Kufa Medical Journal | Vol. 21, No. 1, 2025

Original article | DOI: https://doi.org/10.36330/kmj.v20i2.17809

p-ISSN: 1993-517X
e-ISSN: 2709-4464

Dermoscopic Findings of Nail Psoriasis and Their Relationship with Disease Severity

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ABSTRACT

Background: *Dermoscope is a non-invasive innovation in the field of dermatology. It emerged as an aid in the diagnosis of cutaneous malignant tumors like melanoma and basal cell carcinoma, and pre-malignant conditions like actinic keratosis. In the last years, the utility of the dermoscope had extended beyond the established boundaries. It may also act as a supportive tool for the examination of nail changes associated with various dermatological conditions.* ***Aim of the study:*** *This study was planned to evaluate the dermoscopic findings in psoriatic finger nail and to compare them with clinical findings and determine the relationship with disease severity.* ***Patients and methods:*** *Forty-four patients were included in this study; demographic data, including the name, age, gender, duration of the disease, other current medical illnesses or systemic medication, as well as the type of psoriasis, were recorded. Disease severity was determined according to PASI score. Patients' finger nails thoroughly cleaned with spirit to remove debris, dirt or external applications. Then were examined by naked eyes and dermoscopically. Nail psoriasis severity index (NAPSI) scores were calculated both clinically and dermoscopically, both specific and non-specific findings of nail psoriasis were recorded.* ***Results:*** *The most common clinical and dermoscopical finding was pitting (77.27%, 86.36% respectively), there was no statistically significant difference between clinical and dermoscopical NAPSI ($p=0.45$). There was positive correlation between PASI and NAPSI scores both clinically ($r=0.458$, $p<0.001$) and dermoscopically ($r=0.421$, $p<0.002$). Oil spots and splinter hemorrhages were seen more frequently with the dermoscopy ($p=0.031$, $p<0.001$ respectively). Oil spots was found more frequently during Onychoscopic examination of patients with severe cutaneous disease (PASI>10). Two novel Onychoscopic findings were described for the first time during this study.* ***Conclusion:*** *Nail dermoscopy should be considered as a preferable method in examining a patient with nail psoriasis, and as a supportive and non-invasive procedure in cases of isolated nail involvement where clinical diagnosis of nail psoriasis is suspicious.*

Keywords: Nail Psoriasis, Dermoscopic, Nail disease.

Article Information
Received: November 22, 2024; Revised: May 15, 2025; Online June, 2025

INTRODUCTION

Psoriasis is a common chronic inflammatory disease with an increasing incidence in recent years[(1)] that affects the skin, nails and joints and significantly influences quality of life (QoL). The incidence of nail psoriasis is estimated to be as high as 56% among psoriasis patients, and the incidence throughout life may reach 80% [(2).] In recent years, onychoscopy has been used to assess all nail disorders in addition to the original purpose of onychoscopy in assessing nail melanocytic lesions. It helps dermatologists be more confident in the diagnosis by magnifying clinical features that are usually not well visualized on an unassisted examination (naked eye), decreasing the need for unnecessary invasive methods and surgical

interference for benign lesions. By using 10x magnifying power, the nail can be visualized as a whole, but more magnification extending from 20x to 70x is used to obtain better images. These findings depend on the part of the nail that is involved in the inflammatory process of psoriasis[3]. It is best to use a magnification of at least 30x to perform onychoscopy in patients with psoriasis[4].

Usual findings:

1. Pitting with a whitish halo[4].
2. Onycholysis: As mentioned earlier, a clinically erythematous margin, which is a specific finding on dermoscopy, appears as a reddish to orange stain surrounding the onycholytic part[4].
3. Splinter hemorrhage is not specific for psoriasis and can present as onychomycosis, contact dermatitis or trauma[4].
4. Dermoscopy of the hyponychium is best visualized with both polarized light dermoscopy (PLD) and nonpolarized light dermoscopy (NPD), and the signs include dilated, differently distributed, tortuous capillaries, and their intensity correlates with the severity of the disease[15]. It could be a good diagnostic tool for the diagnosis of psoriasis[3].
5. Both the number and diameter of capillaries are decreased in proximal nail folds in patients with psoriasis (5).
6. The pseudofiber sign was observed for the first time by Yorulmaz and Artuz et al. [6], who described it in 34.3% of their patients. The pseudofiber sign refers to fiber-like, red or black structures found either near the cuticle or under the distal end of the nail plate.
7. This may reflect nail bed psoriasis, and the fiber structure may represent bare capillaries[6].
8. Leukonychia, which reflects parakeratotic opaque cells of the distal nail matrix, can be observed clinically, but dermoscopic examination enhances their visualization[7].
9. Salmon patch can also be observed by a dermoscope[13].

Aim of the study:

The aim of this study was to determine the frequency of dermoscopic findings in the fingernails of patients with psoriasis, compare these findings with those of clinical examinations, and assess the relationships between these findings and disease severity and hence prognosis.

Patients and methods:

Study design:

This cross-sectional, observational study was carried out at the dermatology outpatient clinic at the Center of Dermatology and Venerology/AL Sadr Medical City in AL Najaf, Iraq, between January 2021 and January 2022.

Sample selection:

Fifty-seven patients aged more than 18 years who presented to the dermatology outpatient clinic with complaints of psoriasis and nail involvement were recruited. Those with suspected concomitant onychomycosis infection, such as single finger nail infection, a serrated proximal edge of onycholysis, or subungual yellowish debris, were sent for a potassium hydroxide (KOH) scrapping test, and thirteen patients with positive KOH tests for their nails were excluded from the study. The project was explained to participants, and a verbal agreement was taken from all patients before proceeding. Ethical approval was given by the Scientific Council of Dermatology and Venerology/The Iraqi Board for Medical Specializations.

