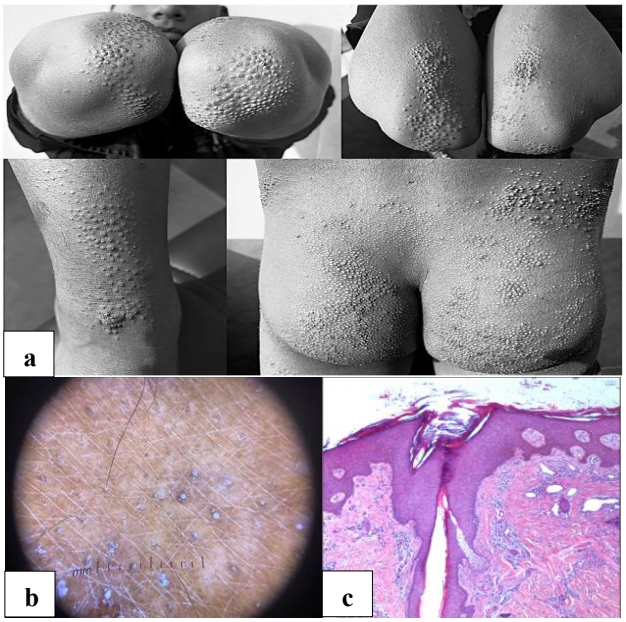

Figure 3: Phrynoderma showing hyperkeratotic papules over bilateral elbows buttocks, (a) hyperkeratotic papules with prominent keratin plugging and white perifollicular scale absent of erythema, and prominent skin markings (10× magnification), (b) histologic examination of a skin biopsy showed acanthosis, hyperkeratosis, and (c) hair follicles occluded with keratin plugs (hematoxylin and eosin, ×4).

Table 3: Dermoscopic findings.

Dermoscopic findings	Phrynode-rma (n=5) (%)	Keratosis pilaris (n=32) (%)	PRP (n=5) (%)	Lichen spinulosus (n=1) (%)	Follicular LP (n=1) (%)	Follicular psoriasis (n=1) (%)	Follicular eczema (n=5) (%)
Perifollicular scaling	5 (100)	21 (65)	5 (100)	1 (100)	1 (100)	1(100)	5 (100)
Keratotic plug	5 (100)	32 (100)	5 (100)	0 (0.0)	1 (100)	1(100)	5 (100)

Continued.

Dermoscopic findings	Phrynoderma (n=5) (%)	Keratosis pilaris (n=32) (%)	PRP (n=5) (%)	Lichen spinulosus (n=1) (%)	Follicular LP (n=1) (%)	Follicular psoriasis (n=1) (%)	Follicular eczema (n=5) (%)
Perifollicular erythema	1 (20)	22 (68)	3 (60)	0 (0.0)	1 (100)	0 (0.0)	0 (0.0)
Perifollicular fibrosis	3 (60)	0 (0.0)	0 (0.0)	0 (0.0)	1 (100)	0 (0.0)	0 (0.0)
Perifollicular	0 (0.0)	0 (0.0)	0 (0.0)	3 (75)	0 (0.0)	0 (0.0)	0 (0.0)
White areas	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Normal	1 (20)	14 (43)	3 (60)	1 (100)	0 (0.0)	0 (0.0)	0 (0.0)
Hyperpigmentation	3 (60)	16 (50)	2 (40)	0 (0.0)	1 (100)	1 (100)	5 (100)
Erythema	0 (0.0)	2 (6.25)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (100)
Prominent skin markings	1 (20)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	2 (40)
White area	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Blue-grey dots	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
White dots	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Reduced follicular ostia	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
White	5 (100)	25 (78)	5 (100)	1 (100)	1 (100)	1 (100)	5 (100)
Coiled	3 (60)	32 (100)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Twisted	0 (0.0)	10 (31)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Red dots	0 (0.0)		2(40)	0 (0.0)	0 (0.0)	0 (0.0)	5 (100)

Table 4: Histopathological findings.

