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RESEARCH ARTICLE

CLINICO DERMOSCOPIC STUDY OF PATTERNS OF PERIORBITAL HYPERMELANOSIS

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Abstract

Background:Periorbital hyperpigmentation (POH) is a routinely encountered condition in dermatology practice. Studying the clinical features and its correlation with dermoscopy will help in better understanding of patterns of periorbital pigmentation and its evolution. [2]POH is a condition characterised by bilateral homogenous, hyperchromicmacules and patches, primarily involving the upper and the lower eyelids. [3]It is a common problem with multifactorial etiology, is evident on the face and can affect patients' quality of life (QoL). [7]

Aim: To study dermoscopic patterns of periorbital hyper melanosis in patients presenting to dermatology, venereology,leprosy OPD in Bhaskar General Hospital from January 2022 to June 2022.

Methods: 50 patients with periorbitalhypermelanosiswere included in the study.Dermilite 4 Dermoscope (10X magnification) with polarised light was employed in the study.

Results:Out of 50 patientsondermoscopy mixed type was 76.4%, pigmented 11%, vascular 10.6%, structural 2%.

Conclusion:Periorbital melanosis presents as multifactorial entity with constitutional type being the most common. The most common pattern seen on dermoscopy is mixed.It is essentially a clinical diagnosis, but dermoscopy might aid in further classification of the disease. Also, it might give us a clue regarding the etiology and help in the treatment, as different types of POH respond to varying treatments.[7]

Introduction:-

Periorbital hyperpigmentation (POH) is one of the most commonly encountered conditions in routine dermatology practice.[11]Periorbital melanosis (POM) describes the light-to-dark-colored, brownish-black pigmentation surrounding the eyelids.[6]POH also known as periorbital melanosis, periocular hyperpigmentation, dark circles, infraorbital color changes, infraorbital darkening, or hyperchromatic idiopathic skin on the orbital area. It can affect an individual's self-confidence. Dermoscopic features of POH are not frequently reported in the literature.[6]POH is a common cause of dermatological consultations and can have a major impact on a patient's quality of life. Diagnosis with the naked eye can sometimes leave doubt as to whether the pigmentation is vascular, due to deposition of pigment, structural due to shadow effect or mixed.[4]POH could be seen on either young ages or old ages that could disturb face visual aspect with a face appearing worn, exhausted, depressed, sad, and much older, which could affect

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self-confidence. [3]POH Etiology could happen on multifactorial with endogenous factor and exogenous factor, without one factor dominating. POH diagnosis could stand clinically with identifying contributing etiology factor and evaluating skin to detect eyelids involvement, skin disease existence or scar in the periorbital area, tear trough, and visible superficial blood vessel on the infraorbital area.Histopathology examination is gold standard in POH, but this could go into consideration because it could cause the formation of a scar on the area. Some other examinations could be helpful in diagnosing POH, such as eyelid stretch test, dermoscopy, Wood's lamp examination, and ultrasonography.[5]Dermoscopy is a non-invasive diagnostic technique for in vivo observation on pigmented skin lesions that could better visualise on the surface and under surface structure, convenient and proper to use. This device could be used to differentiate POH types whenever there is hesitation on naked eye examination.[14]

Materials And Methods:-

This study was conducted in department of dermatology in Bhaskar GeneralHospitals, Moinabad, Ranga Reddy district, Telangana state from January 2022 to June 2022. This was an observational cross-sectional study.A detailed history, clinical features, and the dermoscopic study of colour, pattern of pigment, and pattern of the blood vessel were recorded with Dermilite 4 Dermoscope (10X magnification) with polarised light. Iphone 12 pro was attached to save the images.Clinical photographs were taken. Data collected was analysed and tabulated in Microsoft Excel sheet. The results are presented in proportions and percentages.

Results:-

70% of the patients were women (35) and the common age group was 20-35 years.

Most of the patients had both the eyelids involved (65%), followed by lower eyelids (35%).

On dermoscopy,pigmented, vascular, structural, and mixed types of POH represented 11%, 10.6%, 2%, and 76.4%, respectively.

10.6% patients had vascular involvement of which the most common vascular pattern was telangiectasia 80(%).

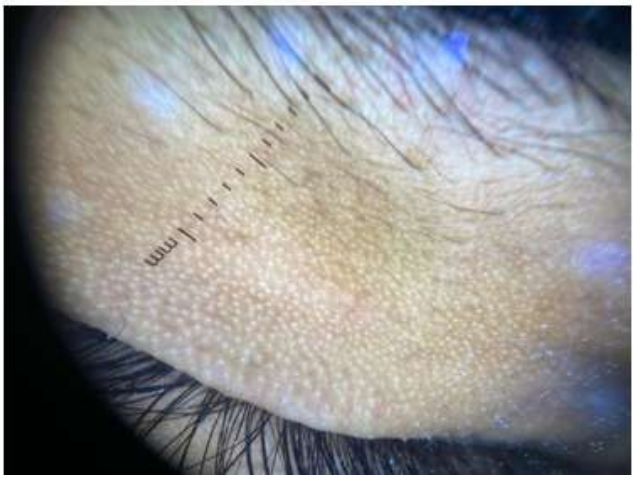
The different patterns of pigmentation were blotches (30%), exaggerated pigment network (18%), coarse speckled (19%), fine speckled (17%), and globules (16%).

