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Dermatoscopic Evaluation of Facial Melasma

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Abstract: ***Background: Dermatoscopy is a non - invasive diagnostic tool for pigmented lesionsMelasma is a common problem encountered in dermatology clinics [1]. It helps in visualizing subtle clinical patterns of skin lesions and subsurface skin structures not normally visible to unaided eye. Aims & Objectives: 1) To evaluate dermatoscopic findings in facial melasma. 2) To determine correlation between clinical and dermatoscopic features of various facial Melasma. 3) To correlate dermatoscopic features with histopathological findings in facial Melasma wherever possible. 4) To correlate the treatment response. Results: The present study is to evaluate dermatoscopic findings in facial melasma. The age of these patients was 21 - 62 years, most patients belonging to the age group 31 - 40 years. Mean age group was 37.59 (+/ - 7.28232). Female patients (42) are more commonly affected (80%). Maximum number of patients were housewives (57%).15% were manual labourers. History of sun exposure was predominantly seen in 46 % cases. Out of 50 patients of melasma studied, clinically 19 (38%) patients presented commonly with mixed type, 12 (24%) patients with malar, 10 (18%) patients are centrofacial type and 9 (18%) patients with mandibular type. Out of 50 patients in our study, 50% patient have mixed type of colour changes on dermatoscopy then reflecting 30% showed dermal type of colour changes and 20% showed epidermal type colour changes. That is, 58% cases showed light brown background on dermatoscopy, 20% cases showed ash grey background and 22 % cases showed dark brown background. Out of 50 patients studied 24 patients (48%) have accentuated pigment network is the most common finding, 12 patients (24%) with reticuloglobular pattern, 6 patients (12%) have annular pattern, 2 patients (4%) have blotchy pigmentation, 3 patients (6%) have arcuate pattern, 3 (6%) patients were unpatterned. The persistent type of melasma was (60%) in 30 patients and transient type was (40%) in 20 patients. Conclusion: Thus, dermatoscope is an innovative instrument playing a vital role in diagnosing various conditions especially facial melanosis that have overlapping clinical entities and where histopathology on face is not feasible.***

Keywords: facial melanosis, facial melasma, dermatoscopy, reticuloglobular, unpatterned, accentuated pigmented network

1. Introduction

Facial Melanoses (FM) are a common presentation in Indian patients, causing cosmetic disfigurement with considerable psychological impact among patients, especially in younger age groups and females. Some of the causes of FM include melasma, Riehl's melanoses, Lichen Planus Pigmentosus, Erythema Dyschromicum Perstans (EDP) [2]. An enormous amount of interest worldwide is focused on resorting hyperpigmented skin to its natural colour by dermatologists. Effective treatment depends on diagnosis and identification of cause. Aetiology in most of the causes is unknown, but some factors such as UV radiation, ocp's, cosmetics, hereditary in melasma, exposure to chemicals in EDP, exposure to allergens in Riehl's melanoses are implicated. [2]A Dermoscope is a non - invasive, diagnostic tool which visualizes subtle clinical patterns of skin lesions and subsurface skin structures not normally visible to unaided eye.

2. Methodology

A prospective observational study conducted at Shadan Institute of Medical Sciences and Research Centre, Hyderabad, over period of 6 month from January 2022 to June 2022.

Source is the outpatient of Department of Dermatology after getting informed consent.
1) Clinical Morphology: 2) Dermoscope findings; Background colour, Pigment network, Perifollicular accentuation, Reticular pattern, Dots, Globules. It's a cross - sectional, consecutive type of nonprobability sampling used for selecting the study patient. Patients with melasma are first examined in the woods lamp to find out epidermal, dermal or mixed type then focused on Dermoscope Dermalite DL200HR, non - contact, non - polarizing mode for making out the specific patterns.

Inclusion Criteria
- Patients with facial melasma
- Patients who are willing to get enrolled in the study.