Histopathological findings	Phrynoderma (n=5) (%)	Keratosis pilaris (n=32) (%)	PRP (n=5) (%)	Lichen spinulosus (n=1) (%)	Follicular LP (n=1) (%)	Follicular psoriasis (n=1) (%)	Follicular eczema (n=5) (%)
Hyperkeratosis	2 (40)	7 (21)	1 (20)	0 (0.0)	1 (100)	1 (100.0)	5 (100)
Parakeratosis	2 (40)	0 (0.0)	5 (100)	0 (0.0)	0 (0.0)	1 (100.0)	0 (0.0)
Orthokeratosis	0 (0.0)	14 (43)	0 (0.0)	1 (100)	0 (0.0)	0 (0.0)	0 (0.0)
Acanthosis	1 (20)	4 (12.5)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Spongiosis	0 (0.0)	0 (0.0)	2 (40)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Basal layer	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Vacuolization	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Pigment incontinence	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Reteridges	0 (0.0)	0 (0.0)	3 (60)	0 (0.0)	0 (0.0)	1 (100.0)	0 (0.0)
Epidermal thinning	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Hair changes	5 (100)	32 (100)	1 (20.0)	0 (0.0)	1 (100.0)	1 (100.0)	5 (100)
Keratin	5	32 (100)	1 (20)	0 (0.0)	0 (0.0)	0 (0.0)	5 (100)
Follicular plug	5	32 (100)	1 (20)	1 (100)	1 (100)	0 (0.0)	5 (100)
Perifollicular parakeratosis	0 (0.0)	4 (12.5)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Perifollicular orthokeratosis	0 (0.0)	2 (6)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	4 (80)
Perifollicular spongiosis	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (20)
Blood vessels	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (100.0)	0 (0.0)
Sebaceous glands	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (100.0)	0 (0.0)
Inflammation	0 (0.0)	10 (31)	2 (40)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Lymphocytic infiltration	2	13 (40)	1 (20)	1 (100)	1 (100)	1 (100.0)	3 (60)
Lymphohistiocytic infiltration	3	3 (9)	1 (20)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Fibrosis	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)

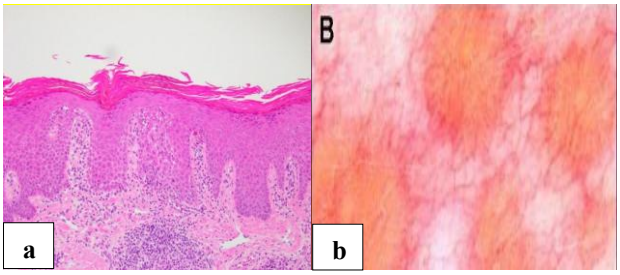

Figure 4: Pityriasis rubra pilaris dermoscopy, alternating vertical and horizontal hyperorthokeratosis and parakeratosis, (a) dermoscopy revealed a clearly different pattern, consisting of (b) round/oval yellowish areas surrounded by linear and dotted vessels.

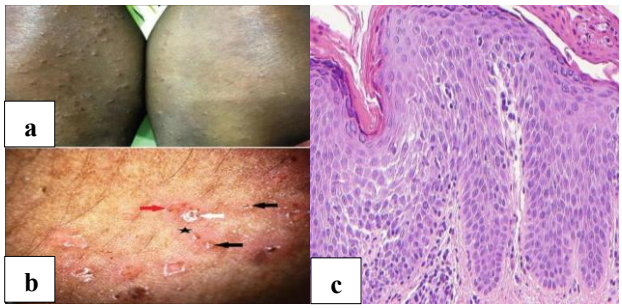

Figure 5: Follicular eczema (a) follicular and non-follicular erythematous papules on the extensor forearms, (b) dermoscopy shows follicular keratotic plugging (black arrows), perifollicular white scaling (white arrows), interfollicular red dots (red arrow), and interfollicular hyperpigmentation and prominent skin markings (black star), and (c) dermoscopy, polarized non-contact, x10] histopathology shows typical spongiosis.

