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PSEUDORETICULAR NETWORK ON DERMOSCOPY IN FACIAL MELANOSIS

Dermatology

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ABSTRACT

Non invasive Dermoscopy procedure is used for observation and for diagnosis of pigmentation of skin lesions. This technique helps in differentiating melasma from other hyperpigmentary disorders. Hyperpigmentation involves majorly face and neck, which is common and often presented with a complex diagnostic problem. Melasma is one of common types of hyperpigmented disorder reported. The characteristic presence of melasma consists of presence of either single or multiple hyperpigmented patches which are symmetrically scattered over face and extending up to neck and comprises mainly sun exposed areas. Hence we aim to corelate clinically with dermoscopic features of Facial Melanosis. This cross sectional, observational study was from August 2022 to February 2024. Patients with facial hyperpigmentation, between 18-70 years of age were included in the study. Patients who were on topical or oral treatment, with any other skin related conditions, and with co morbid conditions were excluded. Questionnaire was administered and also local examination of facial melanosis and dermoscopic features was noted. 100 subjects measurement was taken with age range between 19 – 65 years, Majority (79%) were females. On dermoscopic findings, pseudoreticular network pattern, was observed in 58% of patients. 48% of patients had diffusion of light and dark pseudoreticular network alone which was seen in majority. Depending upon the combination of dermoscopic finding of pseudoreticular network with other dermoscopic findings in facial melanosis leads to a diagnosis. Diagnosis can be done based on the combination of dermoscopic finding of pseudoreticular network with other dermoscopic findings in facial melanosis. Understanding different dermoscopic patterns is effective for the management and thereby reduce the need of biopsy.

KEYWORDS

INTRODUCTION

Dermoscopy procedure is a non-invasive technique used for observation and for diagnosis of pigmentation of skin lesions1. This technique helps in establishing the diagnosis and for differentiating melasma from other hyperpigmentary disorders. Dermatoscopy or epiluminescence microscope is one among the rapidly emerging imagine modality, which has become an important part of the dermatology practice2.

Disorder for facial pigmentation are a group of disorders that are heterogenous with altered clinical features of visible cosmetic disfigurement3. Hyperpigmentation disorders are freckles, melasma, acanthosis nigricans, ochronosis, seborrheic melanosis4. Hyperpigmentation involves majorly face and neck, which is common and often presented with a complex diagnostic problem5.

Melasma is one of the common types of hyperpigmented disorder that is reported among Indian patients. The characteristic presence of melasma consists of presence of either single or multiple hyperpigmented patches which are symmetrically scattered over face and extending up to neck and comprises mainly sun exposed areas5.

With the help of above tool, we would like to visualize the subtle clinical patterns of skin structures like Pseudoreticular network which is not visible to naked eyes6. Hence our aim was to clinically corelate with dermoscopic features of Facial Melanosis.

Definition Of Pseudoreticular Network7:-

To know what pseudoreticular network is, we should know reticular network is the pigment network, a key feature in dermoscopic analysis, is characterized by a reticular pattern of intersecting brown lines resembling a grid. These lines are not random; they are histologically tied to the increased presence of melanin within the skin's keratinocytes or melanocytes, typically along the lengthened structures known as rete ridges. The spaces within this grid, often referred to as the "holes" of the network, correspond to thinner skin areas known as suprapapillary plates. On the face, the reticular pattern is often absent, giving way to a pseudo-network due to the different skin architecture in this region. In facial dermoscopy, the typical reticular pattern seen in non-facial skin, known as the pigment network, often gives way to what is termed a pseudonetwork. This is due to the flatter architecture of the facial skin's rete ridges. Instead of the expected pigmentation pattern, one observes the pseudonetwork, where the apparent "holes" are not gaps in pigmentation but rather represent the histological presence of facial adnexal structures—such as sebaceous glands, hair follicles, and sweat glands.

MATERIAL AND METHODS

This cross sectional, observational study was conducted at department of Dermatology, Venereology and Leprology from Sapthagiri Institute of Medical Sciences and Research Centre, Bangalore. The study was conducted after obtaining institutional ethical clearance. The study duration was for 18 months, from August 2022 to February 2024. Patients with facial hyperpigmentation, between 18-70 years of age and those who consented to participate along were included in the study. Patients who were on topical or oral treatment, with any other skin related conditions, and with co morbid conditions were excluded from the study.

On enrolling, patients were administered with questionnaire which included their demographic details, age on onset of condition, its duration, site of pigmentation, rate of progression, associated symptoms and family history. Information was also collected regarding any precipitating factors, use of cosmetics, drug intake prior to onset and associated cutaneous or systemic disease. Local examination of Facial Melanosis was done and a record was made of the morphology and distribution of lesions, extent of involvement and color of pigmentation. Diagnosis of type of condition was made based on history and clinical examination. Dermoscopic features including color, pigment pattern and background color of facial melanotic lesions were recorded and digital photographs were taken.