Exclusion Criteria
- Patients who are not cooperative
- Patients on cosmetic or dernatosurgery procedures
- Pregnant and lactating patients
- Patients with other facial melanosis are ruled out like pigment demarcated lines, LPP, EDP, Rehls Melanosis,

3. Observations and Results

Age Distribution (Table 1):
Among 50 patients included in the study, mean age was 37.59 years with age ranging from 21 - 50 years. Most of the patients (30) belonged to age group of 31 - 40 years (60%), followed by age group 21 - 30 years12Patients (24%), 41 - 50 years were 8 patients (16%). Mean age 37.59 years; Highest incidence in age group 31 - 40 years; Standard deviation7.28232

Age	No. of Patients (n=50)	Percentage
21 - 30	12	24%
31 - 40	30	60%
41 - 50	8	16%

Sex Distribution (Table 2):
Out of 50 patients studied female were 42 (84%), males were 8 (16%) patients.

Gender	Number	Percentage
Female	42	84%
Male	08	16%
TOTAL	50	100%

Occupation (Table 3):
Out of 50 patients studied, 24 (48%) patients were Housewives, 10 (20%) were manual labourers, 6 (12%) patients were self - employed, 5 (10%) patients were students, 3 (6%) patients were teachers, 2 (4%) patients were salesmen.

Occupation	Number (n=50)	Percentage
Housewife	24	48%
Manual labourers	10	20%
Self employed	6	12%
Student	5	10%
Teacher	3	6%
Sales man	2	4%

Predisposing Factors (Table 4):
Out of 50 patients studied, 20 (40%) patients had history of Sunexposure, 23 (46%) patients had history of Cosmetic use, 3 (6%) patients had history of Anaemia, 2 (4%) patients had Family history, 2 (4%) patients had history of Thyroid disease.

Predisposing Factors	Number (n=100)	Percentage
Cosmetic use	20	40%
Sun exposure	23	46%
Family History	3	6%
Anaemia	2	4%
thyroid	2	4%

Melasma - Clinical patterns (Table 5):
Out of 50 patients of melasma studied, 12 patients presented with malar type, 10 patients with centrofacial type, 9patients with mandibular type and 19 patients are of mixed type.

TYPE	Number (n=100)	Percentage
Malar	12	24%
Centrofacial	10	20%
Mandibular	9	18%
MIXED	19	38%
TOTAL	50	100%

Comparison of Melasma Dermoscope colour changes in various studies: (table6)

Type	Our study (n=50)	Percentage	Manjunath et al. (n=50)	Tamler et al. (n=40)
Epidermal	10patients	20%	36%	40%
Dermal	15patients	30%	23%	22.5%
Mixed	25patients	50%	9%	37.5%

Out of patients in our study, 50% patients showed mixed type colour changes on Dermoscopy followed by 20% showed epidermal type and 30% showed dermal type colour changes.

Melasma - Dermoscopic patterns (Table 7):
Out of 50 patients studied of Melasma, 24 patients (48%) have accentuated pigment network, 12 patients (24%) have reticuloglobular pattern, 6 patients (12%) have annular pattern, 2patients (4%) have blotchy pigmentation, 3 patients (6%) have arcuate pattern.

Patterns	No. of Patients	Percentage
Accentuated Pigment Network	24	48%
Reticuloglobular	12	24%
Annular	6	12%
Blotchy	2	4%
Arcuate	3	6%
Unpatterned	3	6%

Out of 50 patients most common were the persistent type (30) (60%) and transient are (20) patients (40%) (Table8)

Nature of lesion	Pt (n=50)	Percentage%
Persistent	30	60%
Transient	20	40%

Out of 50 patients 29 patients have light brown background (58%) and 10 patients have Ash Grey background colour (20%) (Table9)

Background colour	no of patients (n=50)	Percentage (%)
Light brown	29	58
Ash Grey	10	20
Dark brown	11	22