Exclusion criteria:

Patients who received systemic treatment for the last six months or topical treatment for the last month, patients with erythrodermic or pustular psoriasis, pregnant women, patients

with accompanying onychomycosis, and those who had other dermatological or systemic illnesses that can affect the nails were excluded from this study (thyroid diseases, diabetes and connective tissue disease, for example).

Data collection:

Demographic data, including name, age, sex, duration of the disease, other current medical illnesses or systemic medications and type of psoriasis, were recorded. Disease severity was determined according to the PASI score, which was calculated manually. The patients' fingernails were completely cleaned with surgical spirit to eliminate debris, dirt, or external applications; then, they were examined by the naked eye thoroughly via daylight and then reexamined dermoscopically, with the finger remaining lightly placed, on a hard, dull working place, avoiding any unnecessary pressure by the patient or the examiner. For optimum estimation of the vasculature, the patient's hand was kept at the level of the heart, and the examination was performed in a room at ambient temperature. Onychoscopy was performed via the dry method for all patients. Nail psoriasis severity index (NAPSI) scores were calculated both clinically and dermoscopically, and both specific and nonspecific features of nail psoriasis were recorded. A DermLite DL4 dermatoscope was used in this study, with a magnification power of 10x, with both cross-polarized and non-polarized modes. A thirty mm lens allowed visualization of the whole nail plate, with high-powered 24 LEDs and a rechargeable lithium battery allowing prolonged examination time. A MagnetiConnect clamp (MCC) pocket-sized DermLite adaptor for the smartphone was used in the study, and pictures were taken using an iPhone XI camera.

PASI and NAPSI scores:

1) The Psoriasis Area and Severity Index (PASI) [8] is a physician-related psoriasis severity measurement at four sites: the head, upper limbs, trunk, and lower limbs. For each of the four sites mentioned, psoriasis severity and area of involvement were calculated. The severity score consists of three elements: erythema (redness), induration (thickness of the plaque) and desquamation (scaliness). These three variables are measured on a scale from 0 to 4 (where 0 means none and 4 means very severe), so the summation of the severity score ranges from 0--12. The area of the involvement score ranges from 0 (0%) to 6 (90–100% of the given area is involved). Each score of the four body sites is calculated as a summation of the severity score multiplied by a specific correction score (for the head, it is equal to 0.1; for the upper limbs, it is equal to 0.2; for the trunk, it is equal to 0.3; and for the lower limbs, it is equal to 0.4), so the total PASI score ranges from 0–72.

2) NAPSI score (Nail Psoriasis Severity Index) [9]: First, as proposed by Rich and Scher [9], it is used for the evaluation of the severity of the nail bed and matrix psoriasis, based on which the area is involved in the nail unit. This score is usually used when assessing the response to treatment in therapeutic clinical trials of nail psoriasis.

According to this index, every nail is divided into four imaginary quadrants, which are examined for signs of nail matrix involvement (pitting, leukonychia, lunula red spots and crumbling) and signs of involvement of the nail bed (oil drop, onycholysis, splinter hemorrhages, and subungual hyperkeratosis). Each quadrant is scored (0–1) according to the absence or presence of any one of these eight signs of nail matrix and nail bed involvement mentioned above; thus, the total NAPSI score for 1 nail would range from 0–8, and the total NAPSI score for all nails together would range from 0–80 if only the finger nails are examined and 0–160 if both the finger nails and the toe nails are examined. In this study, only fingernails were examined. Patients were divided into two groups: group A, with mild

psoriasis (PASI≤10), and group B, with moderate to severe disease (PASI>10).

Statistical analysis:

Statistical analysis was performed via IBM® SPSS® version 23 for Windows. The descriptive data are presented as frequencies, percentages, means, standard deviations, minimums, and maximum values. Pearson correlation (r) was used to estimate the linear correlation between the PASI score and the clinical and dermoscopic NAPSI scores; the McNemar test was used to test the difference between the clinical and dermoscopic findings. To compare the mean values of clinical NAPSI and dermoscopic NAPSI, a t test was used.

RESULTS:

A total of forty-four patients with psoriasis with nail involvement were included in this study. The total number of male patients was 28 (63.6%), the total number of female patients was 16 (36.4%), and the male to female ratio was 1.75:1. The participants' ages ranged from 19--65 years, with a mean age of 43.1± 15.4 years. The basic characteristics of the patients enrolled in the study are shown in **Table 1.**

Comparison between clinical and dermoscopic examinations:

The most common clinical finding was pitting, which was observed in 34 (77.27%) of the patients, followed by onycholysis, which was observed in 22 (50%) of the patients. The third most common clinical finding was leukonychia, which was observed in 21 (47.72%) of the patients. Dermoscopic examination revealed that pitting was the most common finding in 38 (86.36%) of the patients; however, the second most common finding was splinter hemorrhage, which was observed in 30 (68.18%) of the patients. Leukonychia was the third most common finding, which was observed in 26 (59.09%) of the participants, followed by onycholysis, which was observed in 22 (50%) of the patients. There was a statistically significant difference between clinical and dermoscopic observations regarding oil spots (p=0.031) and splinter hemorrhages (p<0.001), as they were observed clinically in 9 (20.45%) and 15 (34.09%) patients, respectively, whereas they were observed dermoscopically in 15 (34.09%) and 30 (68.18%) patients, respectively. A comparison of the clinical and dermoscopic findings is shown in **Table 2.** Other dermoscopic findings included pseudofiber signs, which were observed in 8 (18.18%) of the patients; dotted capillaries in the hyponychium, which were observed in 7 (15.90%) of the patients; fuzzy lunula, which were observed in 5 (11.36%) of the patients; and prominent blood vessels with whitish halos at the onychodermal junction, which were observed in 4 (9.09%) of the patients **(Table 3).** There was no statistically significant difference between the mean clinical NAPSI score and the mean dermoscopic NAPSI score (P =0.450), with a mean difference of 2.068 points between the two groups, as shown in **Table 4 and Figure** 1.

