



## A study of the dermoscopic findings of old and new lesions of vitiligo

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### Abstract

**Background:** *Vitiligo is a common pigmentary disorder of the skin that has a worldwide incidence of 1%. As most of the studies and published articles available are based on a western population, more studies are required in Indian patients.*

**Material & Methods:** *This is a observational study done on out patients with vitiligo reporting to OPD in Department of Dermatology, venerology & leprosy, at National Institute of Medical Sciences & research and Hospital, Jaipur from January 2017 to June 2018. Based on the history and examination, a clinical diagnosis of the type of vitiligo was made. These details were entered in the specified proforma. Each enrolled patient was subsequently subjected to dermoscopy.*

**Results:** *Our study showed that the minimum age was 16 years and maximum age was 70 yrs. Maximum number of cases were in the age group >45 years. In all age groups, males (61.6%) outnumbered females (38.4%). Male to female ratio was 1.6:1. Most common dermoscopy finding among new lesions of vitiligo was salt & pepper pattern, which was found in 46 (76.67%) patients. In old lesions was that of telangeictasia, which was found in 46 (76.67%) patients.*

**Conclusion:** *We concluded that dermoscopy can be used as an effecient, safe and non-invasive tool to monitor the disease activity, response to the treatment and hence prognosis of the disease. Patterns such as trichrome, polkadot, starburst and comet tail, when present are suggestive of a change in treatment modality.*

**Keywords:** *Dermoscopy, Vitiligo, Telangeictasia, Salt & ppper, Depigmented.*

### Introduction

Vitiligo is known to be an acquired, idiopathic disorder characterized by circumscribed depigmented macules and patches with or without leukotrichia where melanocyte destruction in vitiligo is a slow process that results in a progressive decrease in melanocyte numbers.<sup>1</sup>

Vitiligo is a common pigmentary disorder of the skin that has a worldwide incidence of 1%. Widespread prejudices, ignorance, taboos, lack of scientific appraisal about vitiligo and

confusion with leprosy makes vitiligo a social-stigma even though the patient's life expectancy remains unaffected. Some dermatological outpatient records show the incidence of vitiligo to be 3% to 4% in India although an incidence as high as 9.98% has also been reported. The male to female ratio among vitiligo patients was 1:1.8. Highest point prevalence of vitiligo was found among 11-20 years of age group, comprising 26.08%.<sup>2</sup>

Early lesions of vitiligo (often called pre-vitiligo) are frequently confused with other hypopigmented lesions like Pityriasis alba, Idiopathic Guttate Hypomelanosis, Lichen Sclerosus et atrophicus etc. Further, in established cases of vitiligo, early evaluation of treatment response is paramount to ensure patient compliance and disease stability is indispensable before attempting surgical intervention. Although clinical criteria have been listed for diagnosing and establishment of stability of disease, they are not very well defined. Histopathology is of limited importance in assuring disease stability and additionally suffer the short-coming of being invasive. Biopsy on face cannot be done in all patients due to high possibility of scarring and cosmetic disfigurement.

Dermoscopy, also known as epiluminescence microscopy is a non-invasive diagnostic tool, initially used for diagnosis of pigmented melanocytic lesion, is now being extrapolated for its diagnostic utility in vitiligo. A dermoscope is functionally similar to a magnifying lens but with several add-on features of an inbuilt specialized illuminating system (visible light, polarized light, and ultraviolet sources), adjustable magnification, the ability of evaluation of colours and microstructures of the epidermis, the dermoepidermal junction and the papillary dermis not visible to naked eye and the ability to record digital images for future analysis and comparison. Based upon the limited, but notable data acquired from recent studies, it has been observed that dermoscopy is a useful tool in confirming diagnosis of vitiligo, evaluating disease activity and early therapeutic response to treatment.<sup>3</sup> As most of the studies and published articles available are based on a western population, more studies are required in Indian patients.

### Material & Methods

This is a observational study done on out patients with vitiligo reporting to OPD in Department of Dermatology, venerology & leprosy, at National Institute of Medical Sciences & research and Hospital, Jaipur from January 2017 to June 2018.

### Inclusion Criteria

Patients presenting with vitiligo to skin OPD of National Institute of Medical Sciences & Research and Hospital, and the diagnosis was based on history, clinical examination and wood's lamp illumination and further evaluated by dermoscopy.