Conclusion

The present study is to evaluate dermatoscopic findings in facial melasma was most commonly belonging to the age group 31 - 40 years. In an Indian study by Sarkaret et al, [13] Melasma in men was seen in 20.5% patients and was clinically and histopathologically similar to melasma in females in Sherquie et al [14] and Garg et al [15] reported melasma to occur more commonly in middle - aged. Thus, female preponderance was similar to the study conducted by Hassan et al in which 66% were females and 34% were males. [15] Maximum number of patients were housewives (57%) and minimum patients 15% were manual labourers. History of sun exposure was predominantly seen in 46 %. In a study conducted by Hassan et al [16], 32.73% had history of cosmetic use. In a study conducted by Revathi al, 14.4% had positive family history. In melasma, out of 50 patients of melasma studied, clinically 19 (38%) patients presented with mixed type, 12 (24%) patients with malar, 10 (18%) patients are centrofacial type, 9 (18%) patients with mandibular type. Out of 50 patients in our study, 50% patients showed mixed type colour changes on Dermoscopy followed by 30% showed dermal type and 20% showed epidermal type colour changes. Malar preponderance was seen in a study conducted by Manjunath et al [17]. Yalamanchi et al. [18] reported malar type as the most commonly observed clinical type by Tamler et al. [18] 40% showed epidermal type, 22.5% showed dermal type, 37.5% showed mixed type on Dermoscopy. Out of 50 patients studied of Melasma, most common are 24 patients (48%) have accentuated pigment network, 12 patients (24%) with reticulo globular pattern, 6patients (12%) have annular pattern, 2 patients (4%) have blotchy pigmentation, 3patients (6%) have arcuate pattern, 3

(6%) patients were un patterned. persistent type was (60%) in 30 patients and transient type was (40%) in 20patients.

Discusion

Facial melasma can cause significant cosmetic disfigurement with subsequent emotional impact. The importance of these disorders is growing, as they form the major percentage of dermatology consultation. Facial melasma is a common presentation in Indian patients [3] Melasma is a common problem encountered in dermatology clinics [4]. The term "melasma", or facial hyperpigmentation, is derived from the Greek word *melas*, meaning "black" [5]It has been also termed "Chloasma Gravidarum" and "the mask of pregnancy" [6] Melasma is the most common pigmentary disorder among Indians [7] brown eyed, dark - complexion women. [8]and the cause is unknown. [9]Sunlight exposure appears to be the most significant, while other factors include genetic influences, endocrine factors, thyroid dysfunction, pregnancy, oral contraceptives, certain cosmetics and medications

Clinical features: Melasma is characterized by symmetrical hyperpigmented macule, which may be blotchy, irregular, arcuate, or polycyclic and rarely have a linear or a starburst
Distribution:

Epidermal type (brown),
Dermal type: (grey - brown).
Mixed ***or epidermo - dermal type***.
Indeterminate type: difficult to classify. [10]
On the face, three patterns of melasma are recognized:
Centrofacial: the most frequent (63%) pattern and mixed (40%),
Malar: constituting 21%,
Mandibular: the least common (16%)
Course: Depending it is classified into *Transient type* and *Persistent type* (more than1 year)

Dermatoscopy Features
The dermatoscopic diagnosis of pigmented lesions is based on global Reticular patterns and diffuse reticular pigmentation in various shades of brown sparing the follicles and sweat gland openings producing exaggerated pseudo network pattern with concave borders called the 'jelly sign'. This network is superimposed by dark brown or bluish - black hyperpigmented granules, globules and blotches morphologies like arcuate, star - like, annular and honeycomb. Granules and globules of dark brown colour are in perifollicular regions but sparing the follicles. [12]. Dermoscopy may pick up complications like atrophy, depigmentation, telangiectasis, exogenous Ochronosis, steroid dermatitis. [13] Large patches of melasma, dark brown in colour (mixed melasma) show diffuse reticular pigmentation of blotches of irregularly shaped, dark brown or blackish pigmentation. [14]

4. Conclusion

Thus, in this evolving innovative progressing field of dermatology, dermatoscope is like a weapon given for making accurate diagnosis and in monitoring patients treatment. As its gives patients the complete satisfaction of being examined carefully and in giving the information of their worrisome facial melasma requiring lot of explanation and counselling.

Limitations

The sample size taken cannot give the accurate estimate of the actual prevalence of the disease and the severity of melasma and its course.

Conflict of interest –none

Acknowledgments – none

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