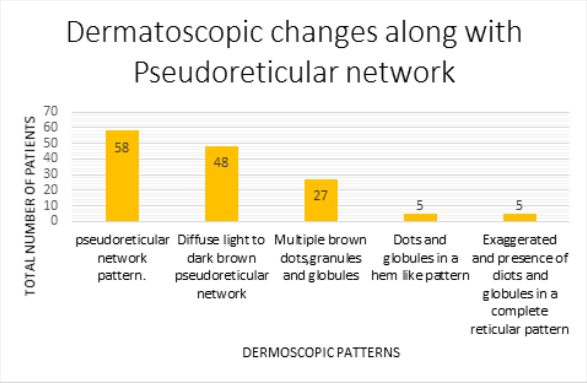
Statistical Analysis: Data is analyzed using SPSS software version 21 and Excel. Categorical variables are given in the form of frequency table. Continuous variables are given in Mean ± SD/ Median (Min, Max) form.

RESULTS

A total of 100 subjects measurement was taken. The age range of the subjects was from 19 – 65 years, where maximum 30 of them (30%) were between 40-49 years of age. Majority (79%) were female subjects. Out of 100 subjects, 45 (45%) were housewife, 17 (17%) were students, 15 (15%) were marketing professionals, 9 (9%) were into IT profession. 32 of the 100 subjects had co morbid conditions,- 10 (31.25%) of them had Diabetes Mellitus, 17 (53.12%) had hypertension and 5 (15.62%) had thyroid disorder

When we checked for the dermoscopic findings, pseudoreticular network pattern, was the most common finding observed in 58% of patients. In majority of the cases pseudoreticular network was found as a single dermoscopic finding. While few of other patients had presented with other dermoscopic features along with pseudoreticular network pattern. On analysis we found that 48% of patients had diffusion of light and dark pseudoreticular network alone which was seen in majority. With pseudoreticular network, 27% had multiple brown dots, granules and globules, 5% of patients had dots and

globules in hem like pattern with pseudoreticular network and other 5% had exaggerated and presence of dots and globules in complete reticular pattern. Depending upon the combination of dermoscopic finding of pseudoreticular network with other dermoscopic findings in facial melanosis leads to a diagnosis [Graph 1]



Graph 1: Dermoscopic changes along with pseudoreticular network

DISCUSSION

Facial melanosis is a cluster of heterogeneous entity with particular common clinical feature. This clinical feature of altered pigmentation of the face is easily visible and a cosmetic disfigurement that leads to psychosocial consequences. It is a collective appearance in Indian population, with multifaceted diagnostic and therapeutic issue, with precise clinical entities. Dermoscopy is a noninvasive procedure with is a combination of digital photography and light microscopy for the observation and for the diagnosis of pigmentation on the skin.

In our study, the most common age group of patients who were affected was 40-49 years which was unlike other studies8. A study conducted by Devraj et al9 also was in contrast to our study results, where they had patients between 34.60 ± 10 years of age with facial melanosis. We had majority of females in our study which was similar to study done by Devraj et al9 and Revati et al10. We found that the female male ratio was greater and this might be due to the hormonal effects and females being extra sensible about their looks than males.

Assessment of pigmentation level helps in deciding the prognosis of melasma either as dermal or as mixed melasma has poor treatment response. Melasma shows reticular pigment network with difference in color. In our study, we observed, pseudoreticular network in majority of the patients. In comparison to other studies, very few studies had pseudoreticular network pattern on Dermoscopy. One such study conducted by Vikas et al1 had accentuated pseudo pigment network in majority of their cases. Nanjudaswamy et al11 and kaur et al12 also concluded that they had accentuated pseudo pigment network as common dermoscopic pattern The pseudoreticular pattern is mostly seen with deeper melasma and the pigment color suggest the depth of the melasma13,14.

The second major findings in our study was diffusion of light and dark pseudoreticular network. This was similar to the study done by Vikas et al1 where they found that 92% of their cases being reported with light and dark network. Pseudoreticular network in combination with other dermoscopic features helps us to reach a disgnosis. Pseudoreticular network alone or in combination with multiple brown dots, globules and granules is seen in melasmaa. Pseudoreticular network in combination with dots in a hem like pattern or it being exaggerated to form a complete reticular pattern in LPP (Lichen Planus Pigmentosus).

CONCLUSION

Diagnosis can be done based on the combination of dermoscopic finding of pseudoreticular network with other dermoscopic findings in facial melanosis. Understanding different dermoscopic patterns is effective for the management and thereby reduce the need of biopsy.

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