Patterns of skin changes included atrophy (18%) and exaggerated skin markings (22%).

Dermoscopic features can correlate with its etiology.

Dermoscopy Showing Vascular Type

Dermoscopy Showing Mixed Type



Discussion:-

Samira et al stated thatmost age ranges involved in this study were 26-35 years old and 31 subjects (81,6%), and the least age range were 46-55 years old of 1 subject (2.6%).

A study done by David et al in India to 250 subjects with POH shows the most study subjects in the 26-35 years old age range as much as 98 subjects (39.2%).

On a study by Chatterjee et al in India to 82 subjects with, highest POH prevalence were found on the 21-30 years old age range as much as 40.2%.

Study by Mendiratta et al in India to 50 subjects found patient average age range is 29.5 years old.

Sheth et al, on a study in India, discovered POH mostly happened on 16-25 years old range as much as 47.50%.

Ramakrishna et alThe mean age of participants was 32.8 ± 9 years. It was more prevalent among females (78%).

According to Pratik et all prevalence of POH was estimated to be 30.76%.The study shows that most common age group was 16-25 years and that POH has higher preponderance for females over males (1:4.2).

According to Strachan et al has stated that genetic conditions are not necessarily congenital (present at birth). The genotype is fixed at conception, but the phenotype may not manifest until adult life.In such cases the penetrance is age-related, which supports that age of onset of POH in majority of the patients in our study was in early adulthood, i.e., 16-25 years.

From some studies also discovered new respondents care about the existence of POH on young ages because in that age range, they are more concerned about cosmetics

According to Samira et althe clinical image on POH consists of pigment type, vascular type, and mixed type.Their study discovered 23 subjects (60.5%) had pigment type clinical image and 15 subjects (39.5%) had mixed type when observed directly.

The study by Ranu et al discovered that most patients with POH were vascular type, on Chinese ethnic and pigment type on Indian ethnic.

Samira et alondermoscopy examination found that most types found were mixed type as much as 18 subjects (47.4%), followed by pigment type as much as 17 subjects (44.7%), and the least is vascular type as much as 3 subjects (7.9%).

In Gaon et al study, there are 25 subjects in which (31%) pigment type, followed by 21 subjects (44%) mixed type, and the least is vascular type with 12 subjects (25%).

On Rocha et al study, 113 subjects (75,8%) with pigment type, followed by 20 subjects (13,4%) with vascular type, and 16 subjects (10,7%) with mixed type.

Dermoscopy could be used to differentiate POH types whenever there is hesitation on naked eyes examination.

According to Ramakrishna et al the constitutional type (43%) of POM was the most common followed by shadow-effect type (32%).The various dermoscopic pigmentary patterns seen were scattered pigmented dots (56%), exaggerated pigment network (31%), globules (30%), and blotches (27%). Dilated veins and telangiectasia were seen in 50% and 32% of subjects, respectively. Exaggerated skin markings were seen in 43% of participants. Scattered pigmented dots were most commonly seen in constitutional, vascular, and shadow types but were significantly associated with vascular type.Exaggerated pigment network was the most frequent pigmentary pattern in post-inflammatory type of POM. Globules were significantly associated with constitutional as well as shadow type of POM and blotches with shadow type of POM.

According to Mithalijage et alPOH was multifactorial. The most common clinical type is postinflammatory type. Other associated clinical findings included pigmentation at other anatomical sites (20%), visible bulging (10%), tear trough (8%), and visible superficial vessels in the periorbital region (6%). On dermoscopy, majority of the patients had multicomponent pattern (64%) which included more than one pattern of pigmentation, vasculature, and skin changes. The different patterns of pigmentation were blotches (30%), exaggerated pigment network (28%), coarse speckled (24%), fine speckled (20%), and globules (16%). Pattern of vasculature included telangiectases (18%) and superficial dilated vessels (20%). Patterns of skin changes included atrophy (18%) and exaggerated skin markings (22%). Dermoscopic features can correlate with its etiology.

In a study done by Namrata et al Pigmented, vascular, structural, and mixed types of POM represented 6.4%, 4.8%, 0.4%, and 88.4%, respectively. Patchy or post-inflammatory pigmentation was the most common pigmentary pattern on dermoscopy (53.8%) followed by pseudoreticular (37.1%) and mixed pattern (9.1%). 80.4% patients had vascular involvement of which the most common vascular pattern was telangiectasia (58.8%). Wrinkling or increased skin laxity as a cause of shadow effect was found in 52% patients.

