

## **AIM OF THE WORK**

The aim of this study was to detect the diagnostic potential of dermoscopy in scalp psoriasis and seborrheic dermatitis with correlation to their histopathological features.

## PATIENTS

### **This study was conducted on thirty subjects:**

- Fifteen patients with scalp psoriasis.
- Fifteen patients scalp seborrheic dermatitis.

The patients were collected from the outpatient clinic of the Dermatology, Venereology and Andrology department, Alexandria Main University Hospital.

Patients with prominent cutaneous scalp lesions confirmed as psoriasis or seborrheic dermatitis on the basis of clinicopathological features or long-term follow-up data were considered eligible for recruitment in this study.

### **Exclusion criteria:**

1. Patients who received topical treatment within one month prior to the recruitment.
2. Patients who received systemic treatment (cyclosporine, biologics, methotrexate, retinoids, corticosteroids) within six months prior to the recruitment.

Informed consent was taken from the patients before the beginning of the study.

## METHODS

All patients were subjected to:

- Full history taking.
- Careful clinical examination.
- Dermoscopic examination was performed by a polarized-light handheld dermoscope DermLite III DL3 (USA) connected to a digital camera (Sony Cyber-shot DSC-W620).<sup>(26)</sup>

We initially performed dermoscopic examination to characterize the distinctive features of scales in each disorder.

Thick crusts and scales were removed by using alcohol swabs, and the structures were covered with ultrasound gel to elucidate the vascular patterns and to avoid nosocomial infection.

- Scalp biopsy from the lesion using a punch biopsy tool (using local anesthesia). Four millimeter sized specimens of the punch biopsy were taken.

### Statistical Analysis:

Statistics of the results was done by using SPSS ver. 18 and the p value was calculated by using the following formula:

#### Fisher's exact test:

It is a statistical significance test used in the analysis of contingency tables and uses this formula for calculation:

	Group 1	Group 2	Row Total
Item1	a	b	a+b
Item2	c	d	c+d
Colum total	a+c	b+d	a+b+c+d=n

$$p = \frac{(a+b)!(c+d)!(a+c)!(b+d)!}{a!b!c!d!n!}$$

Where: ! = indicates the factorial operator.

## RESULTS

Thirty patients were included in the present study among them fifteen patients with scalp psoriasis (11 males and four females with their ages ranged between 11-65 years with mean  $\pm$ S.D.  $43\pm 14.005$  years, 14 patients showed chronic plaque psoriasis and one case showed pustular psoriasis) and fifteen patients with seborrheic dermatitis of the scalp (ten males and five females with their ages ranged between 19-30 years with mean  $\pm$ S.D.  $24.5\pm 3.61$  years). All patients were examined by handheld dermoscope DermLite III (fig:2) connected to digital camera .We captured and stored the images, and then skin biopsy was done to confirm the diagnosis.



**Fig (2):** Handheld dermoscope DermLite III.

## Dermoscopic examination revealed:

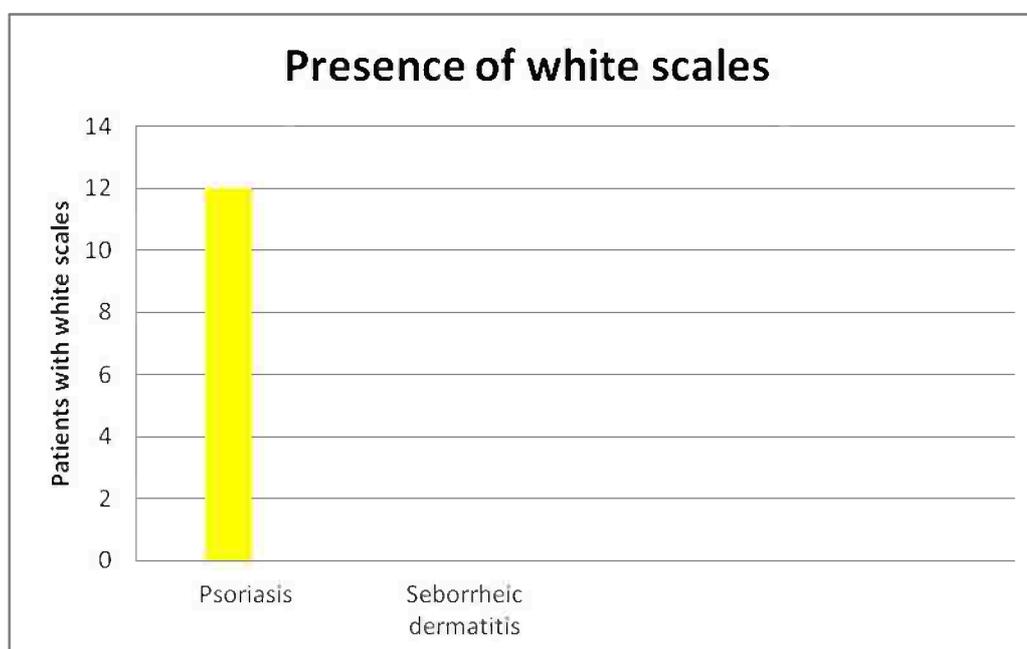
Patients with scalp psoriasis showed: red patches of skin covered with dry silvery white scales (photo1a, b) that may attach to the hair shaft. Patches may extend beyond hairline. The scales bleed when removed and blood spots were shown in (Photo 2).

Patients with seborrheic dermatitis of the scalp showed: red, oily skin covered with greasy yellow scales, which may attach to the hair shaft. Patches usually confined by hairline. The scales were easily removed (photo3).