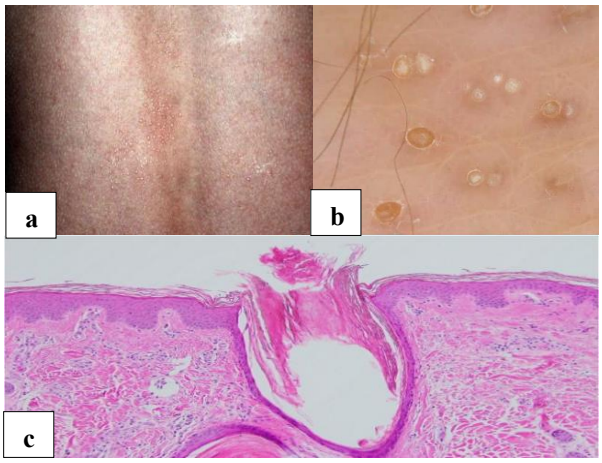

Figure 6: Lichen spinulosis clinical image and dermoscopy and histopathology, (a) clinical image, (b) perifollicular scaling noted in dermoscopy, and (c) lichen spinulosis histopathology, dilated hair follicle filled with keratotic plugs surrounded by dense perifollicular lymphohistiocytic inflammatory infiltrates.

Lymphocytic infiltration was noted in 40% of phrynoderma and KP, and in isolated cases of other disorders. Lymphohistiocytic infiltration was prominent in phrynoderma (60%). Fibrosis was absent in all cases. Dilated vessels and sebaceous gland changes were exclusive to follicular psoriasis (Table 4).

DISCUSSION

Overview of follicular keratotic disease and study demographics

Follicular keratotic disease is an unusual keratinization disorder affecting follicular openings, presenting clinically as hyperkeratotic papules with prominent keratin plugs and histologically as orthokeratosis of the follicular ostium and infundibulum. Dermoscopy serves as a useful non-invasive tool for rapid diagnosis. In our study, the gender distribution was nearly equal: 26 males (52%) and 24 females (48%), indicating no significant gender bias. Gangadhar et al studied 30 patients (mean age: 19.57±9.69 years) with a younger age range (4–40 years).[5] Most were adolescents (10–19 years, 40%), followed by young adults (20–29 years, 26.7%). Their gender distribution was also balanced (53.3% female, 46.7% male). Similar findings were reported by Raghunatha et al and Kumar et al, the latter analyzing 100 cases with near-equal gender distribution (46 males, 54 females) and 85% of participants aged 0–30 years.[6,7] Mean BMI was 25.06±6.17 kg/m² (overweight category).

Dermoscopy and histopathology findings in primary follicular keratotic diseases

Phrynoderma

Phrynoderma, a form of follicular keratosis, is brought on by a number of nutritional deficiencies, including protein-calorie malnutrition, vitamin A, vitamin B-complex, vitamin E, and essential fatty acid deficiencies. Clinically, it is identified by follicular papules with keratotic plugs that are primarily found in the gluteal region, extensor arms and forearms, thighs, back, and elbows.[6] In the present study, phrynoderma characteristically affected the elbows (60%) and knees (40%). All cases exhibited papules (100%), while plaques were seen in 60%. Macules were entirely absent (100%). Dermoscopy revealed the presence of perifollicular scaling and keratotic plugs in all cases. Histopathological findings confirmed keratin accumulation and follicular plugging (100%). These findings were in line with studies conducted by Gangadhar et al and Raghunatha et al, where their studies showed perivascular and perifollicular lymphocytic infiltration, acanthosis, follicular plugging, follicular hyperkeratosis, and epidermal hyperkeratosis.[5,6]

