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Newsletter on Interventional Dermoscopy

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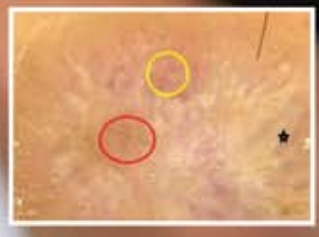

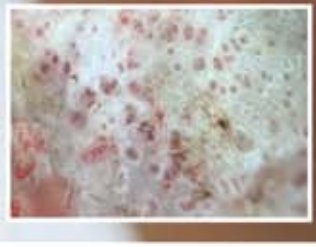

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Editorial Preface

The Scope of Interventional Dermoscopy

Dr. Aseem Sharma

I would like to express my sincere appreciation to all the contributors for their dedication and expertise in shaping this newsletter. Their collective efforts have resulted in a compilation of knowledge that will undoubtedly inspire and empower our readers.

I would also like to extend my gratitude to the editorial team for their meticulous work in curating and refining the content. Their commitment to ensuring the highest standards of quality has been instrumental in presenting this newsletter to you.

Dear Readers,

Welcome to this special edition of our newsletter, dedicated to the remarkable field of interventional dermoscopy. As the Editor-in-Chief, I am delighted to present this concise yet insightful collection of articles and updates that shed light on the latest developments in interventional dermoscopy. A special word of gratitude to my coordinator, Dr Yasmeen J Bhat and my convenor, Dr Biswanath Behera for giving me this opportunity.

Interventional dermoscopy has emerged as a dynamic subspecialty within dermatology, combining the power of dermoscopy with various interventional procedures. It represents a significant leap forward in our ability to diagnose and treat skin conditions with precision and efficacy. By harnessing the capabilities of dermoscopy, clinicians can now perform minimally invasive procedures guided by real-time visualization, thereby enhancing patient outcomes and experiences.

In this newsletter, you will find a range of articles that delve into different aspects of interventional dermoscopy. Our esteemed contributors, renowned experts in the field, have shared their expertise and experiences, providing valuable insights into interventional dermoscopy applications, techniques, and future directions. These articles cover diverse topics, including dermoscopic-guided excisions, targeted biopsies, cryosurgery, and electrosurgery. The authors also explore the integration of advanced technologies, such as artificial intelligence and machine learning, to augment the diagnostic and therapeutic capabilities of interventional dermoscopy.

Moreover, we are fortunate to have experts discussing the challenges and nuances involved in incorporating interventional dermoscopy into clinical practice. Their guidance on training pathways, resources, and ongoing education will undoubtedly

prove invaluable to practitioners seeking to expand their skill set in this exciting field.

I would like to express my sincere appreciation to all the contributors for their dedication and expertise in shaping this newsletter. Their collective efforts have resulted in a compilation of knowledge that will undoubtedly inspire and empower our readers.

I would also like to extend my gratitude to the editorial team for their meticulous work in curating and refining the content. Their commitment to ensuring the highest standards of quality has been instrumental in presenting this newsletter to you.

I encourage all our readers to immerse themselves in the articles presented herein, to embrace the opportunities offered by interventional dermoscopy, and share this knowledge with their colleagues. By fostering a culture of collaboration and continuous learning, we can collectively advance the field and improve patient care.

Thank you for your ongoing support, and I trust that you will find this newsletter both informative and enlightening. We also have an exciting quiz and a crossword to add some spunk to the newsletter.

Happy reading!!

Warm regards,

Dr. Aseem Sharma

Editor-in-Chief

Interventional Dermoscopy Newsletter, 2023

Interventional Dermoscopy - an introduction

Dr Yasmeen Jabeen Bhat
Coordinator
SIG Dermoscopy

Intervention means the act of interfering with the outcome or course, mainly to improve function. The same applies to dermoscopy in the present context.

Dermoscopy has since long been used for diagnostic purposes but lately its use has expanded to involve a horizon of indications ranging from the prognosis of diseases to therapeutic evaluation by measuring the response to treatment and aiding various procedures. It also helps in screening and deciding the treatment procedure.

Dermoscopy helps in assessing the severity of certain diseases like morphea, systemic sclerosis, alopecia areata, female pattern hair loss, folliculitis decalvans as well as the activity in psoriasis, vitiligo, alopecia areata, etc. Besides guiding the common diagnostic procedures like biopsy, it may help in various bedside tests like Auspitz sign, patch test, pathergy test, dermoscopic trichogram, trichoscan, and recently reflectance confocal microscopy and optical coherence tomography.[1,2] Digital dermoscopy has evolved into sequential digital monitoring, teledermoscopy and machine learning in the form of artificial intelligence. Recent modifications in the illumination system of dermoscopes like multispectral, yellow, or red light and UV light further aid diagnosis of certain disorders.

The use of dermoscopy in intraoperative procedures like nevus excision and Moh's surgery is gaining importance in ensuring the complete removal of the lesion by the demarcation of the surgical margin.[3] Dermoscopy aids in monitoring the treatment efficacy of topical and systemic drugs in alopecia, psoriasis, vitiligo and of biological agents like Sekukinumab in psoriasis and Dupilumab in atopic dermatitis.[4,5] Dermoscopic intervention improves the outcome of various aesthetic procedures including lasers for hair reduction, pigmentary and vascular disorders as well as scalp micropigmentation and hair transplantation.[6,7,8] Hence, the scope of a dermoscope is ever-increasing and is proving to be a dynamic and versatile tool in the hands of a dermatologist.

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Use of Dermoscopy in Diagnosis, Prognosis and Therapeutic Monitoring

Dr. Priyadarshini Sahu
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Introduction: Dermoscope is considered as the dermatologist's "stethoscope". Previously, it was used in the assessment of both melanocytic and non-melanocytic lesions. But nowadays, it is gaining increasing appreciation in the spectrum of various skin conditions such as inflammatory, pigmentary, infections and infiltrative dermatosis. Dermoscopy not only helps in diagnosis of the disease, it also aids in predicting its prognosis and therapeutic outcomes. Recently, dermoscopy has been shown to be a promising tool in predicting not only in diagnosing these diseases, but also in aids in its prognosis and therapeutic outcome. In the present paper, we highlight the use of dermoscopy in predicting the prognosis and therapeutic monitoring in general dermatology according to current literature. We have complied all the dermoscopic changes in various diseases with treatment in Tables 1, 2 and 3.

Dermoscopic response in Inflammatory diseases

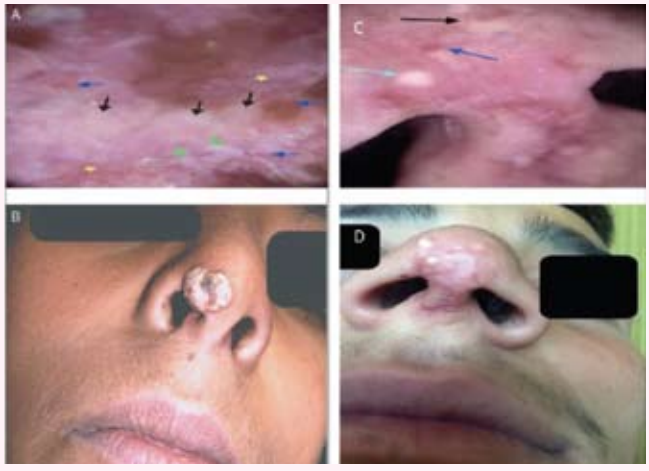
Psoriasis: In psoriasis, dermoscopy helps in diagnosis, assessing prognosis and providing clues to therapeutic monitoring. Its hallmark features on dermsocopy are red dots and globules in uniform pattern on a pinkish background, with diffuse white scales. The good prognostic indicators on dermoscopy for psoriasis includes regular dots, haemorrhagic/purpuric dots while poor prognosis is indicated by white areas, glomerular vessels, curvilinear vessels, greyish linear structures. Various studies[1-4] have demonstrated that dermoscopic follow-up of psoriasis may assess treatment response by the changes in vessels morphology and diameter. In particular, psoriatic plaques successfully treated with either topical or systemic therapies revealed a progressive reduction of vessels' tortuosity and diameter over the time up to a complete normalization, although this may sometimes not be reached despite clinical healing. Analysis of superficial vascular patterns by video-dermatoscope may represent a promising, non-invasive diagnostic tool in palmar and/or plantar psoriasis. Videodermoscopy can be used to explore microcirculatory modifications in skin diseases. Thus, based on this there is scoring system videodermoscopy scalp psoriasis severity index (VSCAPSI), which provides important evidence for early diagnosis, differential diagnosis, for follow-up and screening.[5]

Lichen Planus: The pathognomonic feature on dermoscopy is presence of Wickham striae (WS). They are intersecting white lines forming a sort of network, with various morphology (e.g., linear, radial, annular and round) and colours (i.e., yellow and blue-white).[6-8] Dermoscopic patterns in lichen planus are variable as per stage of lesion

that includes early papules usually showing subtle WS over a reddish background and mature lesions displaying well-represented Wickham striae and dotted, globular and/or linear vessels. It also predicts the likelihood of post-inflammatory pigmentation persistence, with homogeneous and light brown areas devoid of granularity being correlated with a shorter duration and granular pigmentation being associated with a longer course. Lesions with ill-defined WS or predominant vascular elements are to be treated aggressively while conventional treatment is to be given in lesions with well-developed WS with lesser vascular component and reassurance is sufficient for healed lesions with only pigmentary changes.

Dermatitis: The dermoscopic pattern of dermatitis varies according to the disease stage. The dermoscopic patterns in acute and subacute stage are seen as yellow brown to dark brown serocrusts (yellow clod sign) and dotted vessels distributed in clusters or randomly, while more or less uniform dotted vessels surrounded by a white halo are the main dermoscopic features in chronic phases (lichenification). Dermoscopy plays a notable role in identifying early steroid induce adverse effects.[8,9]

Granulomatous Dermatoses: It is characterized by the presence of focal or diffuse orange structureless areas along with vascular structures. Dermoscopic clues specific to each granulomatous dermatosis may also be seen (i.e., focused vessels in sarcoidosis and lupus vulgaris, follicular plugs and peripheral white striae in leishmaniasis, and serpiginous-branching vessels in necrobiosis lipoidica, blurred vessels in granuloma annulare, yellow areas and vascular polygons in granulomatous rosacea).[10,11] Dermoscopic examination may also be of help in therapeutic monitoring of granulomatous skin conditions by showing disappearance of vascular and non-vascular findings, especially orange areas indicative of compact dermal granulomas (Figure 1).



Morphea: Dermoscopy plays a significant role in staging of morphea. It has been postulated to be an effective technique for therapeutic monitoring of morphea since it allows a more accurate assessment of inflammation regression and fibrotic process as compared to clinical examination only.[12,13] Consequently, it also helps in optimizing the duration of therapy according to the persistence or resolution of subclinical inflammatory signs despite an apparent clinical healing, thus preventing fibrosis progression.

Erythro-Telangiectatic Rosacea: Diagnosis of erythro-telangiectatic rosacea is essentially clinical and dermoscopic evaluation adds up to the further analysis of this entity of facial dermatosis. It also guides in monitoring post-treatment changes (with reduction of vascular and non-vascular findings, especially when treated with lasers) and predicting therapeutic response to topical treatments.[14]

Zoon Balanitis and Vulvitis: The dermoscopic features of zoon Balanitis and vulvitis are characteristic and another study by Corozza M et al.15 had shown that mere normalization of the vascular pattern on dermoscopy may indicate resolution of the active phase despite the persistence of orange areas on both dermoscopic and clinical

examination, thus avoiding overtreatment of patients and its possible consequences (e.g., steroid-induced skin atrophy).