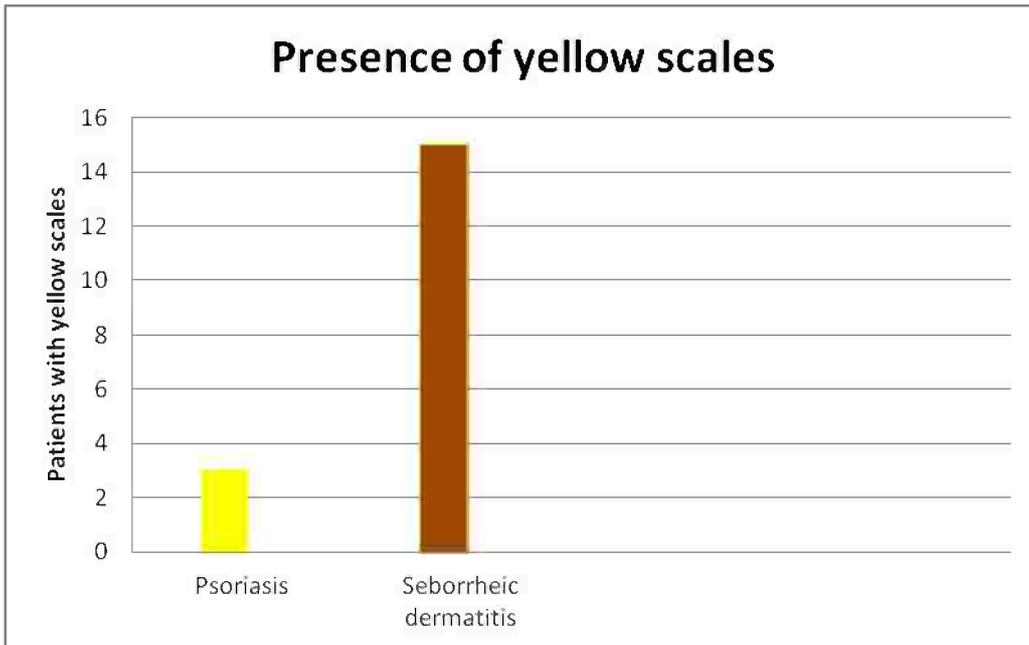
As regard the color of the scales, in the psoriasis group 12 patients (80%) showed white scales and three patients (20%) showed yellow scales while in the seborrheic dermatitis group all patients (100%) showed yellow scales. There were statistically significant differences between the two groups where  $P=0.0001$  ( $P$  significant level at  $P < 0.05$ ). (Table (IV), photos (1, 3), graph (1a, b)).

**Table (IV):** Comparison between the color of the scales in both groups.

Color of the scales	Psoriasis	Seborrheic dermatitis	Total	Fisher's exact test P value
White	12	0	12	0.0001
Yellow	3	15	18	
Total	15	15	30	



Graph (1a): Comparison between the white scales in both studied groups.



Graph (1b): Comparison between the yellow scales in both studied groups.

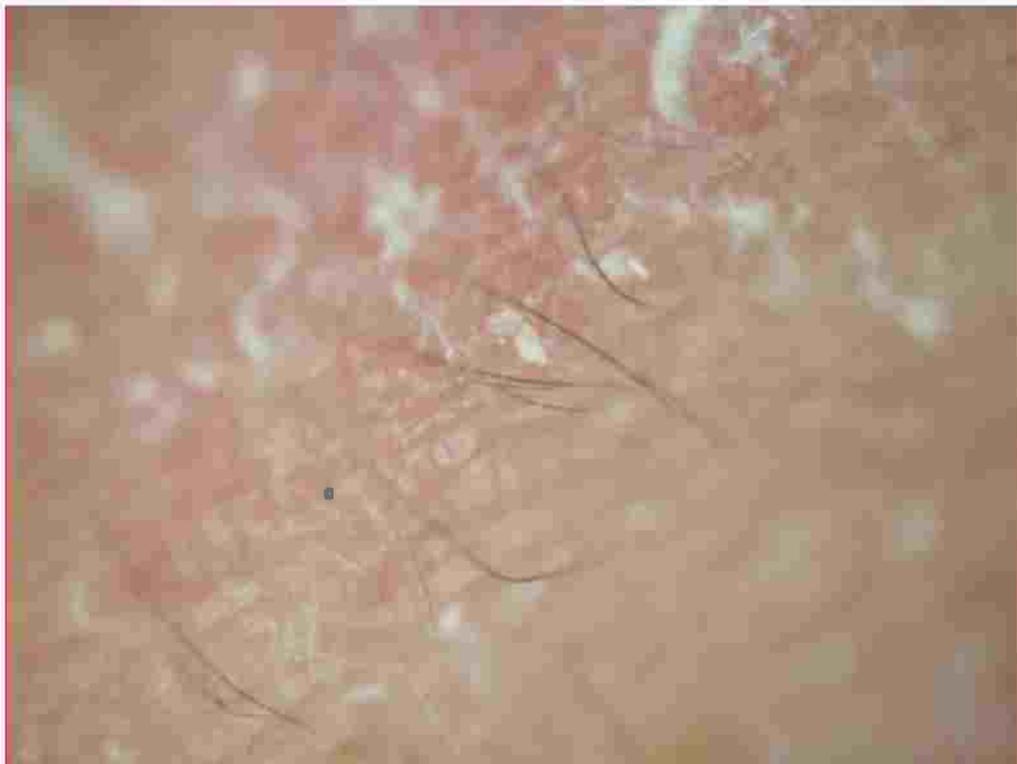
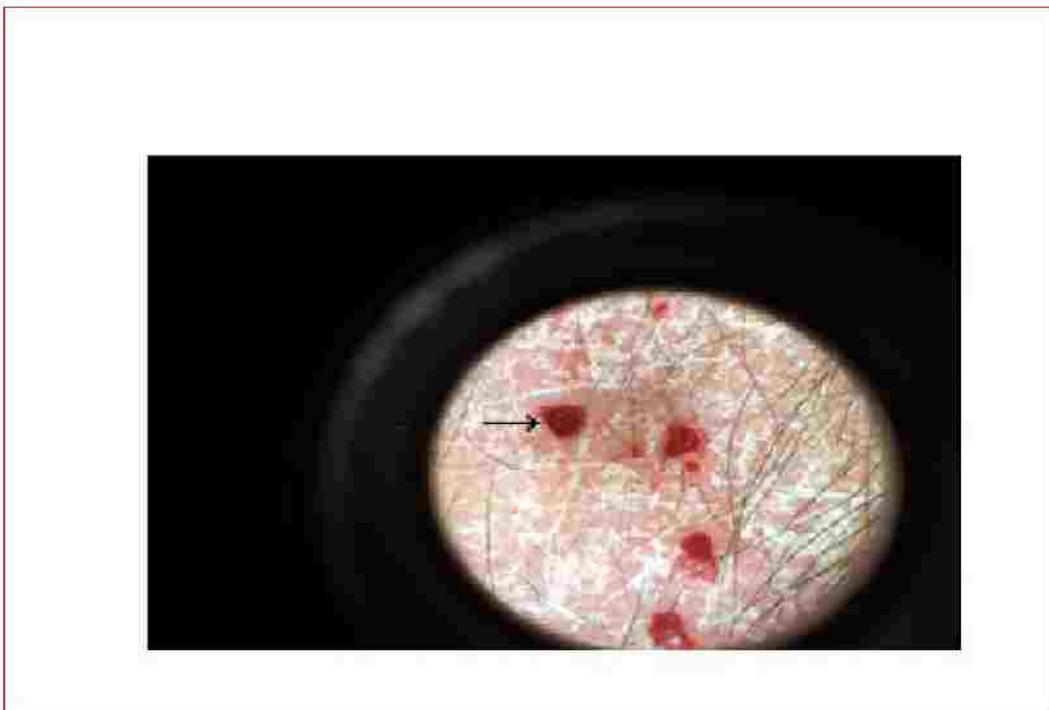