Keratosis pilaris

Keratin plugs in the normal skin (nappes claires) are a characteristic of keratosis pilaris with follicular openings,

either with or without erythema in the follicles and is distinguished by tiny, horny, gooseflesh-like plugs at the follicular orifices, which are primarily found on the legs, upper arms, and posterolateral portion of the thighs. In the present study, keratosis pilaris most commonly affected the arms (81.2%) and legs (48.39%), followed by trunk (43.8%) and lateral part of thigh (31.3%) and was consistent with the Poskitt et al study, which found that the arms accounted for 92% of the locations, followed by the legs (59%), face (41%), and buttocks (30%).[8] The cutaneous findings in our study included papules in all cases (100%), macules in 37.5%. Dermoscopic examination showed keratotic plugs in all cases (100%) and hair abnormalities were frequently noted, with coiled and twisted hair seen in 68.8% and vellus hair in 31.3% perifollicular erythema (56.3%) and perifollicular scaling (65.6%). Our findings were consistent with the research conducted by Gangadhar et al, Thomas et al and Sonthalia et al which noted coiled and twisted hair, perifollicular erythema, and perifollicular scaling.[3,5,9] Histopathological evaluations in our study demonstrated keratin accumulation in all cases, follicular plugging in all case. These characteristics matched those noted by Gangadhar et al and Sonthalia et al.[5,10]

Lichen spinulosus

A disease-hair follicle keratinization known as lichen spinulosus (LS) is typically linked to atopy, infections, id responses to fungal infections, or medication reactions. The formation of clustered, asymptomatic, tiny, flesh-colored, follicular, horny papules with a central spinous process dispersed symmetrically on the trunk, limbs, and buttocks while preserving the face, hands, and feet is its defining feature.[11] Cutaneous findings included papules and plaques in all cases (100%), while macules were noted in 33.3%. Dermoscopic findings included perifollicular scaling (100%). Infiltrates were present in 66.7%, with lymphocytic infiltration in all cases. This was consistent with Gangadhar et al and Kim et al findings, which revealed modest perivascular lymphocytic infiltrations surrounding dilated hair follicles with a keratotic plugs.[5,17]

Secondary follicular keratotic diseases

Pityriasis rubra pilaris

The rare chronic keratinization illness known as pityriasis rubra pilaris (PRP) is typified by reddish orange scaly plaques, palmoplantar keratoderma, and keratotic follicular papules that combine to form extensive lesions with islands of healthy skin.[12] In the current study, PRP predominantly affected the back (40%), followed by the arms, legs, feet, and hands (20% each). The location of lesions was consistent with the Ross et al investigation, which found that most patients had lesions throughout their thighs, extensor aspects of their elbows and knees, and trunk.[13] The primary cutaneous manifestations in our study were papules and plaques in all cases (100%), with macules present in 40%. Dermoscopic examination in the current study showed universal perifollicular scaling and keratotic plugs, with perifollicular erythema observed in 60% of cases. Our dermoscopic findings were similar to studies by Gangadhar et al, Moretta et al, Kumar et al, and Nair et al.[5,14-16] Histopathological analysis revealed parakeratosis in all cases (100%), rete ridge elongation in 60%, and spongiosis and infiltrates in 40%. This was consistent with the findings of Gangadhar et al, Nair et al, and Sehgal et al.[5,16,17]

Follicular lichen planus (lichen planopilaris)

Lichen planopilaris is the most common form of follicular LP and is characterized by inflammation of the upper portion of the hair follicle that results in follicular scarring and irreversible hair loss.[18]

In a case report done by Nirmal et al of a 23 year old female dermoscopy showed perifollicular keratin plugs, white dots in the follicular region, crystalline structures (white patches), blue-gray dot speckling in the interfollicular area, blue-gray targets perifollicularly, and a reduction in the quantity of follicular ostia.[19] Histopathologically tubular cast corresponds to follicular plugging, blue-gray dots to melanophages due to pigment incontinence and both white dots and crystalline structures to dermal fibrosis.[19] These features were similar in our study in which the dermoscopic findings revealed follicular keratin plug, perifollicular scaling, interfollicular blue-gray and white dots, and reduced follicular ostia in all the patients. Perifollicular erythema and perifollicular white halo were seen in the patient.