The relationships between the findings and disease severity were as follows:

There was a statistically significant difference in the mean age between group A and group B, with 38.63± 15.25 years in the former and 52.2±11.32 years in the latter, with a 13.57-year mean difference (P= 0.004). Males were significantly more common in Group B, with 12 (85.7%) males compared with two (14.3%) females (P=0.049). The mean duration of the disease was 7.97± 5.59 years in group A, which was significantly shorter than the 14.64± 9.99 years reported in group B, with a mean difference of 6.7 years (P= 0.007). The mean clinical NAPSI and dermoscopic NAPSI scores were significantly lower in Group A than in Group B, with mean differences of 14.6 and 14.3, respectively. The basic characteristics of the study groups are shown in **Table 5.**

There was a statistically significant negative association between both clinical and

dermoscopic leukonychia and disease severity. Leukonychia was observed clinically in 19 (63.33%) patients in group A and 2 (14.28%) patients in group B (P= 0.003) and was observed dermoscopically in 23 (76.66%) patients in group A and 3 (21.42%) patients in group B (P= 0.001). There was a statistically significant association between the number of dermoscopic oil spots (salmon patches) and the severity of the disease, as it was observed dermoscopically in 7 (23.33%) patients in group A and 8 (57.14%) patients in group B (P= 0.042). There was a statistically significant association between clinical splinter hemorrhage and disease severity, as was observed clinically in 7 (23.33%) patients in group A and 8 (57.14%) patients in group B (P= 0.042). The distribution of clinical and dermoscopic findings according to the study group is shown in **Table 6.**

There was a statistically significant association between dermoscopic findings and the severity of the disease. The pseudofiber sign was detected in 2 (6.66%) patients in group A and 6 (42.85%) patients in group B (P=0.008), and the fuzzy lunula sign was detected in one (3.33%) patient in group A and 4 (28.57%) patients in group B (P=0.029). This is shown in **Table 7.** There was a statistically significant positive relationship between the PASI score and clinical NAPSI score (r=0.458, P<0.001) and between the PASI score and dermoscopic NAPSI score (r=0.421, P<0.002), as illustrated in **Figures 2 and 3. Figures 4 to 14** show all the dermoscopic findings mentioned above.

DISCUSSION

The mean age of the patients was 43.05±15.44 years (max=65, Min=19). Compared with a recent study in Iraq by Al-Hamamy et al., the mean age of patients with nail psoriasis enrolled in the latter study was 31.97±15.85 years [10], which may be related to the inclusion criteria in the current study, which included patients aged 18 years or older. The total number of females was 16 (36.36%), the total number of male patients was 28 (63.64%), and the male-to-female ratio was 1.75:1, which was comparable to that reported by Bindagi (the male-to-female ratio was 2.1:1) [11]. The mean duration of disease was 10.05±7.89 years (max=39, min=0.083), which was greater than that reported by Al-Hamamy et al. (6.54±8.37)[10]) and comparable to that reported by Polat et al. (10.43±8.39)[12]. Regarding the severity of the disease, in the present study, the mean PASI score was 8.90±8.36 (max=33.2, min=1,4), which was greater than what was described by Al-Hamamy et al. (6.6±7.71)[10]. This may be explained by the fact that the current study was conducted during the COVID-19 pandemic, and COVID-19-related stress and associated immune dysregulation may be the causes. Furthermore, Bindagi et al[11] reported a higher mean PASI score (9.27±7.72). Regarding the severity of nail involvement in this study, the mean clinical NAPSI was 22.89±12.51 (max=50, min=4), which was comparable with what was described by Polat et al. (21.10±10.88) (113) and Wanniang et al. (23.82 ±16.128)[7] but less than what was described by Bindagi et al. (34.42±18.13)[11]. There was a positive relationship between the PASI score and clinical NAPSI (r=0.421) and between the PASI score and dermoscopic NAPSI score (r=0.421), which was compatible with the findings of Bidagi et al. [11], suggesting that the severity of cutaneous involvement was proportional to the severity of nail involvement.

The most common clinical finding observed during psoriasis nail examination was pitting in 77.27% of the patients, which was similar to the findings of Al-Hamamy et al. (71.01%)[10]. In the present study, the second most common finding was onycholysis (50%), which was similar to the findings of Al-Hamamy et al. (57.97%)[10]. Polat et al. described onycholysis in 67.5% of their patients and was the third most common clinical finding after leukonychia (82.5%), which was described by the latter study

as the second most common clinical finding[12]. The most common dermoscopic finding was pitting (86%), which was comparable to what was reported by Wanniang et al. (84%) (109). Bindagi et al. described pitting in 95% of patients during dermoscopic examination[11]. The second most common dermoscopic finding was splinter hemorrhage (68.18%), which was comparable to what was reported by Wanniang et al. (62%)[13]. Chauhan A et al described splinter hemorrhage in 40% of their patients only[14]. In the present study, the third most common finding during dermoscopic examination was leukonychia (59.09%), whereas Polat et al. reported it as the most common dermoscopic finding (92,5%)[12]. Others, such as Wanniang et al., described leukonychia in 22% of their patients only[13]. Onycholysis was found in 50% of the examined patients in the current study, which was comparable to what was described by Wanniang et al. (54%)[13] and Chauhan et al. (40.8%)[14].