Photo (1a): Silvery white scales in psoriasis under dermoscope.



**Photo (1b): Silvery white scales in psoriasis under dermoscope.**



**Photo (2): Blood spots under dermoscope in psoriasis under dermoscope.**

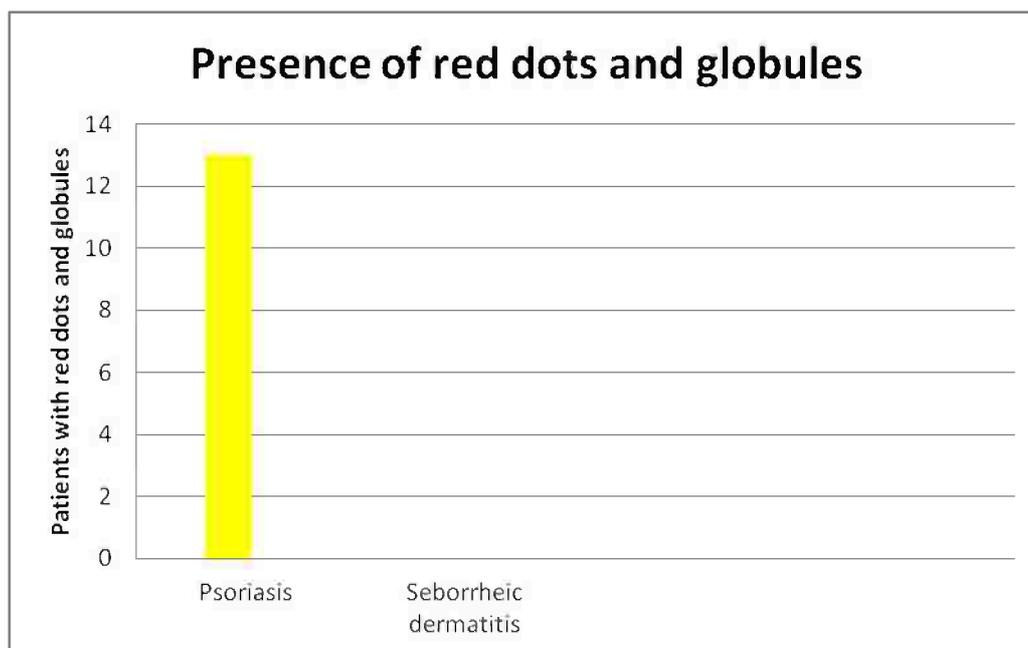


**Photo (3): Yellow scales of seborrheic dermatitis under dermoscope .**

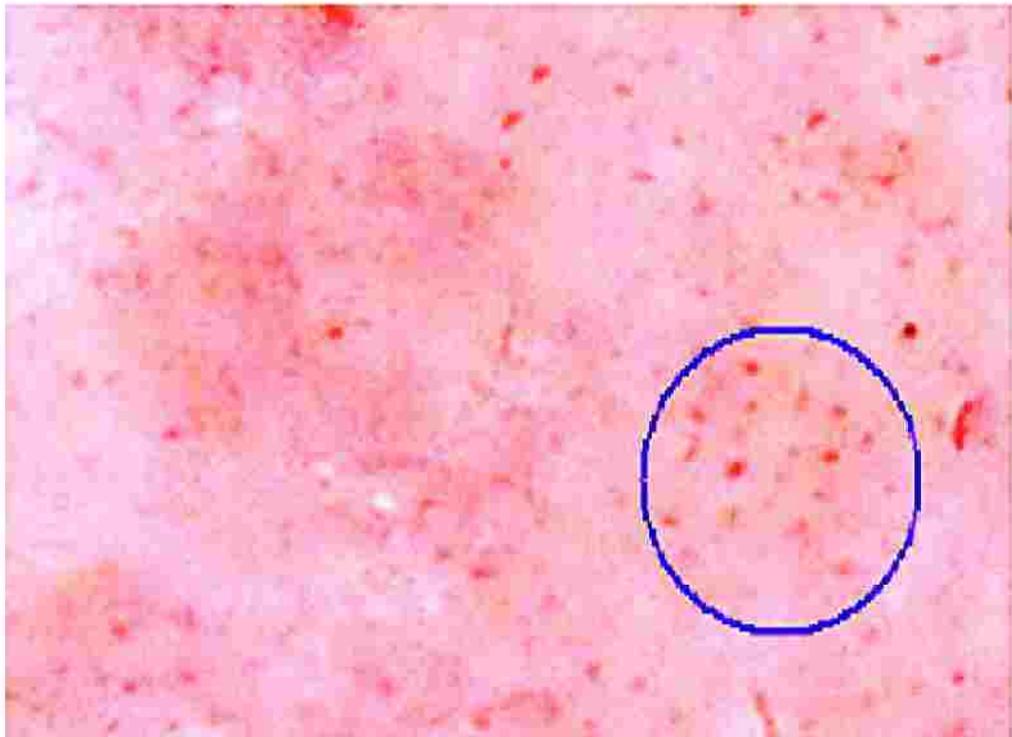
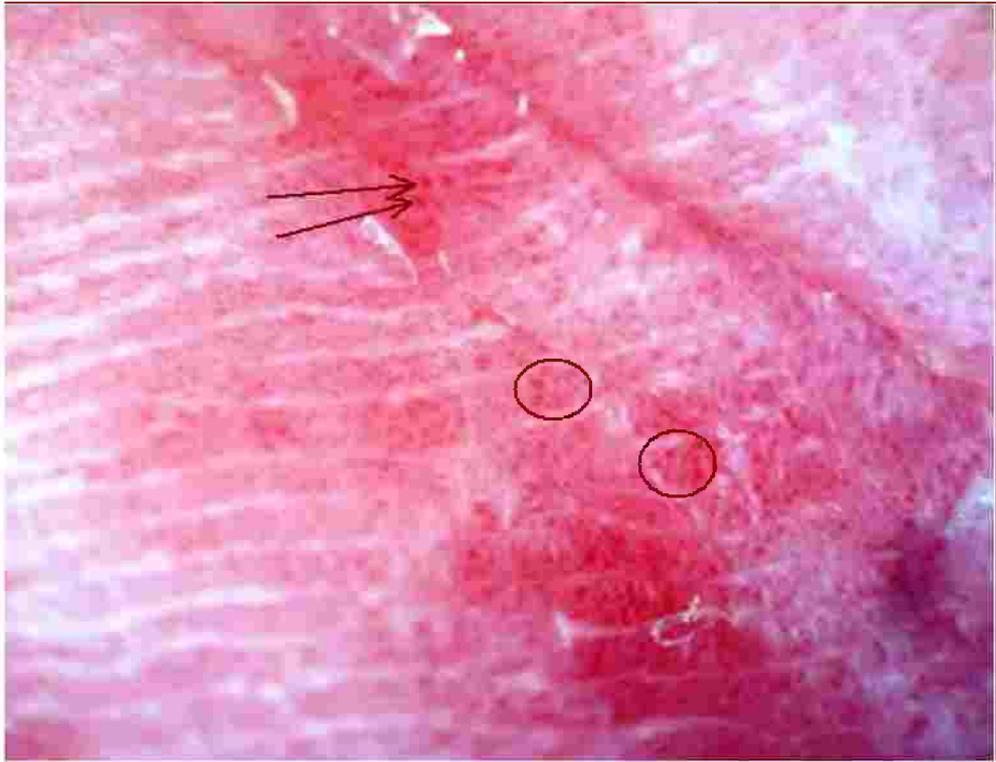
As regard the red dots and globules, in the psoriasis group 13 patients (86.7%) were positive and two patients (13.3%) were negative while in the seborrheic dermatitis group all patients (100%) were negative. There were statistically significant differences between the two groups where  $P=0.0001$  ( $P$  significant level at  $P < 0.05$ ). (Table (V), graph (2)). Red dots appear as tiny red dots. Globules appear as symmetrical, round to oval, well-demarcated structures (photo4)

**Table (V):** Comparison between the two studied groups as regards the red dots and globules

Red dots and globules	Psoriasis	Seborrheic dermatitis	Total	Fisher's exact test P value
Positive	13	0	13	0.0001
Negative	2	15	17	
Total	15	15	30	