Follicular psoriasis

Adults are more likely than children to have follicular psoriasis, which is an underdiagnosed condition. Asymmetric, clustered, follicular, and keratotic papules that mostly affect the trunk, axilla, and extensor aspects of limbs and resemble PRP are how it manifests in adults as many, distinct, and follicular hyperkeratotic papules.[20]

A 32-year-old woman's dermoscopic examination showed a white-brown background/homogenous area, normal-looking terminal hair at the center, perifollicular scaling, multiple red dots/dotted vessels, red globules, twisted red loops, and glomerular vessels/bushy capillaries, according to a letter to editor by Behera et al.[21] A dilated follicular opening, parakeratotic follicular plugging, follicular hyperkeratosis, perifollicular confluent parakeratosis, hypogranulosis, Munro-micro abscess, suprapapillary thinning, upper dermal dilated and tortuous blood vessels, and mild perivascular lympho-histiocytic and neutrophilic infiltration were all found in a papule's histopathological analysis.[21] Meanwhile in our study the predominant dermoscopic observations in the patient were perifollicular scaling, keratotic plug with normal interfollicular area and twisted hair. Histopathological features showed hyperkeratosis, parakeratosis and rete ridges, dilated and

tortuous blood vessels with mild perivascular lympho-histocytic and neutrophilic infiltration.

Follicular eczema

Follicular eczema is usually seen on the extensor aspect of the extremities.

Follicular eczema primarily affected the legs (40%), with other cases involving the arms, back, and chest (20% each). Cutaneous features included papules (100%) and plaques (100%), while macules were present in only 20% of cases. Dermoscopic examination revealed perifollicular scaling and keratotic plugs in all cases. Other dermoscopic findings included red dots in all cases (100%). In the dermis, perifollicular orthokeratosis was found in 80% of cases, while spongiosis was seen in 20%. Sardana et al in their study noted skin biopsy showed spongiotic dermatitis localised to the upper portion of hair follicle while morphologically it showed follicular lesions.[22]

Limitations

Despite providing valuable insights into follicular keratotic diseases, our study had some limitations. The sample size was relatively small (50 participants), which may limit the generalizability of findings. Additionally, the study population was drawn from a single center, which may not reflect the broader demographic diversity and environmental influences that impact these conditions. Some rare conditions, such as lichen spinulosus and follicular psoriasis, had only a single case, limiting the ability to draw meaningful conclusions about their clinical, dermoscopic, and histopathological characteristics.

CONCLUSION

Our study highlights the clinicoepidemiological, dermoscopic, and histopathological characteristics of various follicular keratotic disorders. The findings emphasize that keratosis pilaris is the most prevalent condition, followed by follicular eczema, phrynoderma, and pityriasis rubra pilaris. The results also demonstrate distinct clinical and dermoscopic features that aid in differentiating between these conditions. Histopathological examination remains a crucial diagnostic tool, with features such as follicular plugging, hyperkeratosis, inflammation, and lymphocytic infiltration being common in multiple disorders.

Dermoscopy has proven to be an effective non-invasive tool for identifying perifollicular scaling, keratotic plugs, and interfollicular hyperpigmentation, which are key markers of follicular keratotic diseases. These findings reinforce the importance of an integrated approach combining clinical examination, dermoscopy, and histopathology for the accurate diagnosis and management of these conditions. Future studies with larger sample sizes, multi-center participation, and genetic analysis may provide deeper insights into the pathophysiology and optimal treatment strategies for these disorders.

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