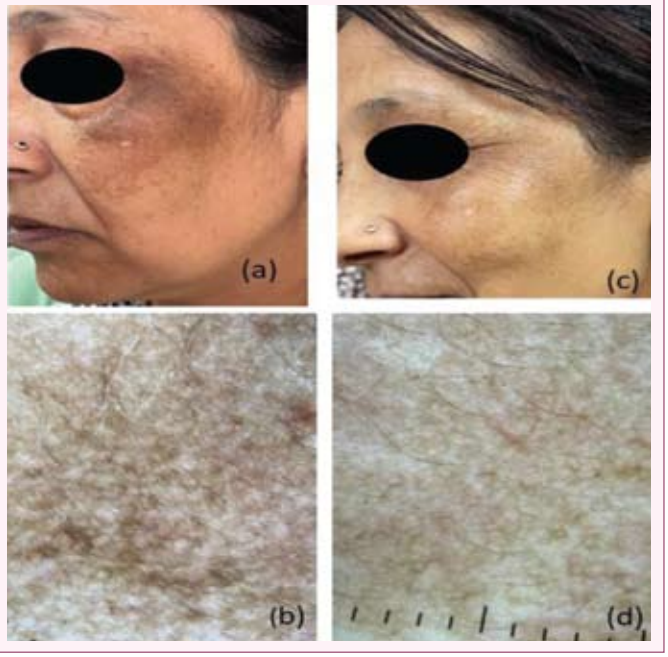
Cutaneous Mastocytosis: Dermoscopy may also be of aid in therapeutic management of urticaria pigmentosa. In a study by Vano-Galvan S et al.16, it had been demonstrated that serum tryptase levels and plaque type lesions along with reticular vascular pattern on dermoscopy were predictors for maintained antimediator therapy. Consequently, the study hypothesized that, in combination with other variables, dermoscopy could provide additional help in the identification of patients at risk for more severe symptoms.[16] Additionally, dermoscopic examination may also be used in the follow-up of mastocytoma as lesions in resolving phases show only diffuse light-brown discoloration and/or brown network and do not display yellow-orange areas (which are more common in mature lesions).

Dermoscopic response in Pigmentary and vascular diseases

Vitiligo: The pathognomonic features of stable vitiligo on dermoscopy includes sharp borders and perilesional hyperpigmentation. Dermoscopic patterns helps in guiding the active disease i.e., irregular or less defined margins (i.e., trichrome, starburst and comet tail appearance), presence of small white globules in perilesional skin (described as satellites, confetti-like pattern and ''tapioca sago'' appearance) and micro-Koebner's phenomenon (i.e., occurrence of isomorphic depigmented streaks along the line of trauma around the main vitiligo patch). After determining stability of disease by dermoscopy, surgical treatments can be tried in stable vitiligo. Additionally, dermoscopy is an effective tool to assess the prognosis and therapeutic outcome.[17,18,19]

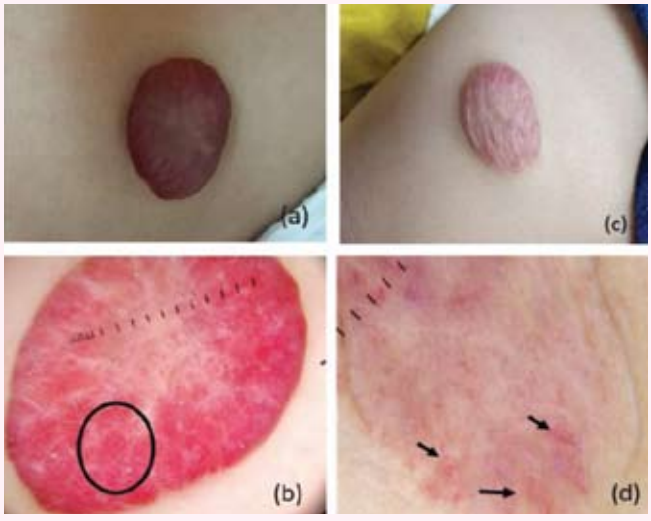
Melasma: Dermoscopy helps in differentiating between superficial and deep melasma and also determine lines of treatment. On dermoscopy, superficial melasma shows dark to light brown color, sharp edges, globules and blotches, increased pseudonetwork while bluish grey color, ill-defined margins, annular or arcuate patterns seen in deep melasma.[20,21]

Apart from differentiating superficial and deep melasma, dermoscopy helps in differentiating vascular melasma (ill-defined fine vessels and diffuse redness) from steroid side effects (prominent, irregular, dilated tortuous vessels and hypertrichosis) thereby avoiding steroidal creams in vascular melasma. Dermoscopy showed attenuation/regression of pigmentary and vascular structures post treatment hence concluding response to treatment (Figure 2). It also helps in identifying exogenous ochronosis. In case of Exogenous ochronosis co-existing in melasma, it can be useful for site of selection for skin biopsy for confirming the diagnosis



Periocular melanosis (POM): Dermoscopy helps in differentiating between vascular and pigmentary POM and also in choosing the treatment and determining prognosis. Apart from diagnostic help, dermoscopy is also the deciding factor for management like in pigmented POM, better response will be seen with topical depigmenting agent, chemical peel, Laser and camouflage and in vascular POM, Fillers, Lasers, topical tranexamic and Sclerotherapy are better treatment options.[22,23]

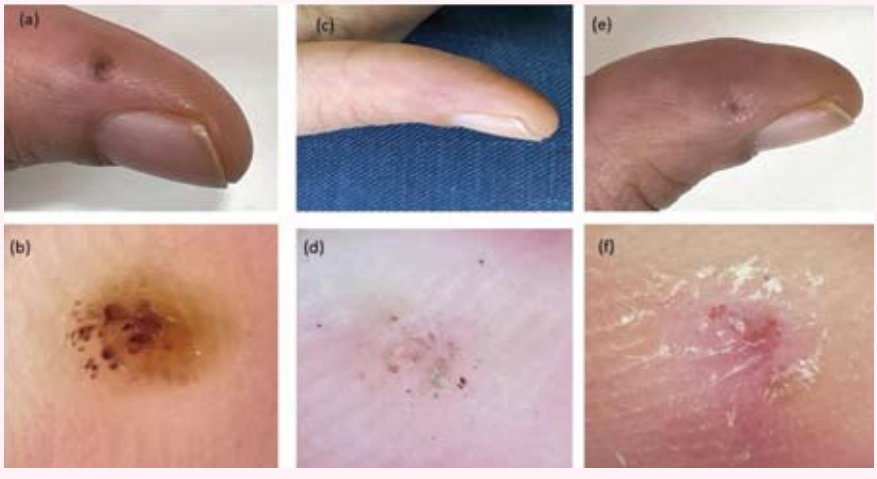
Infantile haemangioma: Apart from diagnosis and staging of IH, it also aids in guiding treatment.[24,25] In a study by Tognetti L et al[26], 12-month oral propranolol therapy could be considered for newborns presenting with non-homogenous mixed IHs >3 cm on the perineal area/ lower extremities. Improvement on dermoscopy with oral propranolol was noted as decrease in the diffuse light erythema and increase of milky-red area. During the 12-month treatment, glomerular vessels were prevalent at baseline; corkscrew, comma, and linear-irregular vessels were the prevalent pattern at 1, 3, and 6 months of therapy, respectively and at the end of 12-month therapy, adequate healing was achieved, showing dotted vessels (Figure 3).



Dermoscopic response in Infections and Infestations

Scabies : Dermoscopy of scabies plays a significant role in terms of both diagnosis and therapeutic monitoring. The pathognomonic feature in scabies is 'delta-wing jet with contrail'.[27] Post-treatment follow-up of scabies also helps to see the absence of migration of mites (after 24 h) and their progressive degradation with a gradual disappearance of their outlines and replacement with an amorphous material. These last morphological changes have been reported to occur after mite immobilization, i.e., 48 h to 2 weeks after therapy administration.[28]

Warts: Dermoscopy also helps in differentiating warts and corns. Corns on dermoscopy is characterized by translucent central core and homogenous opacities The peculiar role of dermoscopy in therapeutic management of warts is characterized by assessing complete healing as it is a marker for subclinical persistence of infection that may be responsible for its recurrence (Figure 4).[29,30]



Pediculosis: Dermoscopic examination of pediculosis may easily allow identification of parasites and eggs when these are not easy to identify by clinical inspection. Morphologic details of nits and lice can be appreciated by dermoscopy. Viable nits containing nymph are ovoid brown structures while empty nits represent ovoid, translucid bodies and have a plane and fissure free ending.[31,32] Thus, upon treatment completion, empty nits are seen and there is absence of viable nits and lice.

Tinea capitis: Dermoscopy helps in differentiating inflammatory and non-inflammatory tinea capitis. V-shaped hair, crusts and follicular pustules are mainly seen in inflammatory tinea capitis while scales and follicular keratosis are observed in non-inflammatory tinea capitis. Additionally, dermoscopy also guides management of this infection as Comma hairs, black dots, perifollicular and diffuse scaling only seen at 4 weeks while other signs disappeared like morse code hair, corkscrew hairs, zig zag hairs, and broken hairs. After 12 weeks, perifollicular and diffuse scaling present although mycological examination is negative. Perifollicular and diffuse scaling tends to resolve more slowly compared to hair shaft abnormalities Therefore, it cannot be considered to be a marker of therapy failure.[33]

Demodicosis: Under dermoscopy, demodicosis typically shows white-yellow follicular plugs which may or not protrude from the skin surface (known as ''Demodex tails'' and ''Demodex follicular openings'', respectively).[34] Other unspecific dermoscopic findings may be observed, including diffuse erythema, scaling, pustules and reticular dilated vessels. It has been postulated that dermoscopy may have a role in treatment of this condition by showing the reduction of subclinical follicular plugs as they would be strictly related to the presence of a mixture of keratotic material and mites in the follicles.

Dermoscopy in LASERS

Dermoscope can be used before, during, and after laser treatment to assess the right indication, initiate appropriate priming, achieve good end point, identify untoward side effects, achieve good results, and engage patient confidentiality.35 Comparison of high magnification digital images is also enabled by digital videodermoscopy.

Dermosocopic End point:

1. **Tattoo -** Erythema, hair bleaching, blistering of epidermis dermoscopically depicted by decrease in tattoo pigment globules.
2. **LHR -** Perifollicular edema, erythema, hair shaft extrusion dermoscopically seen as perifollicular whitening and black dots.
3. **Freactional CO2 Laser -** Dermoscopic end point white opaque dots corresponding to microthermal zones and black uniform dots corresponding to micro crust formation, uniform red dots depict inflammation in subsequent days after laser.
4. Freckles and lentigines - White dots corresponding to degree of frosting.

Conclusion: Dermoscopy definitely assists in the prediction of the activity of various inflammatory, pigmentary and infective diseases. It also helps in choosing the right treatment, interoperative assessment, and treatment endpoint. Hence it can be used as a very handy non-invasive tool in daily practice.

Table 1: Dermoscopic response in Inflammatory diseases				
Diseases	Dermoscopic diagnostic clues	Prognostic predictors/ Staging of disease	Clues in therapeutic monitoring	Supporting evidence
Psoriasis	Red dots and globules that are uniform patterns on a pinkish background Dotted / Glomerular / Arborizing / Short linear vessel Diffuse white scales	Good response - regular dots, haemorrhagic/ purpuric dots Poor response - white areas, glomerular vessels, curvilinear vessels, greyish linear structures	Haemorrhagic / Purpuric dots appearing in first 2-4 weeks of treatment with biologic have good outcome Baseline globular and dotted vessels are associated with bad and good responses to both NBUVB and topical calcipotriol/ betamethasone therapy respectively Reduction of vessel diameter and tortuosity during treatment Appearance of dotted vessel after successful treatment indicates relapse Persistence of the psoriatic pattern of vessels with minimal scaling is a dermoscopic clue to topical corticosteroid-modified lesions	Studies[1,4] Case series[2,3] Review article[5]
Lichen planus	Wickham striae (WS)	It can suggest evolution & activity of disease Early papule- subtle WS reddish background Mature papule – well developed WS with peripheral vessels Long standing lesions – only pigmentary changes Pigmentation (longer persistence) – Granular Pigmentation (shorter persistence) – homogenous, light brown, structureless area without granularity	Subtle/ invisible WS or predominant vascular elements - Aggressive treatment Well-developed WS with lesser vascular component - Conventional treatment Healed lesions (only pigmentary changes) -Reassurance/ treatment ± LPP – peppering of pigment globules – active lesions need aggressive management LPP with reticular pattern of pigment globules – inactive lesions need lasers or chemical peels	Review article[6,7] Studies[8]