**Graph (2):** Comparison between the two studied groups as regard the red dots and globules.

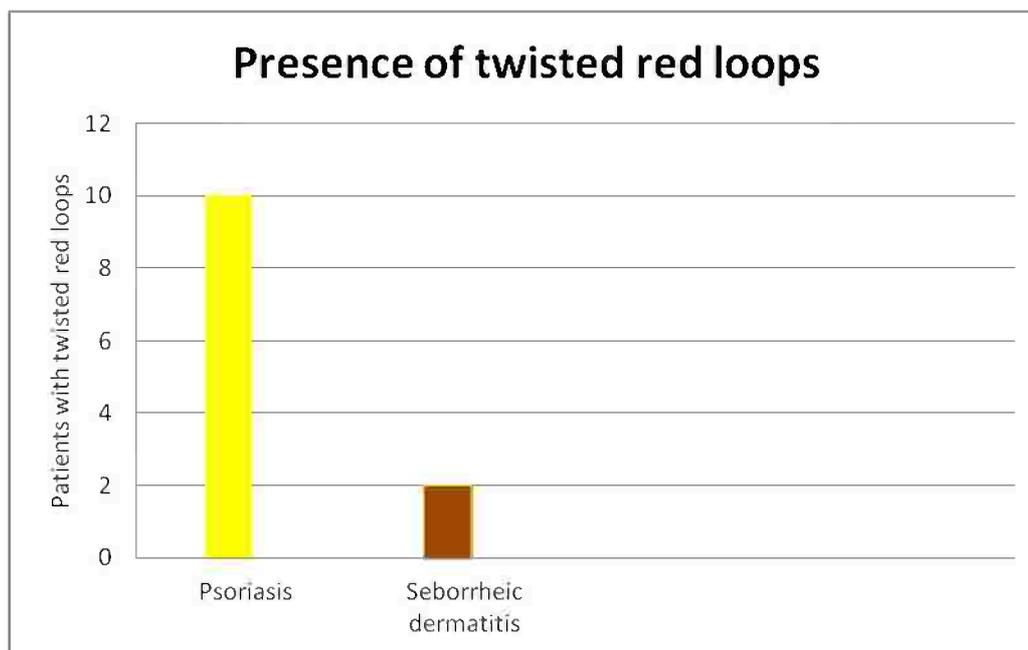


**Photo (4): Red dots and globules under dermoscope.**

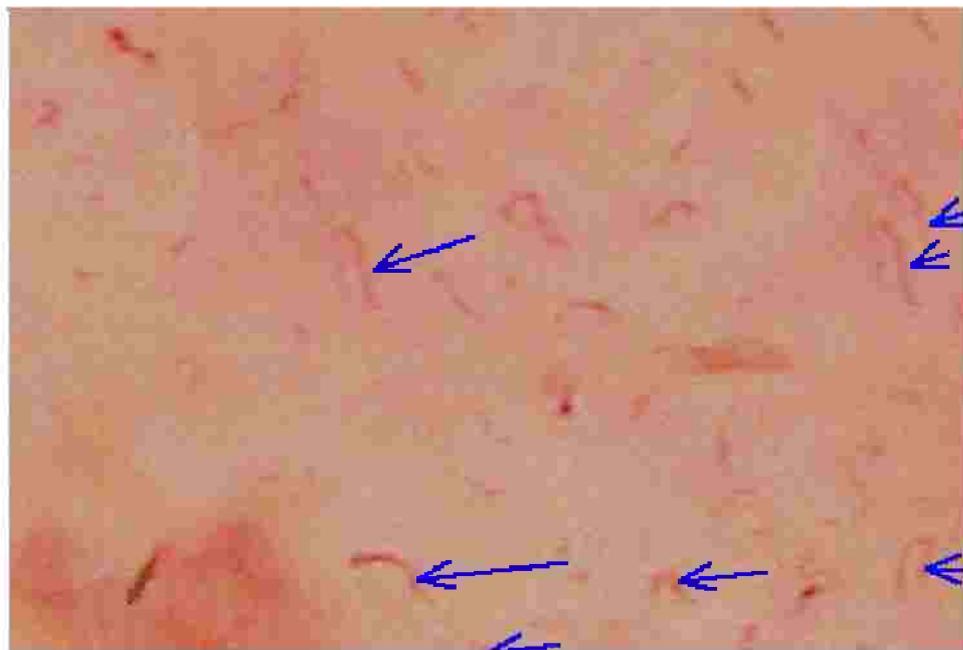
As regard the twisted red loops, in the psoriasis group 10 patients (66.7%) were positive and five patients (33.3%) were negative while in the seborrheic dermatitis group two patients (13.33%) were positive and 13 patients (86.67%) were negative. There were statistically significant differences between the two groups where  $P=0.0078^*$  (P significant level at  $P < 0.05$ ). (Table (VI), graph (3)), Twisted red loops appear as U-shaped vascular loops, Photo (5).

**Table (VI):** Comparison regards the twisted red loops between the two groups.

Twisted red loops	Psoriasis	Seborrheic dermatitis	Total	Fisher's exact test P value
Positive	10	2	12	0.0078
Negative	5	13	18	
Total	15	15	30	