### Exclusion Criteria

- Patients with depigmentation caused by chemicals, burns or any other disorder
- Patient not consenting for participation in study
- Uncooperative subjects

Subsequent to enrollment of the patient in the study, a detailed history related to vitiligo was taken in each patient in addition to history of medical ailment. General physical examination and detailed dermatological examination of vitiligo was done in each patient including wood's lamp examination. Based on the history and examination, a clinical diagnosis of the type of vitiligo was made. These details were entered in the specified proforma. Each enrolled patient was subsequently subjected to dermoscopy.

### Procedure of Dermoscopy

A dermoscope with a light emitting diode (LED) light, connected to the laptop or computer hard disk drive with a Universal serial bus (USB) cable was used, through which dermoscopic pictures were recorded. Calibration was done on the laptop with the use of software pre-installed on the CD-drive along with instrument on a millimeter scale. Patients were selected by probability sampling method. After informed consent, a detailed history was taken, physical examination was performed and wood's lamp illumination test was done. Newly appeared lesions were selected based on patient's history and clinical examination.

Dermoscopic analysis of established vitiligo lesions was performed at the outpatient department (Department of Dermatology, National Institute of Medical Sciences & Research and Hospital, Jaipur) after taking due permission and approval from the Institutional Ethics Committee (IEC). Dermoscopy of both old and new lesions was done. The lesions of duration less

than 1 month were considered as new lesions. In each patient, dermoscopic evaluation was done on one representative new lesion and one representative old lesion, as the case may be.

Dermoscope illumination was performed using a video dermoscope (Dinolite Edge) with inbuilt white light & polarized light. Polarized light was used to study changes in the pigmentary network.

Data was recorded on a proforma and clicked photographs from the dermoscope were analysed for findings and attached to the digital profile created on Microsoft word document of the patient on computer (figure 1).



**Fig. 1:** Dermoscope with Laptop Connection

## Results

Our study showed that the minimum age was 16 years and maximum age was 70 yrs. Maximum number of cases were in the age group >45 years. In all age groups, males (61.6%) outnumbered females (38.4%). Male to female ratio was 1.6:1 (table 1).

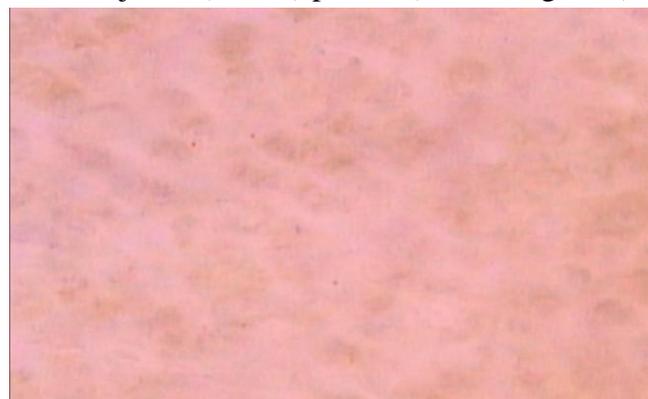
Majority of patients i.e. 39 (65%), presented with generalized vitiligo. Focal, segmental and acrofacial were 8 (13.3%), 5 (8.3%) and 7 (11.7%) respectively. Minimum presentation was of mucosal i.e 1 (1.7%) (table 2).

Wood's lamp examination was done in all patients. A diffuse white glow was rendered as a positive sign, which was found to be present in 52 (86.7%) patients (table 3, figure 2).



**Fig 2:** Diffuse white glow

Most common dermoscopy finding among new lesions of vitiligo was salt & pepper pattern, which was found in 46 (76.67%) patients. This was followed by star burst pattern in 36 (60%) patients and polka dot pattern in 23 (38.33%) patients. The least common finding was that of trichrome pattern among new lesions, which was found in just 1 (1.67%) patient (table 4, figure 3).



**Fig 3:** Salt & Pepper

Most common dermoscopy finding in old lesions was that of telangeiectasia, which was found in 46 (76.67%) patients. This was followed by marginal reticular pigmentation in 36 (60%) patients and reticular pigmentation in 32 (53.33%) patients. The least common finding was that of comet tail appearance, which was found in 1 (1.67%) patient. None of the patients exhibited trichrome pattern of dermoscopy in the old lesions (table 5). Telangeiectasia was found to be the most common dermoscopy finding in old lesions of vitiligo. 25 (67.6%) males presented with telangeiectasia in old lesion. Among females, the finding was present in 21 (91.3%) patients (table 6, figure 4).