In this study, splinter hemorrhages were observed in three forms: red–purple to black longitudinal streaks; serpentine splinter hemorrhages, which were described by Yorulmaz and Artuz et al. [6]; and the apparent involvement of the nail matrix because delicate grooves underneath the nail plate crumple as the nail plate thickens. The third pattern of splinter hemorrhage was “tear drop”-shaped splinter hemorrhage. Among the multiple forms of leukonychia (punctate, longitudinal, and striate or transverse leukonychia), the punctate type is usually observed in psoriasis[16], which is usually 1–3 mm in diameter. A new type of leukonychia, which is much smaller than the punctate type or a “starry type leukonychia”, has been identified; to the best of our knowledge, this type has not been described previously. This finding was observed in 5 out of 26 patients with leukonychia, accounting for 19.23% of those with leukonychia. Compared with clinical and dermoscopic examinations, in the present study, oil spots and splinter hemorrhages were visualized better during dermoscopic examination, and the difference was statistically significant (p=0.031, p<0.001, respectively), which is compatible with the findings of Wanniang et al. (p=0.031, p<0.001) (109). Bindagi et al. reported that splinter hemorrhages were visualized better during dermoscopy than during clinical examination (p=0.0001) [11].

In addition, pitting, leukonychia and red spots in the lunula were also better visualized during the dermoscopic examination, yet the difference was statistically insignificant (p=0.125, 0.063, 0.5, respectively), which means that dermoscopy enhanced the visualization of these findings in the current study. Yorulmaz and Artuz et al[6] noted an erythematous border around the onycholysis area, which was better detected by a dermoscope than by clinical examination[15]. They considered this sign to be specific for psoriatic nails. The same observation was made by Polat et al[12]. The present study also revealed similar findings in 7 out of 22 patients with onycholysis; that is, 31.81% of those with onycholysis presented with this sign. In 2008, Iorizzo et al. studied the capillary network of the hyponychium in a patient with nail bed psoriasis and observed dilated and tortuous capillaries in all patients, as well as a positive correlation with disease severity[15]. In the present study, 15.9% of the patients were found to have this sign. This value is lower than that reported in other studies, possibly because the X10 magnification of the dermoscope used in this study was inadequate to visualize the capillaries, making this commonly available instrument less effective than the videodermoscope used in some of the previous studies.

Another finding is the stout, globose, dilated, red to maroon-appearing vessels of the nail bed, which appear as fusiform dilatations arranged vertically at the onychodermal band, which are surrounded by prominent haloes. This finding was reported in 19.5% of patients by Yadav et al[17], whereas in the present study, it was reported in only 9.09% of patients. Another

recently described novel dermoscopic sign of nail psoriasis, the pseudofiber sign. Yorulmaz and Artuz et al. described this phenomenon for the first time in 34.3% of their patients[15]. In the present study, this finding was observed in 8 (18.18%) of the patients, which is in line with the findings of Wanniang et al., who reported this finding in 18% of their patients[13].

Regarding the relationships between nail findings and disease severity, Al-Hamamy et al. reported that clinical onycholysis, subungual hyperkeratosis, and onycholysis were associated with higher PASI scores, and the differences between the mild psoriasis group and moderate-severe psoriasis group regarding these findings were statistically significant (p=0.001, p=0.004, p=0.003, respectively) [10]. Yorulmaz and Artuz et al. reported that pseudofiber signs, dilated hyponychial capillaries, nail plate crumbling, subungual hyperkeratosis, transverse groves, and trachyonychia were associated with disease severity, whereas pitting and salmon patches were associated with higher NAPSI scores [15]. In the present study, both clinical and dermoscopic pitting, onycholysis and ridging were comparable between the mild psoriasis group and the moderate to severe psoriasis group, whereas subungual hyperkeratosis was observed more frequently in patients with moderate to severe psoriasis, and the percentages were approximately twice as high as those in patients in the mild disease group; however, these differences did not reach statistical significance. On the other hand, oil spots were observed more frequently in the moderate–severe psoriasis group, and the difference was statistically significant (p=0.042).

Other dermoscopic findings, such as the pseudofiber sign and fuzzy lunula, were observed more frequently in the moderate-severe psoriasis group, and the difference was statistically significant (p=0.008, p=0.029, respectively). The variation from one study to another might be attributed to the population studied and the study design. A comparison between the results of the current study and those of previous similar studies is shown in Table 8.

CONCLUSION

Dermoscopy helps visualize the different signs of nail psoriasis, especially those in the nail bed, such as splinter hemorrhages and oil spots, because of the difficulty in visualizing the thickened nail plate, which is usually associated with psoriasis. Other findings were also much easier to visualize via onychoscopy, but the difference was not statistically significant. Additionally, new onychoscopic diagnostic signs can be used to aid in diagnosis. Together, these findings highlight the importance of onychoscopy as an important step before proceeding to more invasive diagnostic tests.

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Table 1: Characteristics of the patients enrolled in the study.