**Graph (3):** Comparison between the two studied groups as regard the twisted red loops.

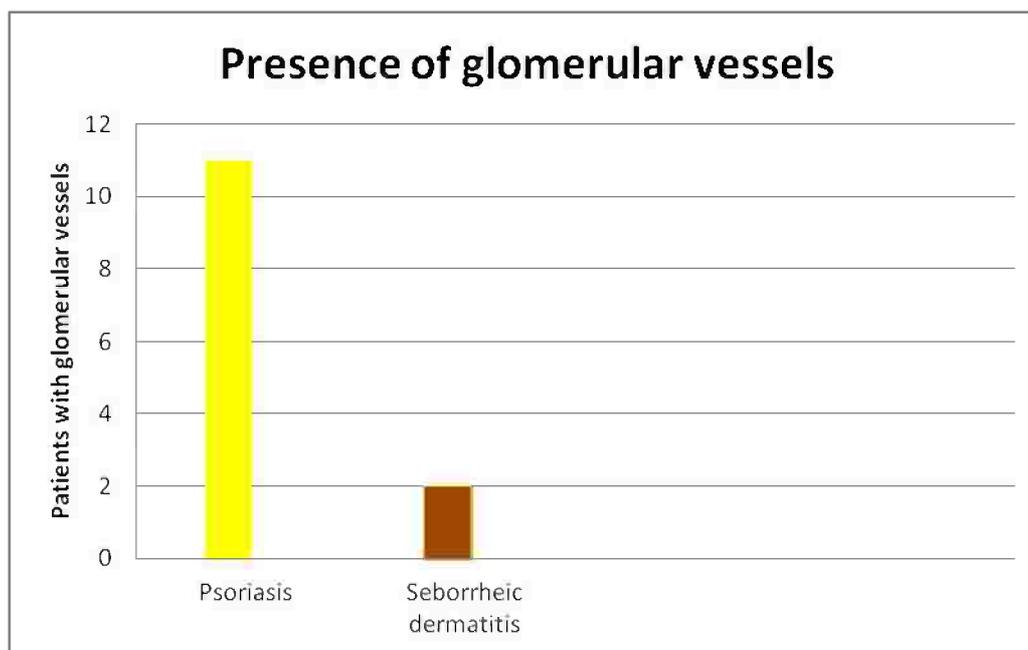


**Photo (5): Twisted red loops in psoriasis under dermoscope.**

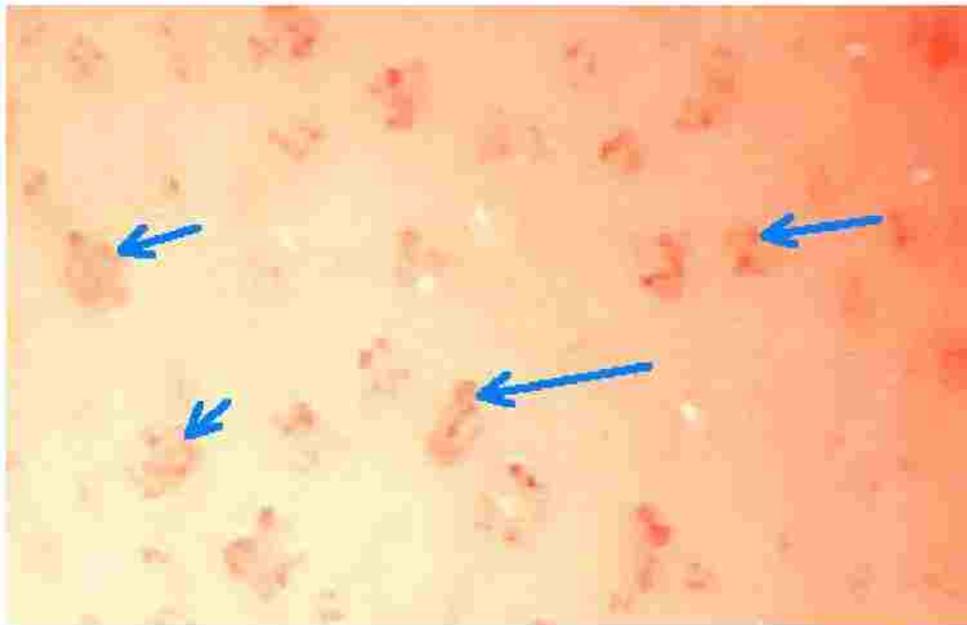
As regard the glomerular vessels, in the psoriasis group 11 patients (73.33%) were positive and four patients (26.67%) were negative while in the seborrheic dermatitis group two patients (13.33%) were positive and 13 patients (86.67%) were negative. There were statistically significant differences between the two groups where  $P=0.0025$  ( $P$  significant level at  $P < 0.05$ ). (Table (VII), Graph (4)). Glomerular vessels appear as tortuous capillaries that resemble glomerular apparatus of the kidney, often distributed in clusters Photo (6).

**Table (VII):** Comparison between the two studied groups as regards the glomerular vessels.

Glomerular vessels	Psoriasis	Seborrheic dermatitis	Total	Fisher's exact test P value
Positive	11	2	13	0.0025
Negative	4	13	17	
Total	15	15	30	