Dermatitis	Serocrusts Clustered dotted vessels Dull red background	Predominance of Yellow-brown to dark brown colored serocrusts (yellow clod sign) and dotted vessels - acute exudative lesions Faint red background (spongiosis) with brown pigmented structures (pigment incontinence) – subacute stage Vessels with white halo suggestive of chronic dermatitis	Disappearance of yellow serocrust and vascular elements corresponds to the treatment response Steroid-induced skin atrophy (appearance of linear and reticular vessels) is recognised early as compared to clinical visibility	Studies[8,9]
Granulomatous dermatoses	Orange structureless area/ Yellowish brown globule Telangiectasia	Granuloma annulare shows brownish-yellow globular structures and pinkish background in palisading and interstitial subtypes. Thereby indicating poorer response and resistance in interstitial form as compared to the palisading type.	After, orange area and vessel disappear Incomplete disappearance in sarcoidal granuloma suggesting incomplete efficacy of therapy and presence of subclinical inflammation	Studies[10,11]
Morphea	Whitish fibrotic beams/ White clouds with linear branching vessels crossing the beams	Important for the staging of morphea Red structureless areas and linear curved vessels - Inflammatory lesions White clouds and shiny white streaks - sclerotic lesion Pigmentary structures and red structureless areas -Pigmentary lesion	Helps in monitoring fibrosis and inflammation regression by showing reduction in white areas and vessels respectively Also helps in differentiating from Extra genital Lichen sclerosis (LS) In LS, white or white-yellow patches are seen, which are larger, better demarcated, and brighter compared to white clouds. This is due to differences in the localization of collagen abnormalities; in morphea, they are located deeper, at the reticular layer, while in LS they are more superficial in nature[13]	Studies[12,13]

Erythron-telangiectatic Rosacea	Linear vessels in polygonal arrangement Non-vascular - rosettes, follicular plugs, dilated and, scales	Protruding follicular plugs respond better to ivermectin in comparison to metronidazole	Post-treatment dermoscopy shows the disappearance of granuloma (Doxycycline) and vascular pattern (IPL) On dermoscopy- Vascular pattern – IPL Infiltration – Doxycycline, Ivermectin, Isotretinion Protruding follicular plugs – Ivermectin	Case report[14]
Cutaneous mastocytosis	Urticaria pigmentosa shows brown structureless areas, brown lines arranged in network, and linear vessels in a reticular pattern Yellow/ yellow-orange structureless areas seen mastocytoma	Serum tryptase levels and plaque-type lesions with Reticular vascular pattern are associated with need for treatment	It helps in monitoring the stage and evolution of lesions	Case series[16] Book review[17]
Zoon balanitis and vulvitis	Orange areas Vascular patterns like linear curved, chalice and convoluted	Orange area indicates hemosiderin deposition, not active disease	Post-treatment with steroid, vascular elements disappear. But orange area persists. This information by dermoscopy avoids overtreatment with steroids	Case report[15]

Table 2: Dermoscopic response in Pigmentary and vascular diseases

Diseases	Dermoscopic diagnostic clues	Prognostic predictors/ Staging of disease	Clues in therapeutic monitoring	Supporting evidence
Vitiligo	Bright white structureless areas/ White glow Perifollicular hyperpigmentation/ hypopigmentation	Signs of active/progressive lesions: 1. Presence of small white globules in perilesional skin (satellites/ confetti-like pattern/ tapioca sago appearance) 2. Micro-Koebner's phenomenon 3. Irregular and/or less defined margins giving rise to specific patterns (trichrome/starburst/ comet tail) 4. Baseline white hairs are related to poor prognosis	Selection of appropriate therapy according to lesion stage Evolving – Reverse pigment network/ Reduced pigment network Stable- sharp borders/ Reticular pigment network/ Perilesional hyperpigmentation/ Perifollicular hyperpigmentation Progressive – Micro Koebner's/ Satellite lesions (tapioca appearance) / trichrome/ Starburst pattern Initial pigmentation can be assessed by showing subclinical pigmentation	Case series[18,19s]

			Reactivation of vitiligo after surgery – Ill-defined borders/ comet tail appearance/ Trichrome pattern/ Pseudopodia/ Amoeboid pattern	
Melasma	Dark to light brown Increased pseudonetwork	Differentiate between superficial and deep melasma and determine lines of treatment Superficial – dark to light brown color, sharp edges, globules and blotches, increased pseudonetwork – So good prognosis and better response to treatment (topical therapy and Superficial chemical peel) Deep - bluish-grey color, ill-defined margins, annular or arcuate patterns - more resistant to treatment with guarded prognosis (medium depth peel and laser toning with QS Nd-YAG laser) Helps in differentiating from Exogenous ochronosis	With initial treatment, it shows attenuation/regression of pigmentary and vascular structures Helps in differentiating vascular melasma from steroid side effects. • Vascular melasma – ill-defined fine vessels and diffuse redness Treatment - oral/topical tranexamic acid or pulse dye laser. Avoid steroidal creams • Steroid side effects - prominent, irregular, dilated tortuous vessels and hypertrichosis Globular and perifollicular pigmentary patterns show significant improvement with QS Nd-YAG laser	Studies[20] Case series[21]
Periocular melanosis	Homogenous light brown with speckled/ cobblestone/ globules	- Helps in determining type of POM - Vascular/ Pigmentary/ Mixed POM - Select treatment and determine prognosis In vascular POM - vascular pattern based on 2 things: type and arrangement of vessels. Type may be dots, clods, lines etc and arrangements such as linear, clustered, radial, centred and branched	In pigmented POM – Topical depigmenting agent, chemical peel, Laser and camouflage In vascular POM- Fillers, Lasers, topical tranexamic and Sclerotherapy	Studies[22, 23]

Infantile (IH)	Lacunae of variable sizes and dilated vessels against a red to reddish-blue background	• Persistent IHs displayed a reticulated aspect and linear irregular vessels, while arborizing vessels characterized relapsed IH • At 12-month oral propranolol therapy can be considered for newborns presenting with non-homogenous mixed IHs >3 cm on the perineal area/lower extremities.	Improvement on dermoscopy with oral propranolol: • With treatment, there is decrease in the diffuse light erythema and an increase of the milky-red area • Glomerular vessels were prevalent at baseline; corckscrew, comma, and linear-irregular vessels were the prevalent pattern at 1, 3, and 6 months of therapy, respectively. • At 12-month follow-up, adequate healing was achieved, showing dotted vessels.	Studies[24,25,26]

Table 3: Dermoscopic response in Infections and Infestations:

Diseases	Dermoscopic diagnostic clues	Prognostic predictors/ Staging of disease	Clues in therapeutic monitoring	Supporting evidence
Scabies	"Delta-wing" Jet with contrail sign		24 hours after an effective treatment, there is an absence of mite migration After 2 days of treatment, mite get damaged and burrow is slightly damaged Progressive degradation of the mite with replacement with an amorphous material after an effective treatment	Study[27] Case series[28]
Warts	Papillae surrounding halos Thrombosed capillaries (seen in common wart) Vascularity (dots/ globules/ linear vessels/ loops)	Help in differentiating warts and corns; corns on dermoscopy shows translucent central core and homogenous opacities Monitoring the lesion after any ablative procedure to check if it has been removed it entirety and deciding the end point. This will help in reducing recurrences and repeated procedures	Dermoscope can be used to check the complete clearance of warts Assessment of complete healing by showing disappearance of subclinical findings	Studies[29] Review[30]

	Interruption of dermatoglyphic/skin furrows Brown coloured background especially in phototype IV-V			
Pediculosis Capitis	Evidence of nits and louse	Morphologic details of nits and lice can be appreciated. Viable nits - Eggs containing nymph are ovoid brown structures Empty nits – ovoid, translucid and have a plane and fissure-free ending Pseudonits – caused by SD; whitish, easily detachable, amorphous structures Lice – blood can be seen within lice	After adequate treatment, nits and lice get disappear	Case report[31, 32]
Tinea capitis	Short broken hair, Comma hairs, Corkscrew hairs, Zig-zag hairs, Morse code hairs, Black dots, block hairs and i-hairs are predictive of tinea capitis Interfollicular and perifollicular scaling	V-shaped hair was mainly seen in inflammatory tinea capitis, scales and follicular keratosis in non-inflammatory tinea capitis, and crusts and follicular pustules in inflammatory tinea capitis. Finally, erythema was seen in trichophytic and inflammatory tinea capitis	Improvement with treatment: At treatment initiation: Comma hairs, corkscrew hairs, Morse-code hairs, zig-zag hairs, broken hairs, black hair with perifollicular and diffuse scaling After 4 weeks: Comma hairs, black dots, perifollicular and diffuse scaling present After 12 weeks: Perifollicular and diffuse scaling present although mycological examination is negative Perifollicular and diffuse scaling tends to resolve more slowly compared to hair shaft abnormalities Therefore, it cannot be considered to be a marker of therapy failure.	Systematic review[33]
Demodicosis	Follicular plugs are protruding		Follicular plugs get reduced with treatment	Case report[34]

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Legends:

Figure 1: (a)Erythematous plaque on right side of nasal tip with single ulcer at the center; (b) Dermoscopy showing intense background erythema (yellow stars), yellowish-orange structureless areas (black arrows), white reticular streaks (green arrows), and linear branching vessels (blue arrow); (c) Atrophic scar over the nose 1 year post-treatment with ATT; (d) Dermoscopy showing prominent structures like atrophy, faint background erythema, milia-like cysts (green arrow), faint yellowish structureless areas (black arrows), and long arborising telangiectasias (blue arrow) (DermLite DL3N 10×, polarized mode) (copyrignt@ Bhat YJ, Nabi N, Daing A. Dermoscopic Evaluation of CO2 Laser Treatment in the Scar of Lupus Vulgaris. J Cutan Aesthet Surg. 2021;14:458-61.)

Figure 2: Monitoring of melasma in a 35 months-old female. At baseline A and B, there is exaggerated pseudo reticular network. C and D, after 3 months, dermoscopy showed attenuation/regression of pigmentary post treatment

Figure 3: Monitoring of IH of the right thigh in a 3 months-old boy. At baseline A and B, the clinico-dermoscopic pattern was “homogenous” with a prevalent globular vascular pattern (marked with black circle). C and D, after 3 months of oral propranolol, the clinical regression was multifocal with a prevalent red wavy or comma like vascular pattern

Figure 4: (a) Wart on palmar surface of right thumb finger; (b) Dermoscopy of palmar wart showing well defined margins brown background, papillae and haloes with red dots and globules (red arrows) and interrupted skin lines; (c) after removal of wart; (d) Dermoscopy after removal shows linear vessels (marked with yellow arrow) indicating incomplete wart removal; (e) after complete removal of wart; (f) Dermoscopy after complete removal showing no papillae or dots indicating complete wart removal.

Dermoscopic characteristics of melanoma according to the criteria 'ulceration, 'mitotic rate' of the AJCC 2009 staging system for melanoma

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Introduction : Numerous studies proved dermoscopy to be more accurate than naked eye examination for the diagnosis of cutaneous melanoma. Furthermore, the addition of dermoscopy can reduce the rate of excision for diagnostic verification significantly [3–5]

American Joint Committee on Cancer (AJCC), in 2009, released a final version of melanoma staging. It stated that ulceration and mitotic rate (≥1 mm2) with tumor thickness are the main prognostic factors in stage I malignant melanoma.

A study was conducted if any dermoscopic structures correlating with a mitotic rate ≥1/mm2 or an ulceration histologically. Furthermore, up to what extent clinical/dermoscopic ulceration correlates with corresponding histopathological changes.

Methods : It was a retrospective study done by retrieving clinical and dermoscopic digital images of patients with primary malignant melanoma documented during 2008 to 2013 in the Department of Dermatology, Graz. Clinical and dermoscopic analysis was done by two dermatologists. When disagreement was present, a third dermatologist was consulted. For face and glabrous skin sites, additional criteria were added.

Results : A total of 550 patients with 559 melanomas were included. While clinical or dermoscopic analysis considered ulceration to be present in 120 (21.5%) and 117 (20.9%) of all lesions, respectively, histopathology reported ulceration in only 96 (17.2%). In 121 (21.6%) a "mitotic rate ≥1/mm2" was reported in histopathology and 96 melanomas (17.2%) showed ulceration histologically. It became apparent that the dermoscopic patterns "shiny-white streaks'', "milky-red areas "and a "blue-whitish veil "were highly correlated with both histological findings "ulceration" (Figure 1) and "mitotic rate > 1/mm2", respectively (p < 0,001). A total of 318 (56.9%) invasive melanomas had a tumor thickness of less than 1mm. 43 (14.4%) of these had a mitotic rate ≥1/mm2. The dermoscopic features "peripheral streaks", "shiny-white streaks", a "blue-whitish veil" and "blotches" were highly correlated with a mitotic rate ≥1/mm2 in these tumors, respectively.