**Figure 4:** Telangeiectasia

**Table- 1:** Vitiligo- Age and Sex distribution (n= 60)

			Sex		Total	
			Male	Female		
Age	0-14 years	F	0	0	0	
		%	0	0	0	
	15 -29 years	F	9	5	14	
		%	24.3%	21.7%	23.3%	
		30 - 44 years	F	11	8	19
			%	29.7%	34.8%	31.7%
	>45 years	F	17	10	27	
		%	45.9%	43.5%	45.0%	
	<b>Total</b>		F	37	23	60
			%	100%	100%	100.0%

**Table 2** Distribution of vitiligo (n=60)

			Sex		Total	
			Male	Female		
Distribution	Focal	F	6	2	8	
		%	16.2%	8.7%	13.3%	
	Segmental	F	2	3	5	
		%	5.4%	13.0%	8.3%	
	Mucosal	F	1	0	1	
		%	2.7%	0.0%	1.7%	
	Generalized	F	24	15	39	
		%	64.9%	65.2%	65.0%	
	Acrofacial	F	4	3	7	
		%	10.8%	13.0%	11.7%	
	Universal	F	0	0	0	
		%	0	0	0	
	<b>Total</b>		F	37	23	60
			%	100.0%	100.0%	100.0%

**Table 3** Wood’s lamp examination in vitiligo (n=60)

			Sex		Total
			Male	Female	
Wood's Lamp Examination	Present	F	33	19	52
		%	89.2%	82.6%	86.7%
	Absent	F	4	4	8
		%	10.8%	17.4%	13.3%
<b>Total</b>		F	37	23	60
		%	100.0%	100.0%	100.0%
Chi Square (p value)			0.532 (0.466)		

**Table 4** Dermoscopy findings in New lesions of vitiligo

Dermoscopy Findings (New lesions)	Present		Absent		Total	
	f	%	f	%	f	%
Trichrome	1	1.67	59	98.33	60	100.00
Polka Dot	23	38.33	37	61.67	60	100.00
Comet Tail	3	5.00	57	95.00	60	100.00
Star Burst	36	60.00	24	40.00	60	100.00
Salt & Pepper	46	76.67	14	23.33	60	100.00
Marginal Hyperpigmentation	12	20.00	48	80.00	60	100.00
Perifollicular Pigmentation	9	15.00	51	85.00	60	100.00
Reticular Pigmentation	13	21.67	47	78.33	60	100.00
Marginal Reticular Pigmentation	19	31.67	41	68.33	60	100.00
Telangeictasia	19	31.67	41	68.33	60	100.00

**Table 5** Dermoscopy findings in Old lesions of vitiligo

Dermoscopy Findings (Old lesions)	Present		Absent		Total	
	f	%	f	%	f	%
Trichrome	0	0.00	60	100.00	60	100
Polka Dot	22	36.67	38	63.33	60	100
Comet Tail	1	1.67	59	98.33	60	100
Star Burst	20	33.33	40	66.67	60	100
Salt & Pepper	15	25.00	45	75.00	60	100
Marginal Hyperpigmentation	24	40.00	36	60.00	60	100
Perifollicular Pigmentation	11	18.33	49	81.67	60	100
Reticular Pigmentation	32	53.33	28	46.67	60	100
Marginal Reticular Pigmentation	36	60.00	24	40.00	60	100
Telangeictasia	46	76.67	14	23.33	60	100

**Table 6:** Distribution of Telangeictasia among sex

			Sex		Total
			Male	Female	
Telangeictasia (Old lesion)	Present	F	25	21	46
		%	67.6%	91.3%	76.7%
	Absent	F	12	2	14
		%	32.4%	8.7%	23.3%
Total		F	37	23	60
		%	100.0%	100.0%	100.0%
Chi Square (P value)			4.467 (0.035)		

**Discussion**

Vitiligo is an acquired, progressive disorder that selectively destroys some or all melanocytes residing in interfollicular epidermis and occasionally in the hair follicle. The characteristic lesions consist of depigmented or hypopigmented macule. The current treatment for vitiligo includes various medical and surgical modalities. But none are uniformly effective and ideal. The present study was undertaken to evaluate the dermoscopic features of old and new lesions of vitiligo.