**Graph (4):** Comparison between the two studied groups regards to glomerular vessels.

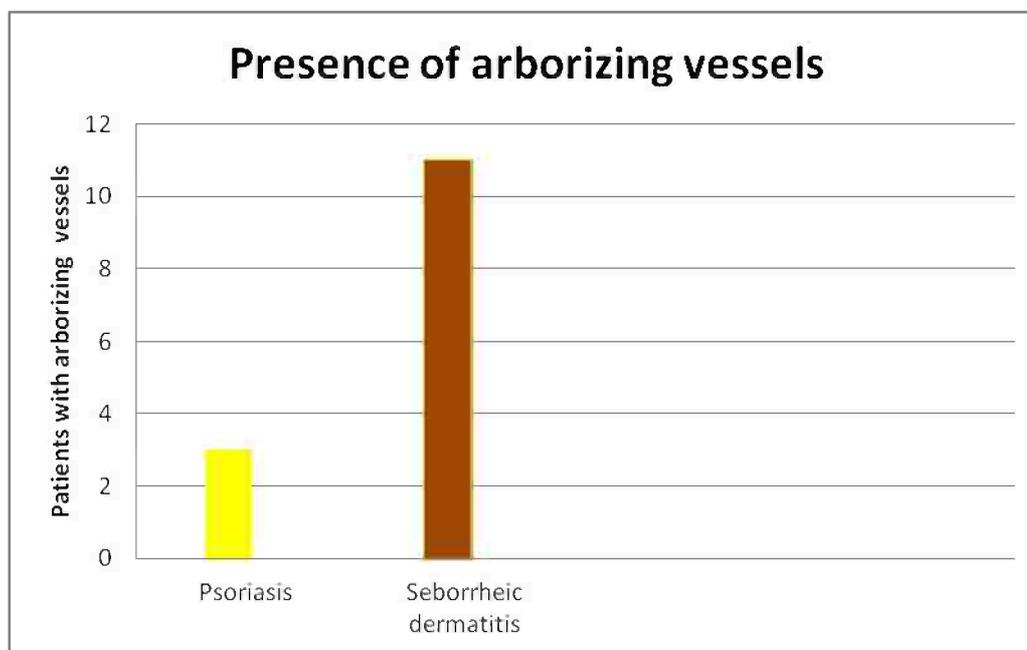


**Photo (6): Glomerular vessels in psoriasis under dermoscope.**

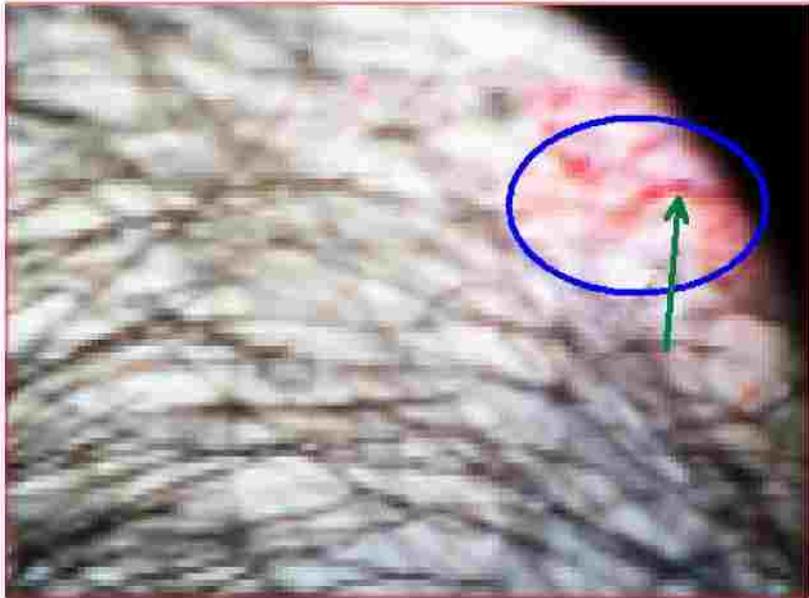
As regard the arborizing vessels, in the psoriasis group three patients (20%) were positive and 12 patients (80%) were negative while in the seborrheic dermatitis group 11 patients (73.33) were positive and four patients (26.67) were negative. There were statistically significant differences between the two groups where  $P=0.0029$  ( $P$  significant level at  $P < 0.05$ ). (Table (VIII), Graph (5)). Arborizing vessels appear as large vessels branching irregularly into smaller & thinner one Photo (7)

**Table (VIII):** Comparison between the two studied groups as regards the arborizing vessels

Arborizing vessels	Psoriasis	Seborrheic dermatitis	Total	Fisher's exact test P value
Positive	3	11	14	0.0029
Negative	12	4	16	
Total	15	15	30	



**Graph (5):** Comparison between the two studied groups regards to arborizing vessels.

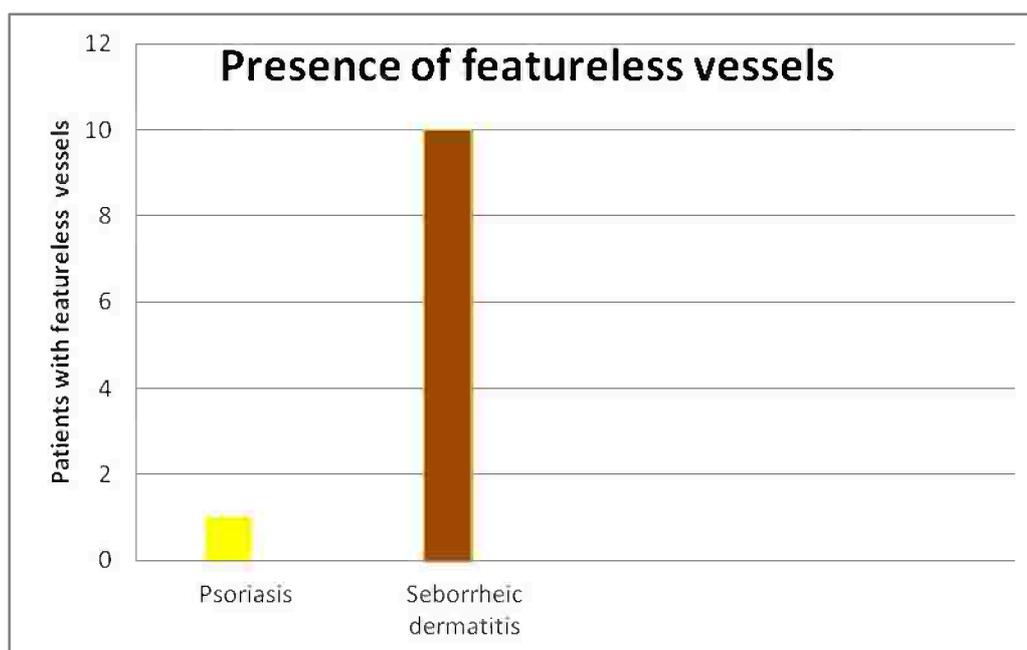


**Photo (7): Arborizing vessels in seborrheic dermatitis under dermoscope.**

As regard the featureless vessels, in the psoriasis group 14 patients (93.33%) were negative and one patient (6.6%) were positive while in the seborrheic dermatitis group 10 patients (66.7%) were positive and five patients (33.3%) were negative. There were statistically significant differences between the two groups where  $P=0.0017$  ( $P$  significant level at  $P < 0.05$ ). (Table (IX), Graph (6)). Featureless vessels appear as areas not meet any known dermoscopic features Photo (8).