Twenty-nine (5.2%) patients suffered from distant metastases over the course of time. The median follow-up time was 22 months. The analysis of dermoscopic patterns proved that "shiny-white streaks", "milky-red areas" as well as a "blue-whitish veil" were suggestive of the presence of distant metastases (p<0,001) (Table 1).

Stage (according to the AJCC 2009 classification)	n	Milky-red areas	Shiny-White Streaks	Blue-White veil
IA	1	0	0	1
IB	2	1	2	2
IIA	2	0	1	2
IIB	1	1	0	1
IIC	5	3	2	5
IIIA	3	2	3	3
IIIB	7	5	3	3
IIIC	0	0	0	0
IV	8	2	5	4

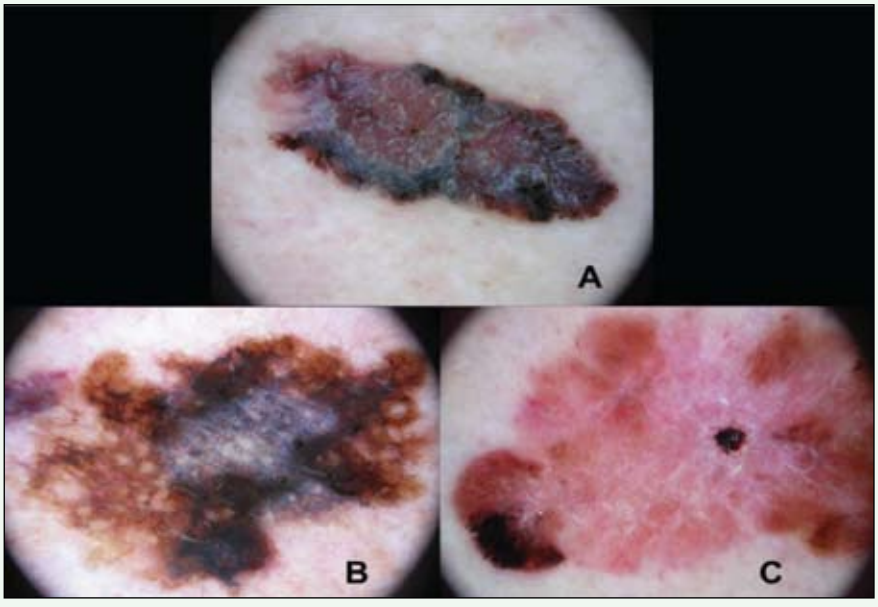

Figure 1:
Histopathologically ulcerated melanomas showing shiny white streaks (A), bluish-white veil (B) and milky-red areas (C).

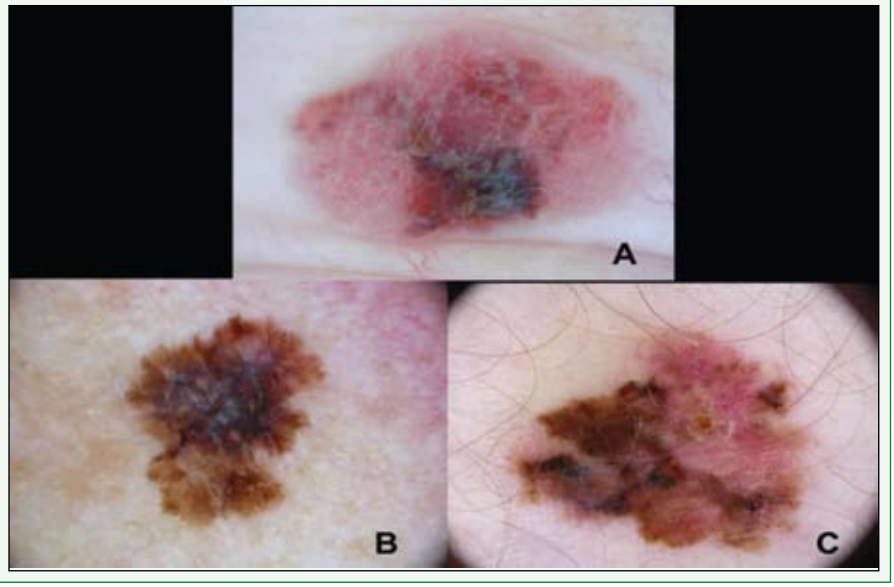

Figure 2:
Melanomas with mitotic rates ≥1 mm2 showing shiny white streaks and milky-red areas (A), bluish-white veil (B) and milky-red areas (C).

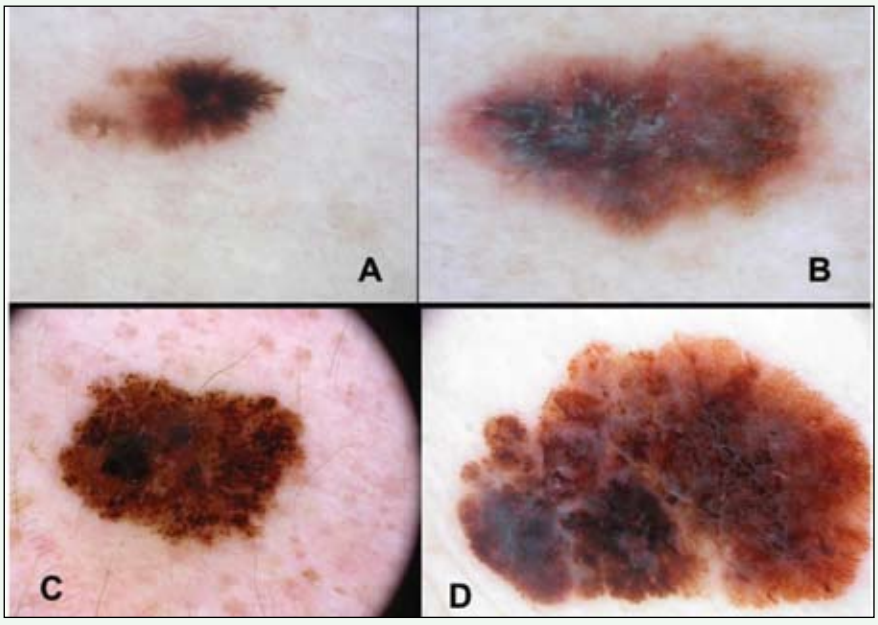

Figure 3:
Melanomas with tumor thickness of less than 1mm and mitotic rates ≥1 mm2 showing peripheral streaks (A), shiny white streaks (B), irregular blotches (C) and a bluish-white veil (D).

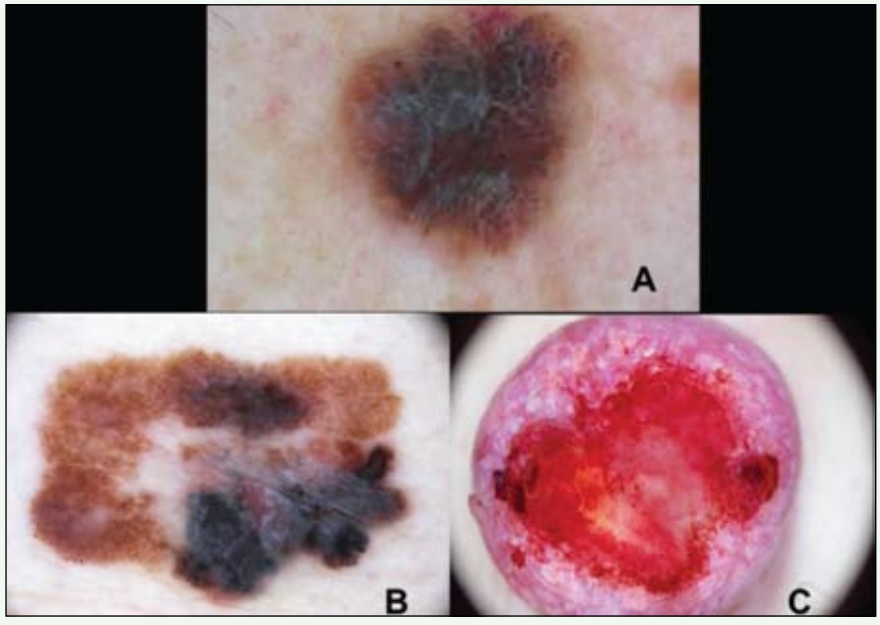

Figure 4:
Melanomas exhibiting distant metastases show shiny white streaks (A), bluish-white veil (D) and milky-red areas (C).

In conclusion, study results prove a strongly significant correlation between the dermoscopic patterns "shiny-white streaks", "milky-red areas" as well as a "blue-whitish veil" and the unfavourable histological findings "ulceration" and "mitotic rate > 1/mm2". Aforementioned findings are also relevant in thin melanomas. Tumors that demonstrate these patterns are consequently categorised as stage Ib. Hence, even in thin melanomas, dermoscopy proves to be a method of high accuracy. The correlation to histology is striking, thus underlining the significance of dermoscopy for prognosis even in early tumor stages.

[Source: Deinlein T, Arzberger E, Zalaudek I, Massone C, Garcias-Ladaria J, Oliveira A, Schulter G, Hofmann-Wellenhof R.

PLOS ONE 12(4): e0174871. https://doi.org/10.1371/journal.pone.0174871]

DIAGNOSTIC USES

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Dermoscopy has been traditionally used for the diagnosis of skin tumours and is currently gaining significance in the diagnosis of various inflammatory dermatoses, pigmentary dermatoses, infectious diseases, as well as hair and nail disorders. Dermoscopy shows specific patterns and structures that are characteristic of certain dermatological disorders. Interventional dermoscopy can be used to perform a skin biopsy on a suspicious lesion under direct visualization, or can be used to select the most representative lesion for histopathological examination, resulting in a more accurate and precise biopsy, thereby improving the diagnostic yield and reducing the number of unnecessary biopsies. This can aid in making an accurate diagnosis and developing an appropriate treatment plan. In this section, we will discuss the utility of interventional dermoscopy in the diagnosis of common dermatological disorders like scabies, vitiligo, psoriasis and lichen planus.

Scabies : Dermoscopy is useful in the diagnosis of scabies in atypical presentations like scabies incognito, nodular, crusted and infantile scabies. The classical dermoscopic feature of scabies is the "Triangle or delta-wing jet with contrail" sign, in which the triangle represents the anterior portion of the mite and the contrail represents the burrow. (Figure 1) The abdomen and the eggs of the mite are translucent and may not be visualised under dermoscopy. Dermoscopy is used as an effective tool for the diagnosis of scabies, with a sensitivity of 91% and specificity of 86%. Interventional dermoscopy plays a role in increasing the diagnostic accuracy of scabies, as skin scrapings done under dermoscopic guidance help improve the diagnostic output.[1]

Vitiligo : Dermoscopy is used to differentiate vitiligo from closely resembling hypo pigmentary diseases. It also has great value in the diagnosis of early or evolving lesions of vitiligo. In vitiligo, dermoscopy not only gives clues to the diagnosis but is also helpful to assess the disease stability and hence has an adjunct role in ascertaining patient's suitability for any surgical treatment.[2]

The vitiligo lesion exhibits a white or milky white background. The early or evolving lesions have a "white glow" (white structureless areas) due to the absence of a pigmentary network, which is attributed to the loss of lesional melanocytes. (Figure 2) A reverse pigmentary network is seen in evolving lesions of vitiligo. (Figure 3) It is a reversal of the normal reticular pigmentary network of the skin, where the white lines segregate the hyperpigmented areas in a net-like fashion.[3]

A combination of various dermoscopic parameters is used to assess the stability of a vitiligo lesion. The presence of a fairly uniform perilesional or marginal hyperpigmentation is a feature of stable vitiligo, in addition to perifollicular depigmentation and reticular pigmentation. (Figure 4) The unstable patches of vitiligo show perifollicular pigmentation, trichrome pattern,

comet- tail appearance, polka dot or tapioca sago appearance and micro - Koebner phenomenon. Leucotrichia can be appreciated more accurately on dermoscopy at an early stage and it is a sign of depleting melanocyte reservoir in stable as well as unstable disease. (Figure 2 & 4) Patients on treatment show additional features like erythema and telangiectasias. (Figure 4) In addition to the above-mentioned parameters, the absence of scaling and vascularity helps to differentiate vitiligo from its close mimics like idiopathic guttate hypomelanosis, pityriasis alba and pityriasis versicolor.[2,4]

Psoriasis : Dermoscopy of psoriasis characteristically shows a diffuse arrangement of white scales, regular and symmetrical distribution of dotted vessels which are uniform in size, shape, and distance among each other on a light or dull red background (Figure 5), corresponding to the parakeratosis, and dilated capillaries in the regularly arranged dermal papillae, respectively. In higher magnifications, glomerular vessels can be seen which are highly specific to psoriasis. The globular ring pattern, with vessels distributed in a network-like arrangement, is less commonly seen but is of diagnostic significance.[5]

Lichen planus : The dermoscopic hallmark of lichen planus is Wickham's striae along with the presence of linear and dotted vessels at the periphery, brown and blue- grey pigment globules and dots. (Figure 6) Wickham's striae correspond to compact orthokeratosis above zones of wedge-shaped hypergranulosis and acanthosis, centered on acrosyringia and acrotrichia. It has many patterns and colours, commonest pattern being reticular followed by linear, radial-streaming, annular, round, leaf venation, and starry sky/ white dots. The colour varies from white to bluish in dark skin.[5]

Conclusion : Dermatologists should inculcate the use of dermoscopy in routine practice. With increased usage and more evidence and data on specific diagnostic clues, dermoscopy can lead to the accurate diagnosis of various dermatological disorders and thus mitigate the need for a biopsy.

