

Rosette or Four Dot Signs in Dermoscopy: a Non-specific Observation

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Introduction

Rosettes or four dot signs in dermoscopy are described as 4 bright white dots or globules grouped like a four-leaf clover. They vary in size from 0.2 mm to 0.5 mm and can be oriented in the same angulation or different angulation. These have been characteristically described in squamous cell carcinoma and actinic keratosis [1]. However, there have been anecdotal reports of their presence in melanoma, basal cell carcinoma, dermatofibroma, molluscum contagiosum, lichen planus like keratosis, discoid lupus erythematosus, and pigmented purpuric dermatoses [2]. Their definite histopathological correlate has not been elucidated. The explanation accepted by most clinicians is that they represent the optical effect between polarized light and follicular structures. Polarizing horny material at the infundibular level in adnexal openings and peri-follicular fibrosis results in smaller and larger rosettes, respectively.

Case Presentation

The present case series describes 5 diseases (in 5 patients) where rosettes were seen, suggesting that they would be non-specific. These were lichen sclerosus, lichen planus, perniosis, apocrine hidrocystoma, and photo contact dermatitis (Figures 1-5). Diagnoses were confirmed histopathologically, and a possible dermoscopy correlation with observed histopathology was established (Table 1).

Conclusions

Rosette sign in dermoscopy is not disease-specific as was once presumed. Although it is observed in high frequency in actinic tumors like actinic keratosis and squamous cell carcinoma, several unrelated inflammatory and papulosquamous diseases also exhibit it. Its most likely explanation is the interaction of keratin filled adnexal openings with the polarized light.

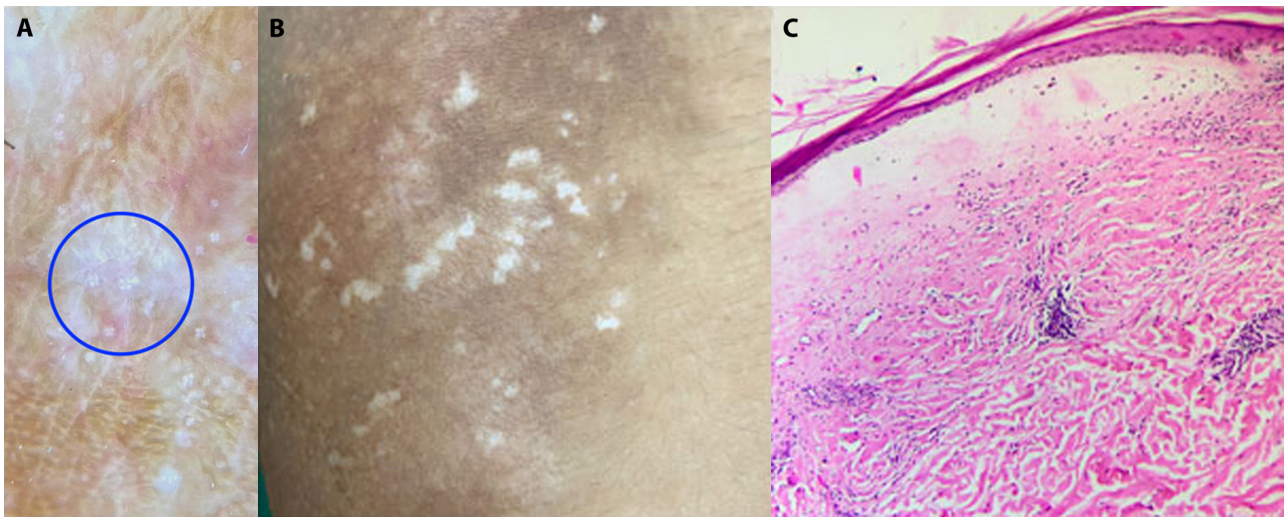


Figure 1. (A) Multiple white rosettes (blue circle, DermLite DL200 hybrid, 10x magnification [3Gen]). (B) Multiple white atrophic plaques over leg. (C) Hyperkeratosis, epidermal atrophy with basal vacuolar degeneration, papillary dermal edema and underlying lymphocytic infiltrate (H&E, x10).