Characteristics of patients	Mean ± SD	Max	Min
Age (years)	43.1± 15.4	65	19
Duration of psoriasis (years)	10.05±7.89	39	0.083
PASI score	8.90±8.36	33.2	1.4
Clinical NAPSI score	22.89±12.51	50	4
Dermoscopic NAPSI	24.95±13.05	51	6

Table 2: Comparison of clinical and dermoscopic findings.

Findings	**Clinical N (%)**	**Dermoscopic N (%)**	**P value***
Pitting	34 (77.27%)	38 (86.36%)	0.125
Leukonychia	21 (47.72%)	26 (59.09%)	0.063
Red spots in lunula	1 (2.27%)	3 (6.81%)	0.500
Crumbling	9 (20.45%)	9 (20.45%)	1.0
Beau's lines	2 (4.54%)	2 (4.54%)	1.0
Ridging and beading	15 (34.09%)	15 (34.09%)	1.0
Onycholysis	22 (50%)	22 (50%)	1.0
Oil spot	9 (20.45%)	15 (34.09%)	0.031
Subungual hyperkeratosis (SUH)	12 (27.27%)	14 (31.81%)	0.500
Splinter hemorrhages	15 (34.09%)	30 (68.18%)	<0.001

*** McNemar chi-square test**

Table 3: Other dermoscopic findings observed during this study.

Dermoscopic finding	Number of patients	percentage
Pseudofiber sign	8	18.18%
Dotted capillaries in the hyponychium	7	15.90%
Prominent blood vessels at onychodermal junction	4	9.09%
Fuzzy lunula	5	11.36%

Table 4: Differences between clinical and dermoscopic NAPSI.

NAPSI	**Mean± SD**	**Difference**	**P value*by * T test**
Clinical	22.89± 12.511	2.068	0.450
Dermoscopic	24.95± 13.051		

Table 5: Basic characteristics of the study groups.

Variables		**Group A (mild psoriasis PASI ≤10) number= 30 (68.18%)**	**Group B (moderate to severe psoriasis PASI >10) number=14 (31.81%)**	**P value**
Age (mean ±SD) years		38.63±15.25	52.5±11.32	0.004
Gender	**Male No. (%)**	16(53.3)	12(85.7)	0.049
	Female No. (%)	14(46.7)	2(14.3)	
Duration of disease in years (mean ±SD)		7.97±5.59	14.64±9.99	0.007
Clinical NAPSI (mean ± SD)		18.23±9.46	32.86±12.68	<0.001
Dermoscopical NAPSI (mean ±SD)		20.4±10.6	34.71±12.6	<0.001

Table 6: Distribution of clinical and dermoscopic findings according to study groups.

Findings	Group A Mild psoriasis (PASI ≤10) N=30	Group B Moderate to severe psoriasis (PASI >10) N=14	Summation	P value
Pitting:				
Clinical	23 (76.66%)	11 (78.57%)	34 (77.27%)	1.0
Dermoscopic	25 (83.33%)	13 (92.85%)	38 (86.36%)	0.647
Leukonychia:				
Clinical	19 (63.33%)	2 (14.28%)	21 (47.72%)	0.003
Dermoscopic	23 (76.66%)	3 (21.42%)	26 (59.09%)	0.001
Red spots in lunula:				
Clinical	0	1 (7.14%)	1 (2.27%)	0.318
Dermoscopic	2 (6.66%)	1 (7.14%)	3 (6.81%)	1.0
Crumbling:				
Clinical	4 (13.33%)	5 (35.71%)	9 (20.45%)	0.117
Dermoscopic	4 (13.33%)	5 (35.71%)	9 (20.45%)	0.117
Onycholysis:				
Clinical	14 (46.66%)	8 (57.14%)	22 (50%)	0.747
Dermoscopic	14 (46.66%)	8 (57.14%)	22 (50%)	0.747
Oil spots (salmon patch):				
Clinical	6 (20%)	3 (21.42%)	9 (20.45%)	1.0
Dermoscopic	7 (23.33%)	8 (57.14%)	15 (34.09%)	0.042
Subungual hyperkeratosis:				
Clinical	6 (20%)	6 (42.85%)	12 (27.27%)	0.152
Dermoscopic	8 (26.66%)	6 (42.85%)	14 (31.81%)	0.316
Splinter hemorrhages:				
Clinical	7 (23.33%)	8 (57.14%)	15 (34.09%)	0.042
Dermoscopic	18 (60%)	12 (85.71%)	30 (68.18%)	0.163

Findings	Group A Mild psoriasis (PASI ≤10) N=30	Group B Moderate to severe psoriasis (PASI >10) N=14	Summation	P value
Beau's lines: Clinical	2 (6.66%)	0	2 (4.54%)	1.0
Dermoscopic	2 (6.66%)	0	2 (4.54%)	1.0
Ridging: Clinical	9 (30%)	6 (42.85%)	15 (34.09%)	0.501
Dermoscopic	9 (30%)	6 (42.85%)	15 (34.09%)	0.501

***Fisher's exact test**

Table 7: Distribution of dermoscopic findings according to disease severity.

Findings	Group A Mild psoriasis (PASI ≤10) Number = 30 patient	Group B Moderate to severe psoriasis (PASI >10) Number = 14	Summation	P value*
Dermoscopic findings:				
Pseudofiber sign	2 (6.66%)	6 (42.85%)	8 (18.18%)	0.008
Dotted capillaries in hyponychium	4 (13.33%)	3 (21.42%)	7 (15.90%)	0.66
Prominent blood vessels at onychodermal junction	2 (6.67%)	2 (14.28%)	4 (9.09%)	0.581
Fuzzy lunula	1 (3.33%)	4 (28.57%)	5 (11.36%)	0.029

*Fisher's exact test

Table 8: Comparison between the results of the current study and those of previous studies.