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Figure legends

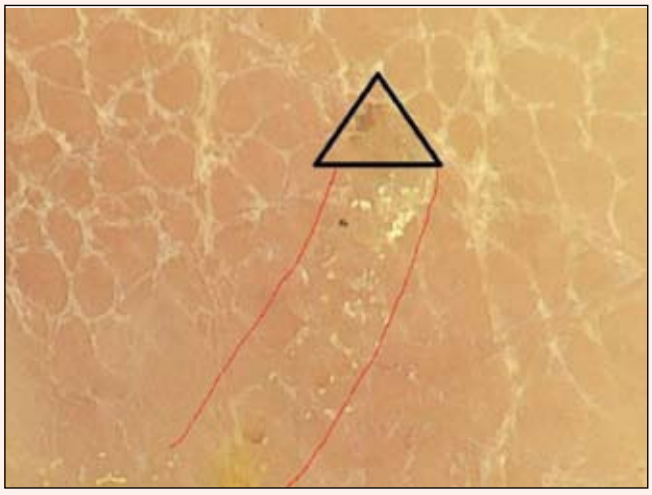

Figure 1: Dermoscopy of scabies showing the mite (black triangle) within the burrow (marked by red lines), giving the characteristic "triangle or delta-wing jet with contrail" appearance

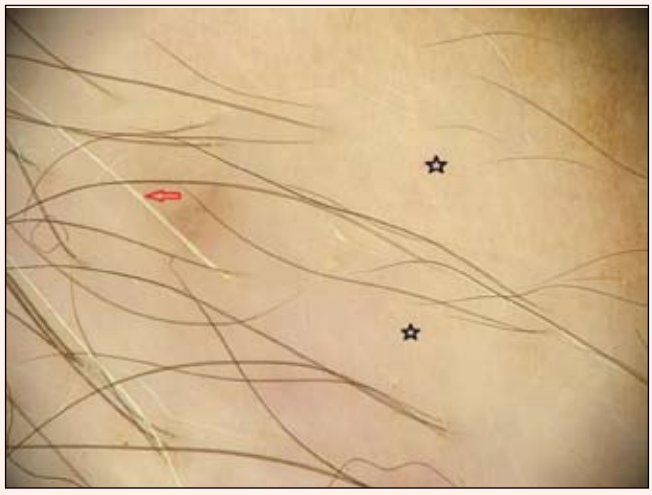

Figure 2: Dermoscopy of a vitiligo lesion showing white structureless areas as "white glow" (black stars) and leucotrichia (red arrow)

Figure 3: Evolving lesion of vitiligo showing reverse pigment network

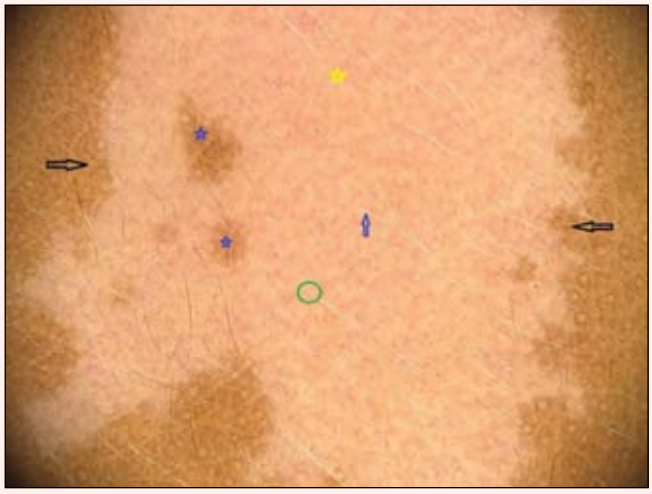

Figure 4: Dermoscopy of stable vitiligo showing well-defined borders with perilesional pigmentation (black arrows), retained reticular pigmentation (blue stars), leucotrichia (blue arrow), perifollicular depigmentation, (green circle) with erythema and telangiectasia (yellow star)

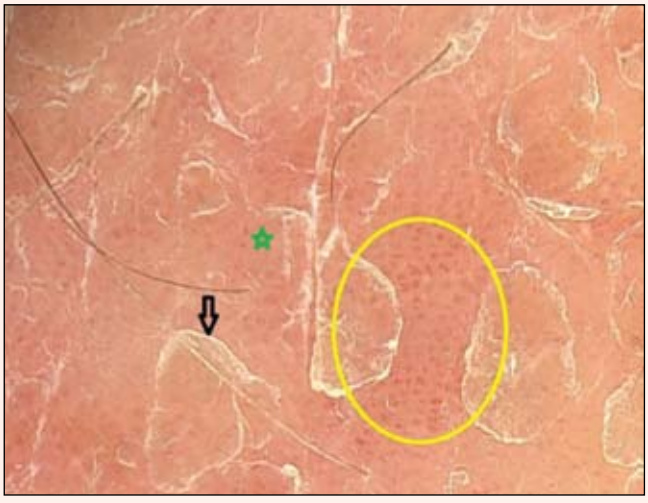

Figure 5: Dermoscopy of psoriasis showing homogenous and regular arrangement of red dots (yellow circle) on a dull red background (green star) with white scales (black arrow)

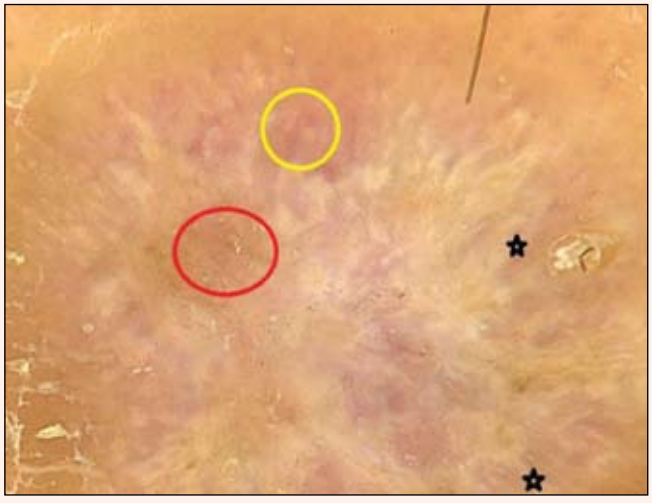

Figure 6: Dermoscopy of lichen planus showing Wickham's striae (black star), peripheral linear and dotted vessels (yellow circle) and pigment dots and globules (red circle)

Potential pre-procedural uses of Dermoscopy

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Dermoscopy is a non-invasive, in-vivo diagnostic modality used in the diagnosis of various skin diseases. It has been traditionally used in the diagnosis of melanocytic lesions; however, its use has expanded significantly and is found to be useful in various infectious and inflammatory disorders. The use of dermoscopy is also being explored to assess the lesions prior to procedures. Various pre-procedural uses are as follows:

1. Skin biopsy : Dermoscopy can act as a guide to biopsy the most representative lesion. It is a useful guide in pigmentary diseases, hair disorders, vasculitis and skin tumours. In cicatricial alopecia, perifollicular white scales, tufts of hair, and follicular red dots are dermoscopic guides to biopsy. (Fig 1)

2. Nail surgery : Dermoscopy of nail or onychoscopy has diagnostic as well as therapeutic uses. Dermoscopy can guide the nail involvement in onychomycosis and helps in sample collection from affected nails resulting in better positivity rates. It can also be used to diagnose nail bed tumour such as glomus tumour, evaluate the extent of tumour before the procedure as well as intra-operative evaluation of the tumour for complete tumour clearance. (Fig 2)

3. Hair procedures : Dermoscopy of the scalp, also known as Trichoscopy, is used to evaluate the hair density and hair thinning before the procedure. The hair density can be documented before the procedure and can be repeated during follow up to know the improvement. It can be used before procedures such as platelet rich plasma treatment or low- level laser treatment.

Trichoscopy is also very useful prior to hair restoration surgery to evaluate hair density in the donor area, health of the recipient area and patient selection. It helps to diagnose conditions such as alopecia areata incognito, patterned cicatricial alopecia and diffuse un-patterned alopecia with poor surgical outcome.

4. Vitiligo Surgeries : Vitiligo surgery is one of the most commonly performed dermato-surgical procedures. It should be performed when the disease is stable for one year. The concept of lesional stability suggests that even if the disease is stable, a particular patch may be unstable and vice versa. Hence, there is a need to assess lesional stability for better surgical outcome. Perifollicular pigmentation, reticular pigment network, sharp border, perilesional hyperpigmentation, absence of satellite lesions and Koebner phenomenon are considered markers of lesional stability.

5. Chemical peels : Dermoscopy can help in the assessment of pigment depth and adverse effects of drugs such as hydroquinone and steroids. This help in planning the type of peel being used for the treatment of the pigmentary condition. It can also be used for follow-up of the patients.

6. Laser : Q Switch Nd Yag laser is used for the treatment of various types of pigmentation.

1064 nm targets the deeper pigment and is used for the treatment of tattoo, nevus of Ota, postinflammatory hyperpigmentation, laser toning and so on. 532 nm is used for the treatment of more superficial pigmentary disorders, such as freckles and lentigines. Dermoscopy can help track the depth of pigment and allow treatment based on the depth of the pigment rather than specific diagnosis. This provides more flexibility to laser physician. Follow-up Dermoscopy helps in early detection of adverse effects such as scarring and depigmentation. It can also be used to assess the treatment efficacy. (Fig 3 and 4)

Suggested reading:

1. Miteva, M., & Tosti, A. Dermoscopy guided scalp biopsy in cicatricial alopecia. Journal of the European Academy of Dermatology and Venereology. 2013;27:1299-1303.
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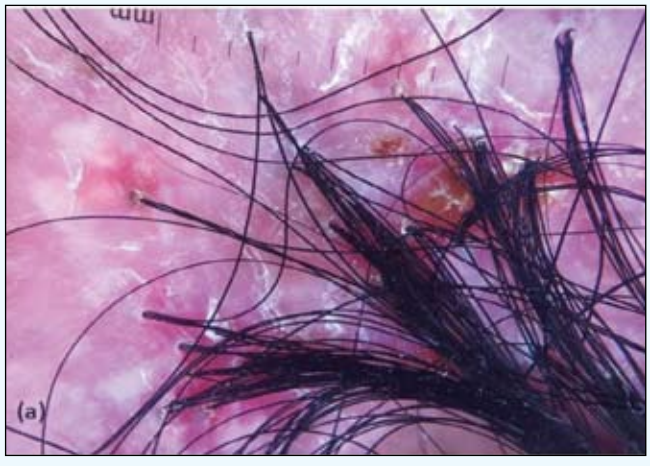
Figure Legends:

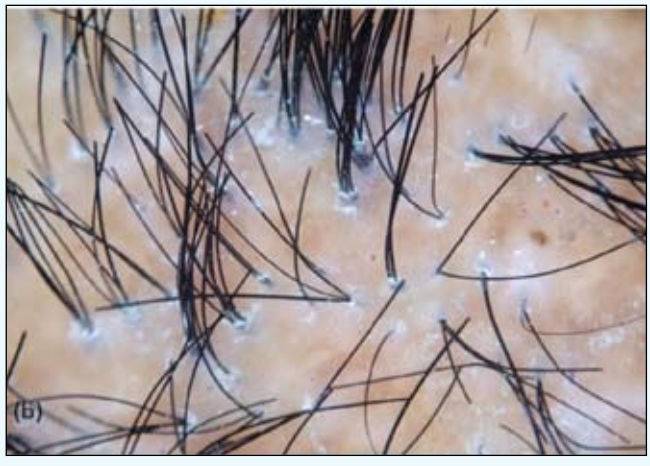
Fig 5 a and b : Dermoscopic image of tufted folliculitis and lichen plano-pilaris respectively. Dermoscopic guided biopsy from the tuft of hair and peripilar cast respectively can help in getting better diagnostic yield of histopathology