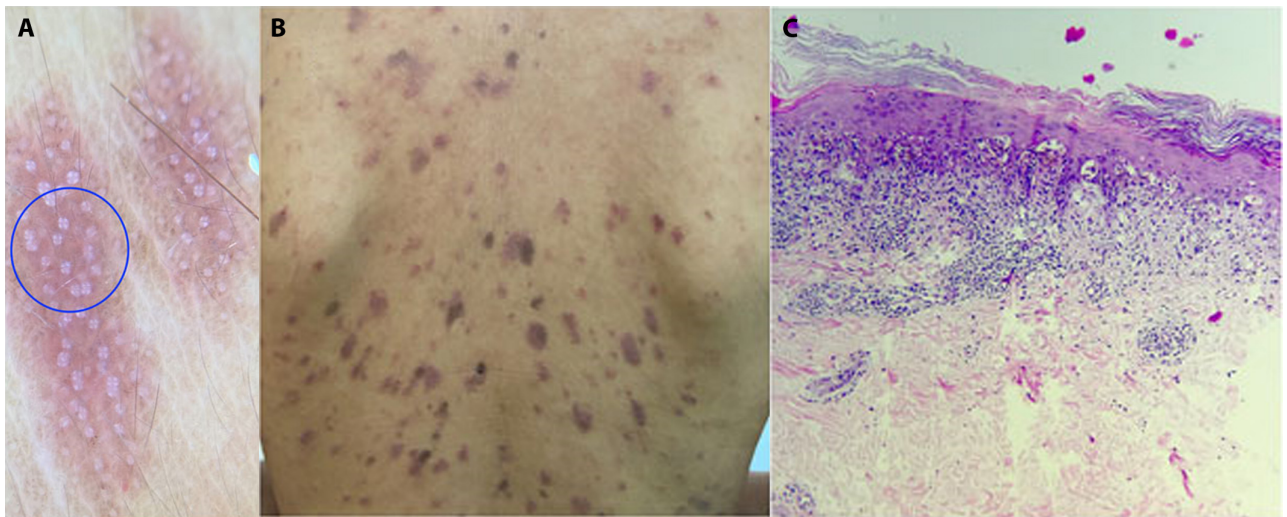


Figure 2. (A) Multiple white rosettes (blue circle). (B) Erythematous to violaceous plaques over trunk and extremities. (C) Hyperkeratosis with keratin filled craters, basal vacuolar degeneration and dense band like lymphocytic infiltrate at dermo-epidermal junction (H&E, x10).

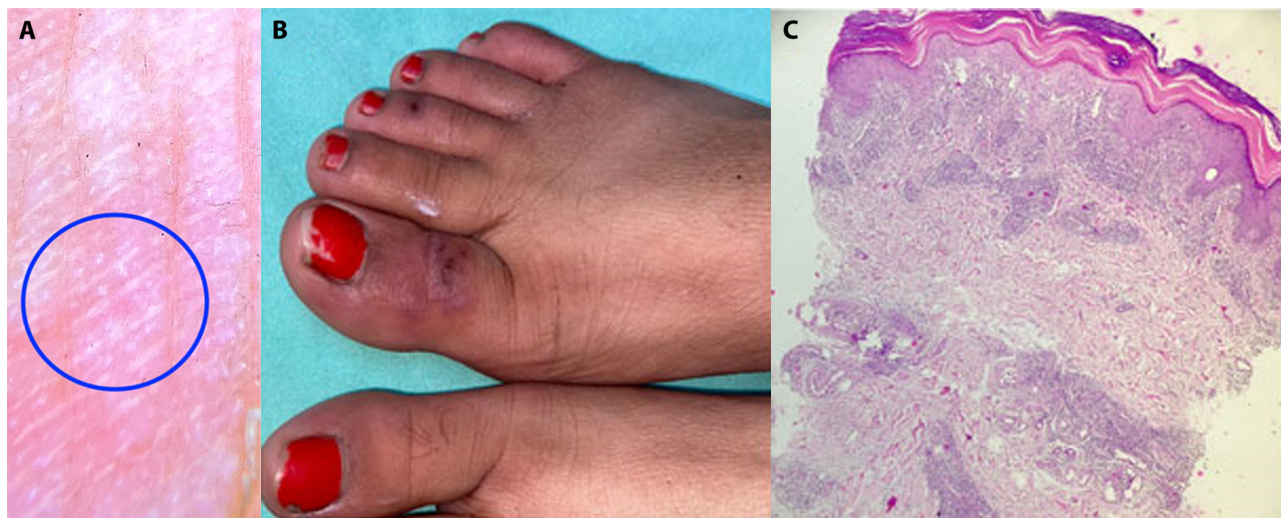


Figure 3. (A) White rosettes (blue circle). (B) Erythema and edema over toes. (C) Hyperkeratosis, follicular plugging, dermal edema and perivascular as well as peri-ecrine lymphocytic infiltrate (H&E, x10).