Findings	The current study		Al-Hamamy et al.[10] *	Polat et al.[12]		Chauhan A et al. (finger nails)[14]	Wanniang et al.[13]		Yorulmaz and Atruz et al.[15]*
	N=44		N=69	N=40		N=55	N=50		N=67
	C(%)	D(%)	C(%)	C(%)	D(%)	D(%)	C(%)	D(%)	D(%)
Pitting	77.27	86.36	71.01	92.5	77.5**	60.49	84	84	58.2
Leukonychia	47.72	59.09	23.19	82.5	92.5	26.41	20	22	6
Crumbling	20.45	20.45	52.17	17.5	20	22.79	14	16	17.9
Red lunula	2.27	6.81	0	5	5	12.86	0	8	1.5
Onycholysis	50	50	57.97	67.5	77.5	40.8	54	54	55.2
SUH	27.27	31.81	34.78	35	32.5	52.82	40	46	9
Oil spots	20.45	34.09	47.83	42.5	47.5	10.15	32	44	22.4
Splinter hemorrhages	34.09	68.18	23.19	75	80	40.63	8	62	73.1
Ridging	34.09	34.09				57.33			
Beau's lines	4.54	4.54	17.39			6.54			
Pseudofiber sign		18.18						18	34.3

Dotted hyponychial capillaries		15.90				38.6		10	35.8
Prominent BVs at onychodermal band		9.09							
Fuzzy lunula		11.36				33.63			

*Examined both finger and toe nails

** This difference can be explained by the fact that Polat et al. used gel during the examination of the nail plate dermoscopically, which may have filled the pits and decreased their visualization.

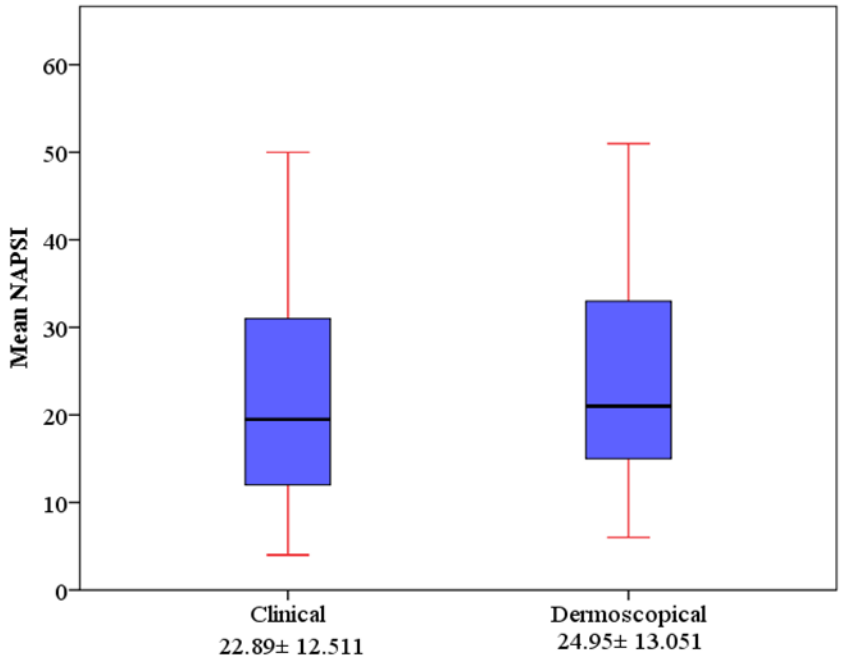

Figure 1: Box plot showing the mean clinical and dermoscopic NAPSI scores.

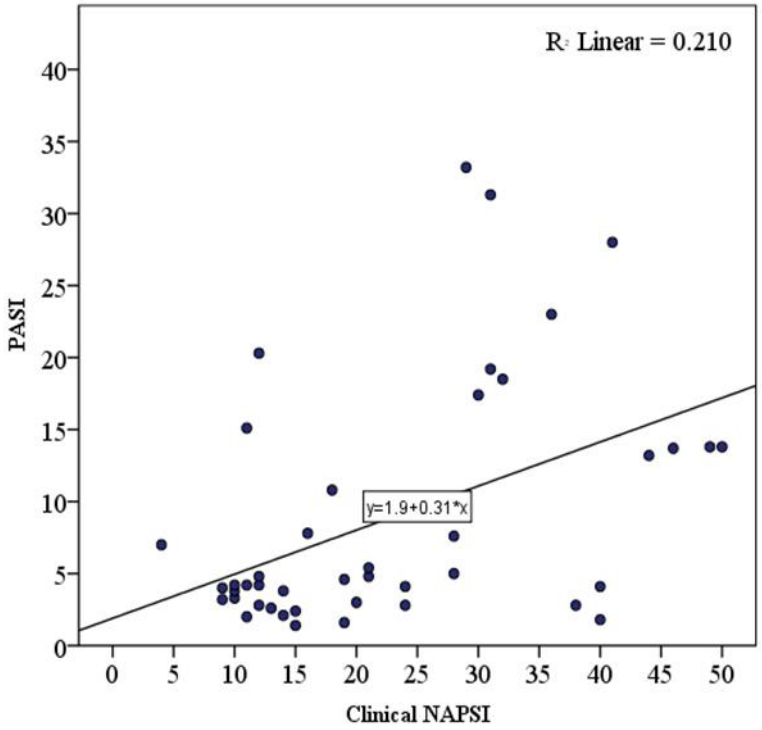

Figure 2: Scatter plot between the PASI score and clinical NAPSI score.