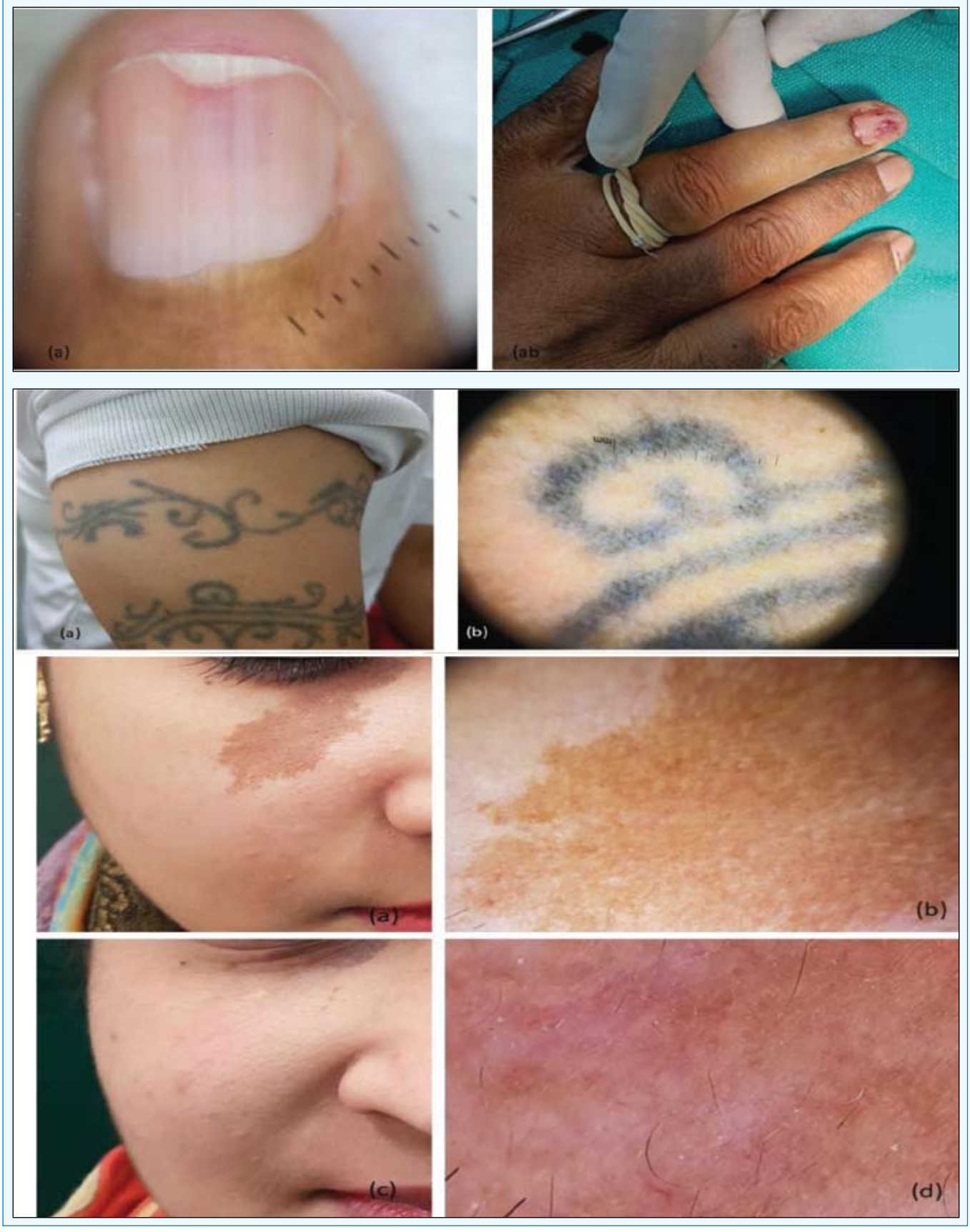
Fig 6: (a) Dermoscopy of glomus tumor shwing extent of glomus tumor (b) Intraoperative image of glomus tumor confirming the dermoscopic assessment

Fig 7 a and b: Clinical and dermoscopic image of the tattoo shows the depth and extent of pigment. This image can be used in follow up to assess the improvement

Fig 8 (a): Clinical image of patient with pigmented lesion over the face (b) Dermoscopic assessment shows brown reticular pigment suggestive of superficial nature of the pigment (c) 532 nm QS NdYAG was used in view of superficial nature of the pigment and complete clearance was obtained after 6 sessions (d) Dermoscopic assessment shows clearance of pigment on dermoscopy



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How to inculcate Interventional Dermatology into practice

Dr. Debjit Kar
Member SIG, Dermoscopy

From the traditional title of "skin specialists" that accurately defined our expertise, we have now entered an era where we proudly call ourselves "interventional dermatologists" with a comprehensive range of procedures within our purview.

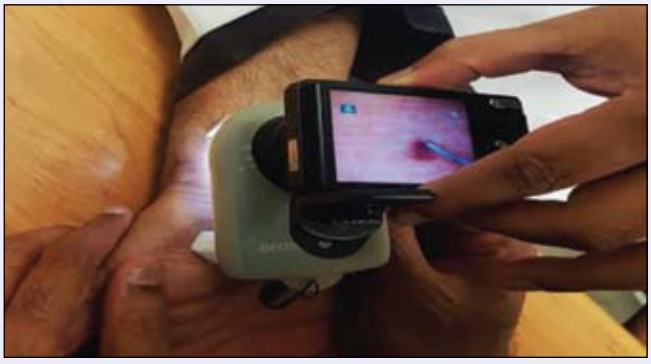
With the advancements in sub-specialties like Dermatosurgery and aesthetic dermatology, the demand for interventions in clinical dermatology has never been greater. Dermoscopy, once primarily used as a tool to identify skin malignancies, has now expanded its horizons to encompass everything from trichology to pigmented disorders and even ventured into the realm of interventional dermatology.

The scope of dermoscopy in practice is vast and encompasses various applications. Firstly, it aids in guiding biopsies, allowing us to identify the precise location for tissue sampling and even helps in convincing patients about the necessity of a biopsy by showing them the dermoscopic image.

Additionally, dermoscopy enables the ablation of tiny lesions with minimal collateral damage to the surrounding skin. Pioneers like Sonthalia and Khurana have proposed innovative techniques such as creating large polygonal windows in the frame of the circular acrylic rim of the universal serial bus video dermatoscope. This modification facilitates the insertion and maneuvering of different treatment probes, enhancing precision and resulting in superior cosmetic outcomes. Furthermore, the windows also serve the purpose of allowing the passage of smoke and vapors generated during the procedure. Utilizing this approach, various interventions like electrocautery, radiofrequency ablative lasers, cryotherapy, laser ablation, sclerotherapy of broken vessels, intralesional injections in small lesions, and even nail surgeries can be performed.

Fig 1. The terminal ends of 2 identical universal serial bus (USB) video dermatoscopes (E-scope video dermatoscope, Timpac Healthcare Pvt Ltd, New Delhi, India). The USB video dermato- scope on the left shows the original acrylic rim.The video dermatoscope on the right has been simply engineered by cutting out polygonal windows in the rim

On similar lines, Kaliyadan et al used a thermocol spacer with dermoscopy to create a gap of space between the skin and the dermoscope, which can again be used for procedures in dermatosurgery.



Removal of retained sutures in crusted wounds or extraction of embedded foreign bodies

The removal of sutures after a procedure can be challenging, especially when they are buried within crusts. Given the delicate nature of sutures used in Dermatosurgery, there is always a risk of leaving behind a few of them. Dermoscopy can play a vital role in either counting and removing the sutures or using a video dermoscope with an acrylic rim for real-time removal while observing the monitor or screen.

Detection of warts in areas with hair growth, such as the groin, beard, and hairy regions

Identifying viral warts, particularly flat warts (verruca plana), in hairy areas poses challenges for dermatosurgeons. These warts can be multiple, small, and range from skin-colored to hyperpigmented, making them difficult to detect with the naked eye. Dermoscopy significantly improves accuracy in locating and removing these warts, enhancing precision during treatment.

Applications in Laser Therapy

Dermoscopy aids in the assessment of vessel changes in vascular lesions before and after vascular laser treatments. It can also reveal vascular or rosacea components of melasma that may not be visible to the naked eye but are evident as rust-colored discolorations under dermoscopic examination. This information helps guide the use of vascular lasers and complementary treatments, such as oral tranexamic acid, to optimize treatment outcomes.

Furthermore, dermoscopy assists in evaluating the singeing of hair follicles following laser hair removal. The sequential reduction in hair density can be clearly observed and shown to patients, especially in the initial stages of treatment when they may be skeptical about the effectiveness of hair removal lasers.

GenNext: Innovations on the Horizon

The integration of dermoscopy with lasers opens up exciting possibilities for image-guided laser therapy. By equipping lasers with dermoscopes, practitioners can make real-time adjustments to laser parameters based on dermoscopic observations, enhancing treatment precision. Additionally, the use of polarized magnification within a headset, instead of a traditional dermoscope, along with the v300l imaging system, offers new avenues for advanced imaging and analysis.

Figure 3: v900L (Syris scientific, Gray, ME)

Challenges such as costs, time investment, absence of additional reimbursement, and limited training often hinder the widespread adoption of dermoscopy.

To overcome these challenges and improve the future of dermoscopy, collaboration is crucial between equipment manufacturers, dermoscope manufacturers, and interventional dermatologists. Together, they need to forge a harmonious partnership, combining their expertise and resources to find innovative solutions and overcome obstacles. This collaborative effort will facilitate the development of the right tools and techniques, enhancing the accessibility and effectiveness of dermoscopy in clinical practice.

It is imperative to foster a culture of scientific ingenuity and resourcefulness, where necessary improvisations and innovative adaptations, known as "Jugaad" in our context, can be applied to address the limitations and push the boundaries of dermoscopic applications. By embracing this spirit of collaboration and scientific improvisation, we can collectively work towards a future where the potential of dermoscopy is fully realized, benefiting both patients and healthcare providers.

Interventional dermoscopy - the future?

Dr. Feroze Kaliyadan
Member, SIG Dermoscopy

Just like interventional radiology, the use of interventional image technologies in Dermatology is likely to grow. The future is likely to see enhancements which will address the present limitation of interventional dermoscopy.