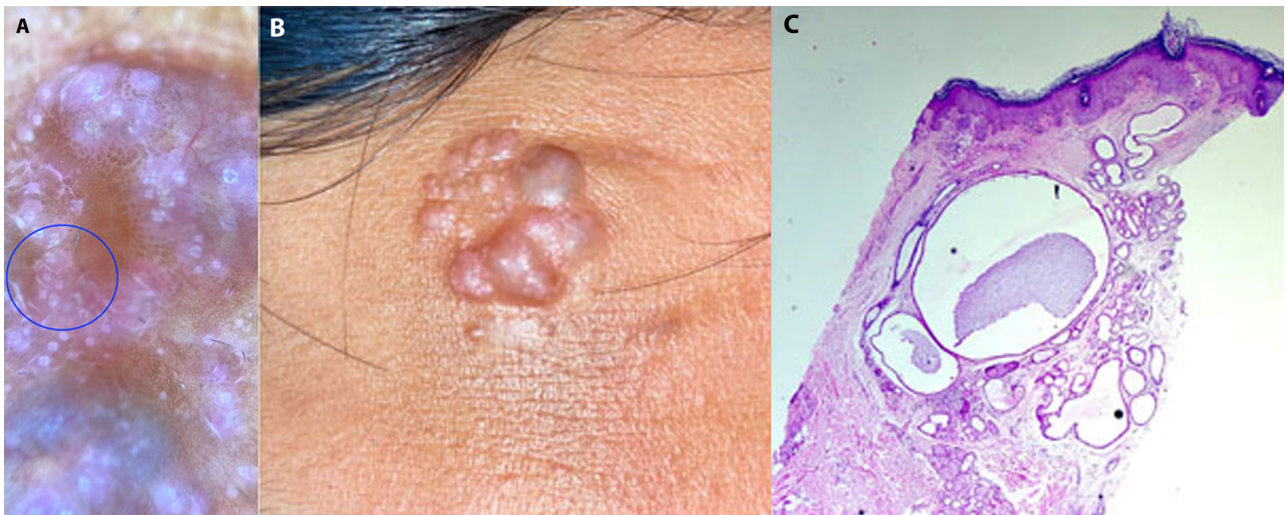


Figure 4. (A) Multiple white rosettes (blue circle). (B) Skin colored to bluish nodules coalescing to form a plaque over the neck. (C) Hyperkeratosis, follicular plugging with peri-follicular fibrosis, multiple dermal cystic spaces lined by a bilaminar epithelium with apocrine snouts at places (H&E, $\times 10$).

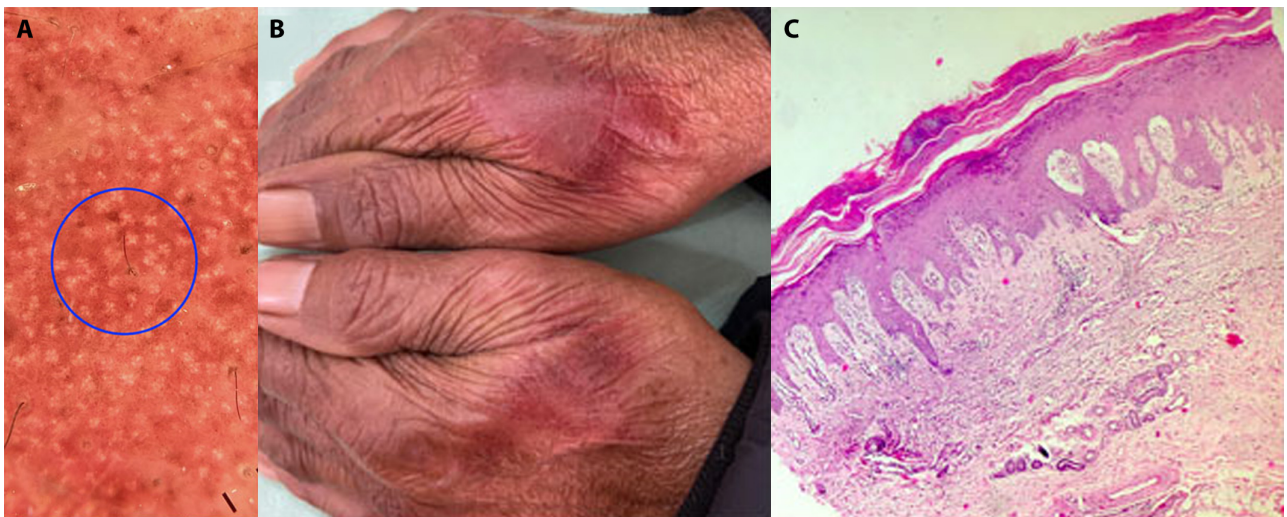


Figure 5. (A) White rosettes (blue circle). (B) Bright red plaques over dorsae of hands. (C) Parakeratosis with follicular plugging, spongiosis, dermal edema and peri-vascular lymphocytic infiltrate (H&E, $\times 10$).

Table 1. Demographic profile, clinical features, and dermoscopy-histopathology correlation in 5 cases with rosette sign.

Figure (Case) #	Age (years)/ Gender	Clinical presentation	Duration	Histopathological diagnosis	Dermoscopy correlation with histopathology for rosettes
#1	18/male	Multiple white atrophic plaques over left leg	2 years	Lichen sclerosis et atrophicus	Follicular plugging
#2	22/ female	Multiple, itchy erythematous to violaceous plaques over trunk and extremities	2 months	Lichen planus	Hyperkeratosis with sharp depressions giving the appearance of keratin filled craters
#3	20/ female	Erythema and edema over toes	4 days	Perniosis	Hyperkeratosis with wavy margin and peri-ecrine inflammation
#4	30/ male	Skin-colored to bluish nodules coalescing to form a plaque over the neck	10 years	Apocrine hidrocystoma	Hyperkeratosis with follicular plugging and peri-follicular fibrosis
#5	60/ male	Bright red plaques over dorsae of hands	7 days	Photo-contact dermatitis	Parakeratosis scale filling the sweat duct openings.

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