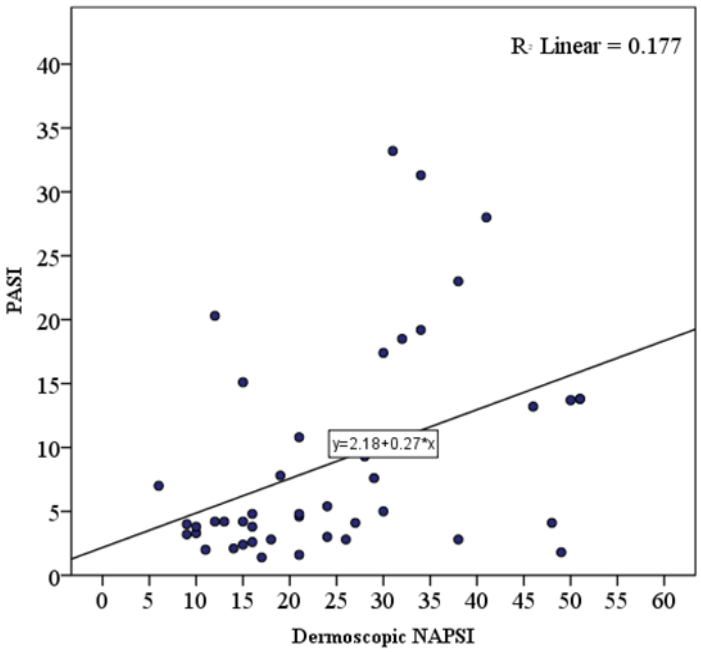

Figure 3: Scatter plot between the PASI score and the dermoscopic NAPSI score.

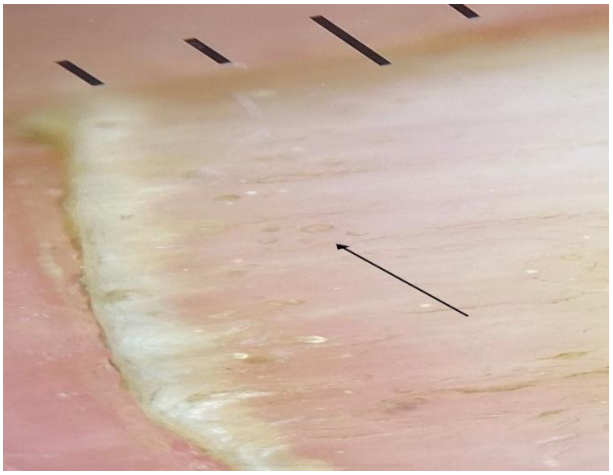

Figure 4: Pits with dark rims.

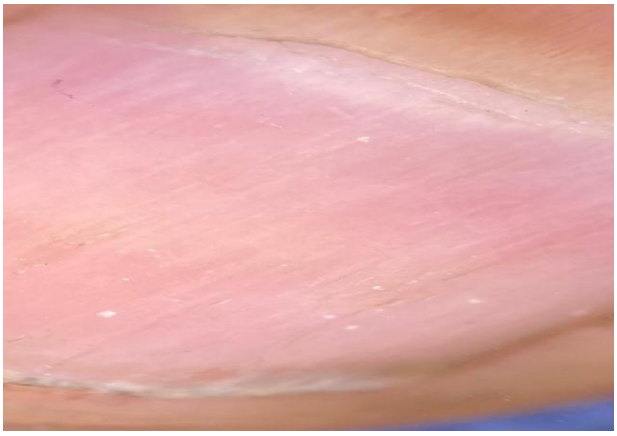

Figure 5: Red spot lunula.

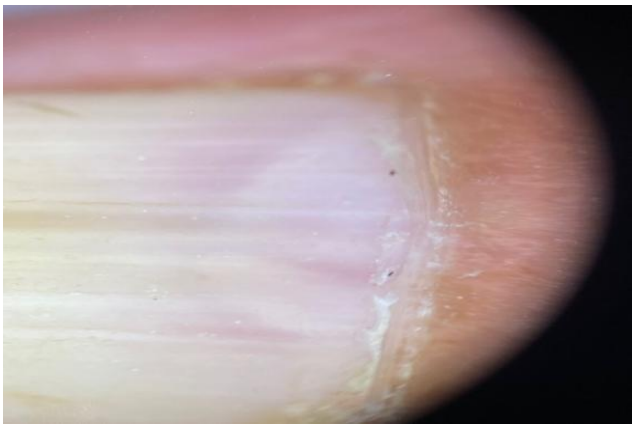

Figure 6: Dotted leukonychia.