Out of 60 patients, the age ranged from minimum 16 years to maximum 70 yrs. Our findings are

comparable with findings of Ortonne JP et al (1983)<sup>4</sup> and Song et al (1994)<sup>5</sup> who suggested that vitiligo starts at any age from infancy to seventh decade.

Maximum number of cases in our study were in the age group >45 years (45%) which was consistent with findings of Howits et al (1977)<sup>6</sup> who concluded vitiligo to be have an increased incidence in the age group of 40-60 years. Also, Reghu R et al (2011)<sup>7</sup> reported that 32.5% of the study population was in the age group of 41-60 years.

In all age groups, males (61.6%) outnumbered females (38.4%). Male to female ratio was 1.6:1. These findings were similar to those by Wang X et al (2013)<sup>8</sup>, which showed that men are affected more than female. Other studies showed an almost equal prevalence in both sexes, such as in study conducted by Reghu R et al (2011)<sup>7</sup>.

In the present study, minimum duration of disease was 6 months and maximum was 16 years. Maximum number of patients had vitiligo for a duration of more than 3 years. These findings found close similarity with the findings by AL Fahaad H. A (2015)<sup>9</sup>, who stated a median duration of disease as 4 years. Also, Hann SK et al (1997)<sup>10</sup> concluded that 56.2% of the study population in their study had a duration of less than 5 years. Vitiligo is a benign and asymptomatic disorder but patients seek advice at the earliest because of cosmetic deformity, socio-marital significance and the fear of progression of vitiligo to other parts of body.

Majority of patients in our study, i.e. 39 (65%), presented with generalized vitiligo. Focal, segmental and acrofacial patterns of distribution were 8 (13.3%), 5 (8.3%) and 7 (11.7%) respectively. Minimum presentation was of mucosal i.e 1 (1.7%). These results were compared to studies conducted by Shah H et al (2008)<sup>11</sup> and Reghu R et al (2011)<sup>7</sup> consecutively. The high incidence of generalized vitiligo can be due autoimmune nature of the disease. Maximum number of patients i.e. 42 (70%) out of 60, presented with hypopigmented lesions. Followed by depigmented lesions i.e. 27 (45%). The remaining lesions that were observed were of Koebner's phenomenon in 4 (6.67%) patients, trichrome pattern in 1 (1.67%), quadrichrome pattern in 1 (1.67%) and marginal inflammatory pattern in 1 (1.67%) patients. These findings are not illustrated in any studies previously.

Wood's lamp examination was done in all 60 patients included in our study. 52 patients (86.7) showed the presence of a diffuse white glow on exposure to ultraviolet light. Similar findings have been illustrated by Thatte SS et al (2014)<sup>12</sup>, who

in their studies described the presence of diffuse white glow on Wood's lamp examination in 27 (90%) out of 30 patients under study.

The dermoscopic findings in our study in new and old lesions were compared to findings from study conducted by G Purnima et al (2017)<sup>13</sup>.

The old lesion showed telangeiectasia in 46 (76.67%) patients, marginal reticular pigmentation in 36 (60%) patients and reticular pigmentation in 32 (53%) patients. These findings are consistent with stability and effective treatment of vitiligo.

Also, study conducted by Thatte SS et al (2014)<sup>12</sup> showed reduced pigmentary network in 12 (40%) of 30 patients, no pigmentary network in 9 (30%) patients, and reversed in 6 (20%) patients. Perifollicular hyperpigmentation was found in 2 (6.7%) patients and perilesional hyperpigmentation was found to be present in 1 (3.3%) patient.

Dermoscopy can be used as an effective tool to differentiate the detailed patterns in old and new lesions of vitiligo. And these can also aid in early diagnosis of vitiligo as new lesions can exhibit dermoscopy findings that may aid in defining stability of disease for most appropriate treatment regimen.

### Conclusion

It can be concluded that marginal hyperpigmentation, perifollicular pigmentation, reticular hyperpigmentation suggest stability of disease. Patients with good response to treatment may present with telangeiectasia, marginal hyperpigmentation, perifollicular and reticular pigmentation patterns on dermoscopy. Hence, dermoscopy can be used as an efficient, safe and non-invasive tool to monitor the disease activity, response to the treatment and hence prognosis of the disease. Patterns such as trichrome, polkadot, starburst and comet tail, when present are suggestive of a change in treatment modality.

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