**Table (IX):** Comparison between the two studied groups as regards the featureless vessels

Featureless vessels	Psoriasis	Seborrheic dermatitis	Total	Fisher's exact test P value
Positive	1	10	11	0.0017
Negative	14	5	19	
Total	15	15	30	



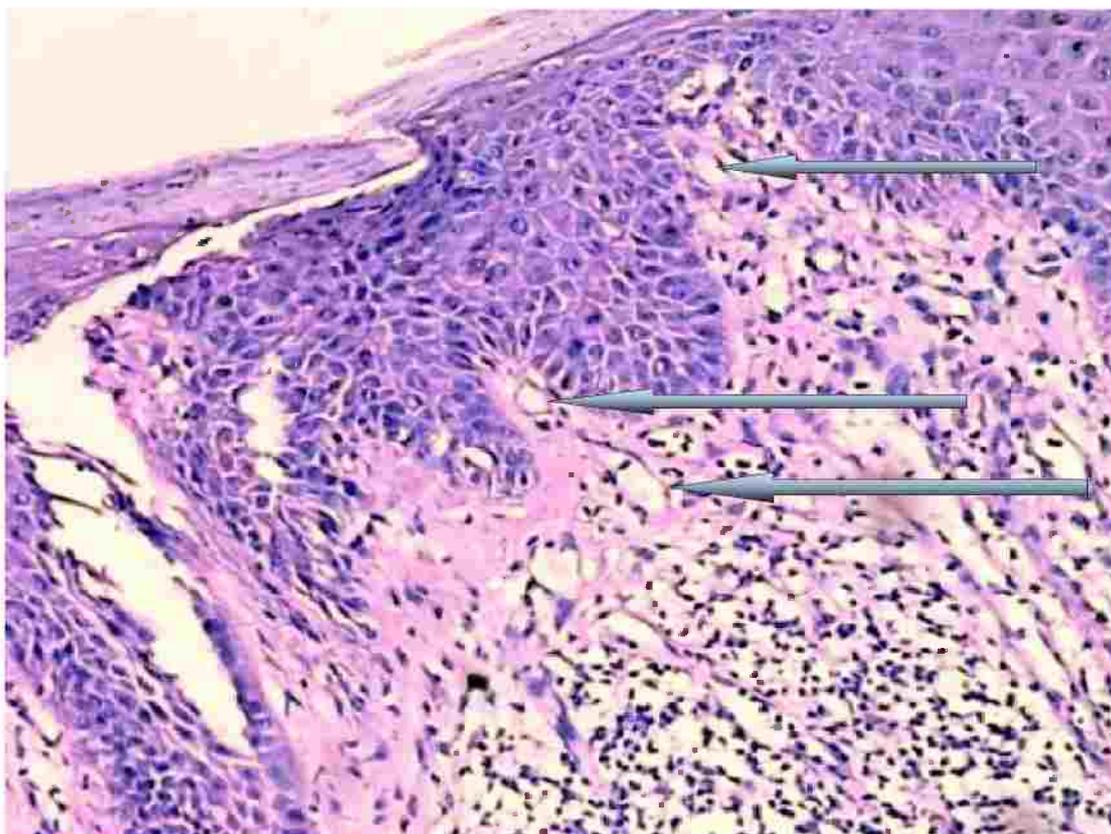
**Graph (6):** Comparison between the two studied groups regards to featureless vessels.



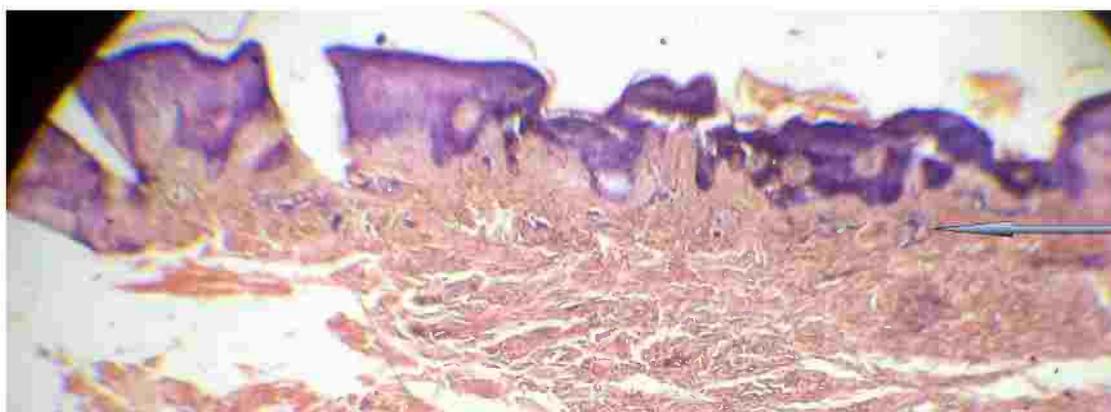
**Photo (8): featureless vessels in seborrheic dermatitis under dermoscope.**

**Histopathological results:****Haematoxylin and eosin (H &E) staining:****Table (X). Clinicopathological correlation of psoriasis and seborrheic dermatitis:**

<b>Dermoscopic feature</b>	<b>In the form of</b>	<b>Pathology</b>	<b>Disease</b>
Twisted red loops	Multiple red dots and circles	Dilated tortuous capillaries in dermal papillae	Psoriasis
Arborizing vessels	Branching vessels	Subpapillary vascular plexus	Seborrheic dermatitis



**Fig (9):** Histopathology (H&E):showing tortuous and dilated blood vessels within the elongated dermal papillae in psoriasis resulting in red dots and globules as seen under dermoscopy.



**Fig (10):** Histopathology (H&E):showing subpapillary plexus in seborrheic dermatitis resulting in arborizing vessels as seen under dermoscopy.