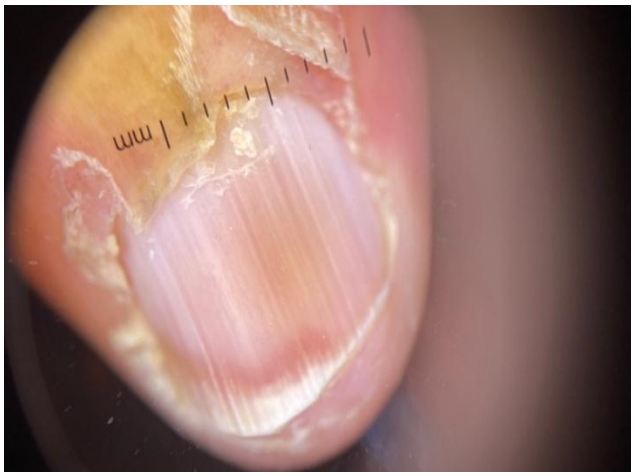

Figure 7: Onycholysis with an erythematous border

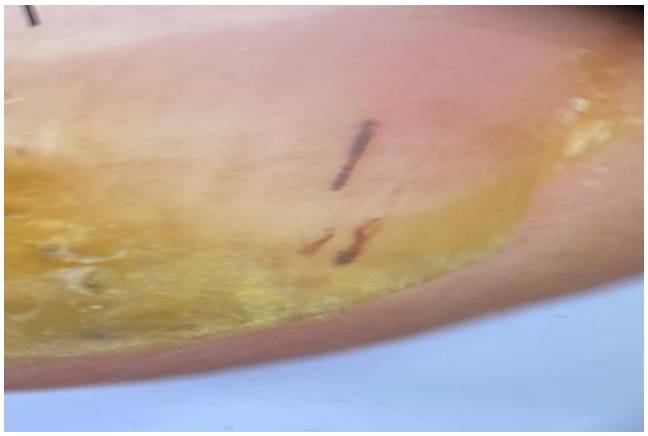

Figure 8: Splinter hemorrhages, both streaky (upper) and serpentine (lower).

Figure 9: Tear drop splinter hemorrhages.

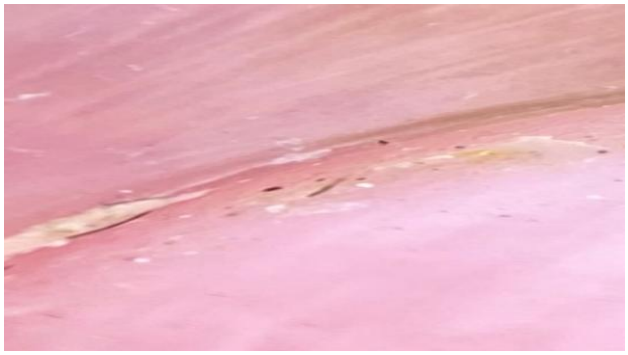

Figure 10: Pseudofiber signs appear as bare capillaries projecting from the cuticle.

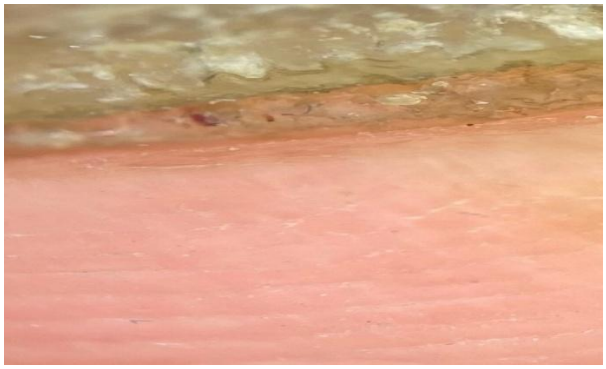

Figure 11: Bare capillaries under the nail plate.

Figure 12: Pseudofiber sign represented by bare capillaries under the free edge of the nail plate.

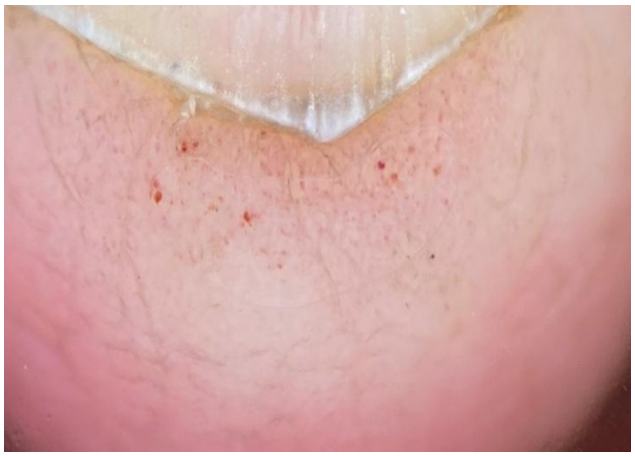

Figure 13: Dotted capillaries at the hyponychium.

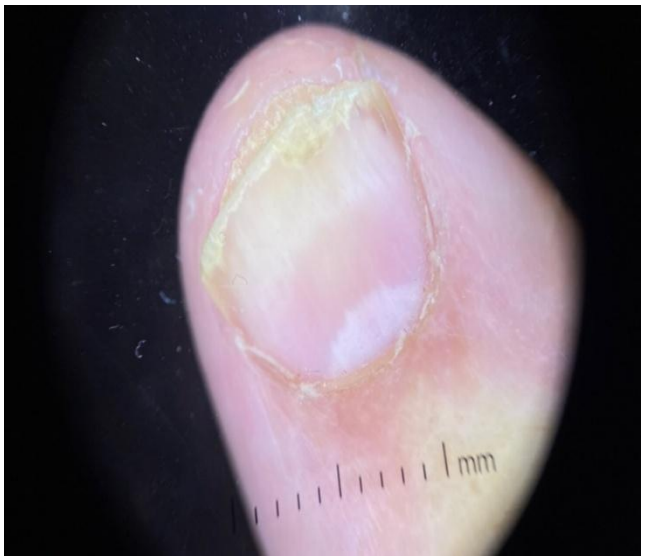

Figure 14: Fuzzy lunula.