Watanabe et al. reported that out of 12 patients of dark circles included in their study; all the 12 patients (100%) revealed dermal melanin deposition by histopathological examination.
Gendler et al. stated that some medical problems that may contribute to dark circles include disorders of heart, thyroid, kidney or liver, Vitamin K deficiency, Addison's disease, etc., However, statistical data was not shown in this literature.

According to Boxrud et al systemic conditions that can lead to pigmentation of periorbital area include metabolic and endocrine disorders, but no statistical data have been shown.
Considering its multifactorial etiology and increasing cosmetic concerns, we look forward to larger studies to further enlighten our knowledge over this condition.

Conclusion:-

Dermoscopy as a diagnostic modality is more accurate in detecting pigmentary and vascular causes of POM and subtle signs of active inflammation in the form of erythema and scaling which is difficult to detect clinically. The major limitations of this study were lack of correlation of dermoscopic findings with the histological findings and the absence of any control group for comparison. POM is more common in 16–25 years of age. Constitutional type is the most common form. Stress and respiratory allergy have shown a significant correlation with the severity of POM. Mixed pigmentary-vascular patterns are more common than pigmentary or vascular alone. The dermoscopic patterns of POM may provide a clue to the underlying etiology, thereby helping to plan appropriate treatment.Patients with periorbital hypermelanosis showed brown circles, with colours on dermoscopy from brown to grey based on the level of pigmentation and reticular type of vessel arrangement.Dermoscopy will aid in the classification of POH. Blotchy pattern, speckled pattern, and telangiectasia are the typical dermoscopic patterns, more so in higher grades.

References:-

1)Ramakrishnan, Smera, et al. "A cross- sectional study on clinico- dermoscopic features of periorbital melanosis in a tertiary care hospital." Journal of Cosmetic Dermatology 20.9 (2021): 2917-2923.
2) Jage, Mithali, and SunandaMahajan. "Clinical and dermoscopic evaluation of periorbital hyperpigmentation." Indian Journal of Dermatopathology and Diagnostic Dermatology 5.1 (2018): 42.
3) Ahuja, Sonal K., Ashish R. Deshmukh, and Shweta R. Khushalani. "A study of dermatoscopic pattern of periorbital hypermelanosis." Pigment International 4.1 (2017): 29.
4) Gaón, Natacha Quezada, and Williams Romero. "Dermoscopy in periorbital hyperpigmentation: An aid in the clinical type diagnosis." SurgCosmetDermatol 6.2 (2014): 171-2.
5) Sheth, Pratik B., Hiral A. Shah, and Jayendra N. Dave. "Periorbital hyperpigmentation: a study of its prevalence, common causative factors and its association with personal habits and other disorders." Indian journal of dermatology 59.2 (2014): 151.
6) Mahesh, Ashwini R., et al. "Clinical and dermoscopic evaluation of periorbital melanosis." Journal of Cutaneous and Aesthetic Surgery 15.2 (2022): 154.
7) George T, Anu, VinuthaRangappa, and JayadevBetkerur. "Clinical and dermoscopic study of periorbital hyperpigmentation (POH) and quality of life in POH patients based on the MELASQOL scale: a case-control study." Iranian Journal of Dermatology 24.3 (2021): 172-178.
8) Amatya, Bibush. "Evaluation of dermoscopic features in facial melanosis with Wood lamp examination." Dermatology Practical & Conceptual 12.1 (2022).
9) Chhabra, Namrata et al. "Dermoscopy as an efficient aid to diagnose pigmentary and vascular component of periorbital melanosis: A cross- sectional study." **Journal of Cosmetic Dermatology** 21 (2022): 5880 - 5886.
10) Patrick, M et al. "Evaluation of histopathological changes in idiopathic cutaneous hyperchromia at the orbital region." (2018).

11) Sheth, Pratik B., Hiral A. Shah, and Jayendra N. Dave. "Periorbital hyperpigmentation: a study of its prevalence, common causative factors and its association with personal habits and other disorders." Indian journal of dermatology 59.2 (2014): 151.
12)Roh, Mi Ryung and Kee Yang Chung. "Infraorbital Dark Circles: Definition, Causes, and Treatment Options." **Dermatologic Surgery** 35 (2009): 1163–1171.
13) Chandrashekar, Byalekere Shivanna and Soragavi Soumya. "Effectiveness and Safety of Topical Under-eye Serum in Patients with Periorbital Hyperpigmentation: An Open-label Single Arm Prospective Study." **The Journal of clinical and aesthetic dermatology** 15 2 (2022): 18-22 .
14) Samsul, Cut Samira et al. "The conformity between dermoscopy imaging and Wood's lamp diagnostic on periorbital hyperpigmentation." **Bali Medical Journal** (2021): n. pag.