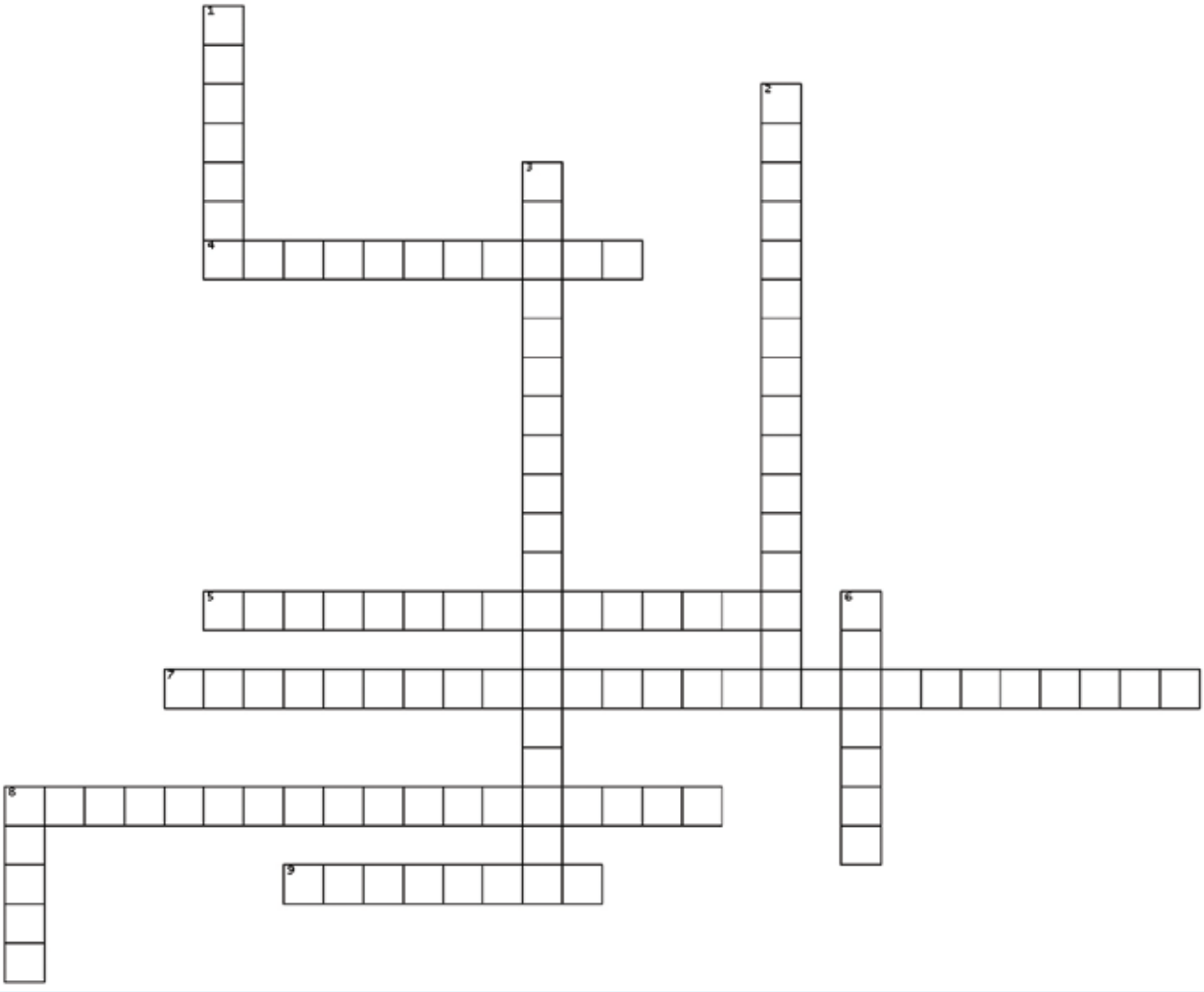
- More ergonomic designs enabling hands-free and real-time use for single operators. 3D printing could play a big part in developing these designs. At present, one of the major issues in the context of interventional dermoscopy is the limited field available for movements under the scope. Innovations have been suggested in this area to enable optimum use of the available space as well as to increase the field of view 1,2,3,4, but refinements are required, especially if a single operator is involved. Also, screen sharing/ projection options for hand-held dermoscopes could make visualization better.The future could see dermatological procedures being done under large screen dermoscopy visualization akin to laparoscopic surgery.
- Combination of Artificial intelligence/ machine learning with interventional dermoscopy would help in faster and easier identification of lesional sites for guided biopsies or residual lesions in cases like mole removal or tattoo removal.

Reference

1. Sonthalia S, Khurana R. Interventional dermoscopy. J Am Acad Dermatol. 2019 Nov;81(5):e129-e130
2. Kaliyadan F, Puravoor J. Thermocol-based spacer for interventional dermoscopy. Indian J Dermatol Venereol Leprol 2020;86:218-219
3. Agrawal S, Dhurat R, Daruwalla S, Sharma A. A simple modification of a syringe barrel as an adapter for dermoscopic guided biopsy. J Am Acad Dermatol 2019. pii: S0190-9622 (19) 30470-0
4. Jakhar D, Kaur I. A simple technique to increase field of view of a universal serial bus dematoscope. J Am Acad Dermatol 2019;80:e123-4.

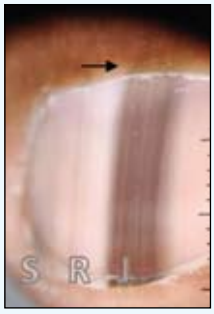
CROSSWORD

Dr. Shishira R Jartarkar
Member, SIG Dermoscopy



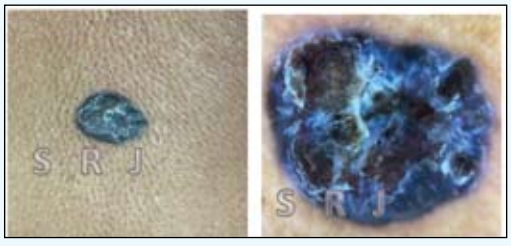
ACROSS

4. Hub and spoke pattern of pigmentation is commonly seen in _____.
5. Identify the sign



7. 24yr old male presented with nail surface changes and discoloration. Post-treatment there is improvement in the surface changes. Identify the nail dystrophy

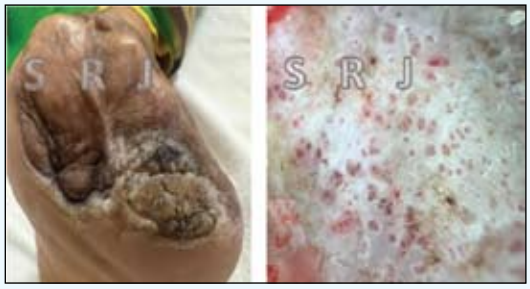
8. Identify the disease



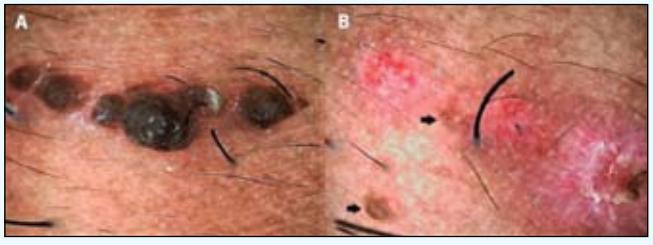
9. BPLeFoSK criteria is used for assessing the disease activity of _____.

DOWN

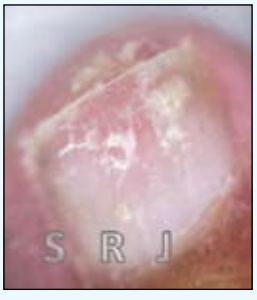
1. Patient underwent forefoot amputation, following which she developed verrucous lesions with pain over the area. Image b shows the dermoscopic features on paring. Identify the condition



2. Mace hair is specific dermoscopic feature of
3. Identify the dermoscopic intervention that is being carried out in this image

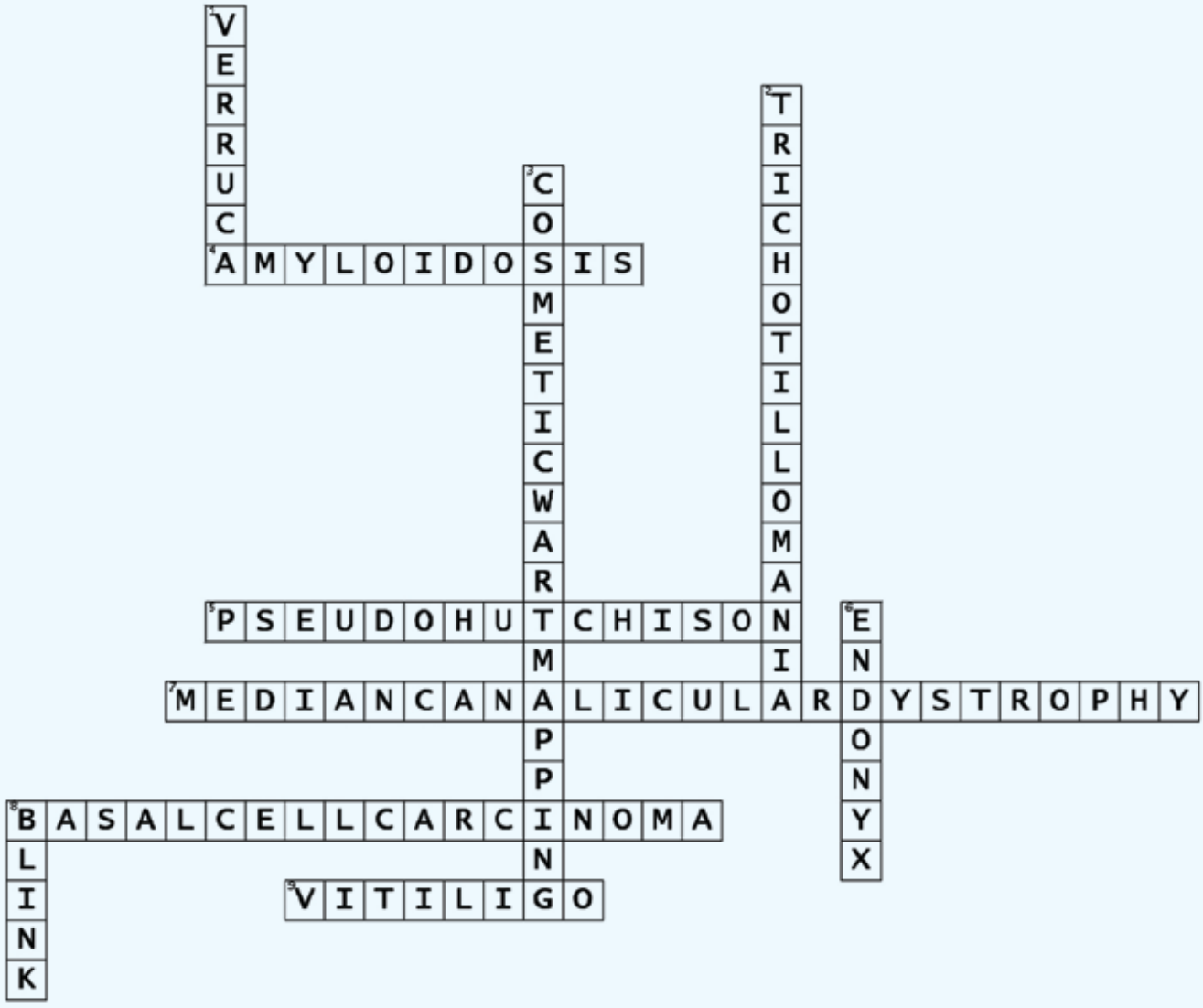


6. Identify the condition



8. Identify the sign

ANSWERS



Reference

Sonthalia S, Pasquali P, Agrawal M, Sharma P, Jha AK, Errichetti E, Lallas A, Sehgal VN. Dermoscopy Update: Review of Its Extradiagnostic and Expanding Indications and Future Prospects. Dermatol Pract Concept. 2019 Oct 31;9(4):253-264.

Quiz- Innovative techniques and modifications of conventional dermatoscopy

Dr. Payal Chauhan
Member, SIG Dermoscopy

1. ..... is the technique described to perform wide area digital dermoscopy (WADD)
2. X and Y has been utilized recently to be a useful adjunct in carrying out dermoscopy guided procedures/biopsy where
   X is ..... and
   Y is .....
3. Recently, a technique called ..... has been utilized in front fibrosing lopecia to analyse disease activity signs and match hair shafts in before and after pictures in follow up of patients
4. To visualise nail bed pathologies, ... has been found to be a useful modification of traditional onychoscopy
5. Match the following dermoscopic patterns with respective differential diagnosis of pigmented nail lesions described having high sensitivity and specificity in intraoperative dermoscopy

a.	Regular brown pattern	i. melanocytic nevi
b.	Regular brown pattern with globules or blotches	ii. Benign melanocytic hyprerplasia
c.	Irregular pattern	iii. hypermelanosis
d.	Regular grey pattern	iv. melanoma

Answers

1. Digital image montage technique

   Reference: Dellatorre G, Gadens GA. Wide area digital dermoscopy. J Am Acad Dermatol. 2019 Jun;80(6):e153. doi: 10.1016/j.jaad.2018.12.019.

2. Thermocol based spacer

   Reference: Kaliyadan F, Puravoor J. Thermocol-based spacer for interventional dermoscopy. Indian J Dermatol Venereol Leprol 2020;86:218-219

   Or

   Syringe barrel

   Reference: Agrawal S, Dhurat R, Daruwalla S, Sharma A. A simple modification of a syringe barrel as an adapter for dermoscopic guided biopsy. J Am Acad Dermatol. 2020 Jul;83(1):e5-e6

3. Panoramic trichoscopy

   Reference: Abraham LS, Martins SS, Pirmez R, Duque-Estrada B. Panoramic trichoscopy. J Am Acad Dermatol. 2021 Feb;84(2):e85-e86

4. Transillumination dermoscopy

   Reference: Jakhar D, Kaur I. Transillumination dermoscopy for nail bed pathology. J Am Acad Dermatol. 2021 Sep;85(3):e137-e138.

5. (a) regular brown pattern- (ii) benign melanocytic hyperplasia;

   (b) regular brown pattern with globules or blotches- (i) melanocytic nevi;

   (c) irregular pattern- (iv) melanoma;

   (d) regular grey pattern- (iii)hypermelanosis

   Reference: Hirata SH, Yamada S, Enokihara MY et al. Patterns of nail matrix and bed of longitudinal melanonychia by intraoperative dermatoscopy. J Am Acad Dermatol 2011; 65: 297–303. Epub 2011/05/03

Interview on Dermoscopy

Dr Yasmeen Jabeen Bhat, Coordinator SIG Dermoscopy in a corner with the legendary Dr Enzo Errichetti from Italy

Dr Enzo Errichetti

Dr Yasmeen J Bhat

Transcribed by Dr Aseem Sharma

DR YASMEEN BHAT: A very warm welcome to all the listeners to this first episode of the International Speaker Podcast series. I extend my greetings to you and to our guest speaker today, who is a stalwart of Dermoscopy and has done enormous work in this field.

He's a very famous figure among the Dermoscopy enthusiasts of our country and is none other than Doctor Enzo Errichetti. So he'll be the speaker on dermoscopy today. He's a professor at the University Hospital Santa Maria della Misrecodia in Italy. He's the general secretary of the Italian association of Non Invasive Diagnostics in Dermatology, executive board member of the International Dermoscopy Society and is also the cheer of the International Dermoscopy Society Task Force on Imaging and skin of color. His main research areas concern the use of dermoscopy in general dermatology. He has authored around 170 papers which are published in international journals and has authored more than 40 chapters on dermatoscopy.

He's also the editor of three books on dermoscopy that is dermoscopy in general dermatology, dermoscopy in general dermatology for skin of colour by the CRC Press and also cinical and dermatoscopic atlas of nonneoplastic dermatosesby Springer. He first described the dermoscopic features of many dermatoses in the field of general dermatology and also coordinated the first consensus on behalf of the International Dermoscopy Society on the standardization of dermoscopic terminology.

He is also involved in several international multicentric dermatoscopic studies. He is a section editor as well as the associate editor and the editorial member of various indexed international dermatological journals and he is also the reviewer of more than 16 international journals and was awarded as top peer reviewer in 2017, 2018 and 2019 by Publons. So it's an honor to have Doctor Enzo with us today.

DR ENZO ERRICHETTI: Hello, Yasmeen. Thank you very much for the invitation. It's a a real pleasure to be here. I have a special link with Indian dermatology and Indian dermatologist. So it's a great pleasure and an honor to be here.

DR YASMEEN BHAT: Great Doctor Enzo, since you have done so much work in this field, it will be really interesting to our audience to know about your journey in Dermoscopy. So can you just tell us something about it?

DR ENZO ERRICHETTI : Thank you very much for this question, Yasmin. I can say that my journey in demoscopy started more than 15 years

ago when I was a resident. At that time, I can say that dermoscopy was used mainly for tumors, but I was really passionate about the tiny details of inflammatory conditions, of course from a clinical point of view. And then I felt the need to explore more deeply the clinical details of these conditions and I started to use the dermatoscope for this purpose.

And basically I used the dermatoscope on every conditions and I realized that dermoscopy was very, very helpful to improve the diagnosis of many, many conditions. We can say that our diagnostic power remarkably increased. So I can say that I just moved my interest from the tiny clinical details to the dermatoscope. So and you know I really realized that it was very helpful from that point with the help of many, many friends.

We set many studies to explore this new morphological universe and we started to describe the dermatoscopic patterns of these conditions. DR ENZO ERRICHETTI

Because each shelter used own terms of terminology, but I think that with time passing we improved this aspect and we published also you know, a standardized approach and criteria to analyze these conditions and then you know, we arrived at this point.

DR YASMEEN BHAT: OK, great. It must have definitely given a twist to the use of dermascopy, since most of the dermatologists in the West choose to work on the skin cancers, as you just said your work was quite different from those. So please tell us about your areas of interest in general dermatology as well.

DR ENZO ERRICHETTI: Yes, Yasmin, my of course I use the dermatoscope even for tumors, but I think that a lot of papers have been published on this field and for this reason also I moved my interest to non neoplastic conditions, so of course the main topic when it comes to nonneoplastic dermatosis are inflammatory conditions, so namely noninfectious dermatosis. But my area of interest is also infectious dermatosis. We often need expensive tests and exams to do diagnosis and I think that dermoscopy may let us spare money on these expensive tests over the last few years, I have to say that my area of interest moves on skin of color. This is very important because clinically it is much more difficult when it comes to dark phototypes because you know there are some clinical details that are not well appreciable, in skin of color especially the margins of the lesions. I think that dermoscopy may give a very remarkable contribute in this area. So, my areas of interest are inflammatory conditions, infectious conditions and skin of color. When it comes to skin of color, of course inflammatory and infectious conditions are the main topics. But of course in skin of color we have a lot of adnexal tumors which are very difficult to be diagnosed on clinical ground. So denoscopy may give a contribute also for this part of our activity.

DR YASMEEN BHAT: OK, great. Our listeners would like to hear from you, your go to books, the articles which you usually read or consult for your research in Termiscopy.

DR ENZO ERRICHETTI: Yes, Yasmin, we published several books on these topics, yes. If I may, I would advise you to read, the books I published recently. So dermoscopy in general dermatology and dermoscopy in general dermatology for skin of color. Another one is coming which is dermoscopy of non neoplastic dermatoses variability according to phototypes. So, in this book we basically described nonoplastic dermatoses in both fair and dark skin side by side. When I say fair, I'd say Fitzpatrick phototypes 123, but also four, because, dermoscopy of phototype 4 is closer to dermoscopy of phototype 123, while of course for the types five and six are completely different. So in this book you have both fair and dark skin, so you can learn everything for different phototypes. Of course when it comes to articles, we published a lot of articles, but I I'd say that the most important articles we published recently in the last few years are the articles that tell us

how to approach the demoscopic assessment. For example, we recently published also with your help Yasmeen the standardization, and demoscopic approach in non neoplastic dermatosis and we very recently published also the validation of demoscopic criteria of tumors released by the International Demoscopic Society for skin of color. So I think that these two papers are very important because these are our alphabet. So if we start from these two papers, and I'd say if we also know some notions about histology, we can practice our dermatoscope without any problem.

In our mind, we can imagine the dermatoscopic patterns of any condition because we have a correspondence between histology and dermos copy. But of course we have to use homogeneous terminology if we want to communicate among us among researchers. And do reliable studies. So this is my advice. These papers, basic papers and of course if you want to know more about denoscopy I'd say mainly on non neoplastic dermatosis. I would advise the books I just mentioned.

DR YASMEEN BHAT: Definitely your books and your articles are really helpful and I personally read them a lot. OK, what are your weapons of choice? I mean the dermoscopes which you use in your day-to-day practice and also for the research?

DR ENZO ERRICHETTI: Yes, Yasmine, this is a very interesting question because you know the type of the dermatoscope we use may affect of course the dermatoscopic patterns. So if we speak about non neoplastic dermatosis or inflammatory and infectious conditions, I would prefer to use a polarized setting because with a polarized setting we don't need a an interface fluid, and we can appreciate much better the scaling pattern, which is very important of course when we assess nonneoplastic dermatosis. But of course I would also as a second step use an interface fluid, some oil, because with the oil or gel we can eliminate the scaling and we can appreciate the findings beneath. But if we can use hybrid, the matoscopes of course would be even better because sometimes some dematoscopic details are visible better with the non polarized setting. Especially I'm talking about a very superficial vessels. Sometimes this type of vessels are visible better with non polarized setting. So I'd say that this might be the third step of examination. So first polarized setting without fluid, second polarized setting with fluid to eliminate scaling and 3rd we can also see the lesion with non polarized setting and of course some fluid. So in this way we can catch all the details from a lesion.

DR YASMEEN BHAT: All right, since you are the chair of the task force of International Dermoscopy Society and are doing a lot of work in it. In fact, many of us are working with you and you are real motivating force for all of us to work in these projects. So tell our audience about it.

DR ENZO ERRICHETTI: Yes, thank you very much, Yasmeen for this question. The IDS task force on skin of color is one of the most important task forces of the EDS because we really believe that we have to improve knowledge on dermoscopy in dark prototypes. Of course, we published many, many papers. You published many, many papers. A lot of Indian colleagues published many, many papers. But I think that if we join our efforts, we can of course publish larger studies and more reliable studies. So this task force is working a lot on, inflammatory conditions. But as you know, we are also exploring other fields including tumors and I think that we need the efforts of all the colleagues from India. I think you are in a country that may give a very remarkable contribute to this task force. So I think that you know together we can do a very good job. We are about to publish, as you know, Yasmeen, four systematic reviews on dermoscopy in skin of color. The first one will be on inflammatory conditions, the second one on infectious dermatosis, the third one on hair and scalp disorders, and the last one is on tumors. I think that the main aim of this reviews is to summarize all the knowledge published in the literature but by using a standardized terminology

So I think that this will be just the starting point.

But we have to do a lot and you know, we just set many, And yeah, we, we need your help. So I think that, you're very passionate about dermatoscopy and I think that you can give us a very great contribute.

DR YASMEEN BHAT: Thank you. Yeah, definitely and definitely you are doing a lot of work and allowing us also to work. Well now that dermoscopy has become a part and parcel of our subject and what do you think will be the future of dermoscopy and imaging in next few years?

DR ENZO ERRICHETTI: Yes, I think that Dermoscopy is the future of you know our activity. I think that it's quite difficult to believe that we have to say a lot, still a lot because many, many papers have been published. If we do, you know a quick search on Pub Med for example, I think that we have something like 8000 papers on dermoscopy. We have a lot to say especially when it comes to non plastic conditions because.

I think that you agree with me we have so many, many dermatosis, so many diseases in dermatology. So we have to explore these conditions from a dermscopic point of view, OK, because as we showed for some conditions dermoscopy may increase our diagnostic power.

Demoscopy may be also helpful to monitor for example our therapies and you know avoid over treatments for example or demoscopy may also optimize the treatment because based on some demoscopic findings we can choose the correct therapy for that case. So you know, dermoscopy is the future because the dermatoscope is in our pocket, so everyone can use it. Of course we also have our other techniques, but I think that dermoscopy is not replaceable with other techniques because you know, it's very user friendly, it's cheap, it'sin our pocket, so Demoscopy is the future. That's it.

DR YASMEEN BHAT: Yeah, exactly. Initially you mentioned that you have a special link with the Indian dermatologists So what's your opinion about the Indian dermoscopy and how can International Dermoscopy Society improve it?

DR ENZO ERRICHETTI : Yes, I have a special link because when I started to work on skin of color . Indian colleagues including yourself gave a very significant contribute. So if we know now demotoscopic patterns of several conditions, it's I have also to credit you Indian colleagues you have I think a huge potential. So the International Demoscopy Society is very willing to have your collaboration and I think that this link International Demoscopy Society and Indian Society of dermatology and Demoscopy may give very important results. So I hope that Indian colleagues are willing to join our activities in the task force, but I'm sure about that because I know your enthusiasm, so I'm sure that you will give your contribute and I think that we will improve the knowledge on dermoscopy in dark phototypes, I'm sure.

DR YASMEEN BHAT: That's really encouraging for all of us. So at the end, what message would you like to give to our Indian colleagues?

DR ENZO ERRICHETTI: Yeah, my message is, you know, to continue to, you know, produce literature under dermoscopy with your enthusiasm. Because you know, what I noticed when I came to India the first time was the enthusiasm of Indian colleagues, I didn't believe to my eyes really you were so enthusiastic when you were talking about dermoscopy morphology. So my suggestion is to continue in this direction, Okay. And I'd say that. If we join our efforts, we can do very good things.

DR YASMEEN BHAT: That's really helpful. Thank you so much, Dr. Enzo, for sharing your pearls and your words of wisdom with us. It’s very inspiring to know about all this and I'm sure it's going to help our fellow dermatologists and residents to work more and more in the field of demoscopy. Thank you very much. And at the end, I would like to extend my heartfelt thanks to the IADVL EC and Academy for giving an opportunity to host this and also to the Glenmark team for all the Technical Support. Thank you all.

DR ENZO ERRICHETTI: Thank you.

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