



MELASMA: A HOSPITAL BASED RETROSPECTIVE STUDY ON CLINICO-EPIDEMIOLOGICAL PROFILE

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ABSTRACT **Background:** Melasma is a common, therapeutically challenging, psychological distressing, pigmentary disorder of sun exposed skin.

Aim Of The Study: To study the clinical and epidemiological profile of melasma patients.

Materials And Methods: Tertiary care hospital retrospective study using data of melasma patients who attended the dermatology outpatient clinic between February 2012 to May 2021. Study included 296 patients above 18 years. Demographic details were obtained from the pigment clinic proforma.

Results: Mean age of 296 patients was 35.4 years, with female predominance (86.1%). Mean age at onset of melasma was 31.9 years. Aggravation with sun exposure was noted in 64.2% cases. Family history was present in 15.2% cases while hypothyroidism in 3.4% cases. Malar involvement was commonest (68.6%). Under Wood's lamp, epidermal type was commonest (57.4%). Cosmetic usage was present in 6.4% cases. Pregnancy precipitation and pregnancy aggravation was noted in 16.5% and 9% females. 7.5% females reported OC pill usage.

Conclusion: This study showcases the multifaceted profile of patients afflicted with melasma in a tertiary care hospital.

KEYWORDS : Epidemiology, Melasma, Aggravating factors

INTRODUCTION

Melasma is a common acquired disorder of hyperpigmentation characterized by irregular brown patches on the forehead, cheeks, upper lip and chin¹ distributed in a centrofacial, malar and mandibular pattern.

Prevalence rates vary from 1% to 50% in high-risk populations² which include darker skin types, pregnant women and those with intense ultraviolet exposure. Women are chiefly affected with men comprising approximately 10% of cases. The pathogenesis of melasma is complex with multiple implicated pathways. Etiologic factors include UV light exposure⁴, genetics and hormonal impacts of pregnancy and oral contraceptive (OC) pill usage. Histology shows enlarged melanocytes with abundant melanosomes and increased epidermal and/or dermal melanin. Using Wood's light examination, melasma can be classified into three histological types depending upon the depth of pigment deposition: epidermal, dermal and mixed types.

Counselling patients about the chronicity of melasma and photoprotection is important. Triple combination preparations containing a retinoid, a corticosteroid and hydroquinone remain the gold standard of treatment. Other topical preparations like kojic acid, arbutin, curcumin, glutathione and glycolic acid are additionally used for treatment. Oral tranexamic acid treatment has emerged for refractory melasma⁵. Chemical peels and lasers, while successful, may have complications in darker skin.

Many studies report the emotional distress and psychological turmoil experienced by patients with this therapeutically challenging disorder. Therefore, we undertook this study to observe the clinico-epidemiological profile of patients with melasma.

MATERIALS AND METHODS

The study was a retrospective cross-sectional questionnaire-based study conducted in outpatient department of dermatology, of MGM Hospital, Navi Mumbai. Ethics committee approval was taken and participants who satisfied the inclusion criteria were enrolled. Nine-year data (February 2012 to May 2021) of patients with melasma over 18 years of age was included. A detailed history was obtained from the pigment clinic notes including age, sex, age of onset, initial site of onset, duration and progression of disease, aggravating and relieving factors, associated diseases and family history.

RESULTS

The study was conducted on a total of 296 cases of melasma presenting

to the study centre during the study period. Mean age of patients with melasma was 35.4 years and majority (59.1%) of patients belonged to the age group of 31 to 45 years of age. Female predominance for melasma was observed in our study with 86.1% of the cases being females. Majority of patients were housewives (65.9%). Mean age at onset of melasma was 31.9 years with onset in less than 30 years of age in majority of cases.

Table 1- Epidemiological Profile Of Patients With Melasma

Epidemiological profile		Frequency (n=296)	Percentage
Age	≤ 30	95	32.1
	31 – 45	175	59.1
	46 – 60	24	8.1
	>60	2	0.7
Sex	Male	41	13.9
	Female	255	86.1
Occupation	Business	25	8.4
	Clerk	10	3.4
	Construction	1	0.3
	Driver	6	2
	Electrician	1	0.3
	Engineer	4	1.4
	Factory Worker	7	2.4
	Farmer	4	1.4
	Hospital Staff	8	2.7
	Housekeeping	7	2.4
	Housewife	195	65.9
	Laborer	2	0.7
	Lawyer	1	0.3
	Mechanic	1	0.3
	Nurse	4	1.4
	Police	2	0.7
	Politician	1	0.3
	Security	3	1
	Student	1	0.3
Teacher	12	4.1	
Welder	1	0.3	
Age at onset	≤ 30	144	48.6
	31 – 40	113	38.2
	41 – 50	34	11.5
	>50	5	1.7

Mean duration of melasma in our study population was 43.29±13.78 months. Majority of patients presented with melasma of less than 1 year duration (36.8%) followed by 26.4% cases with duration of 2 to 5 years. Worsening of melasma with sun exposure was reported in 64.2% cases. Prior treatment in some or the other form was noted in 63.7% cases. It was in the form of an unknown OTC (over the counter) cream in 20.3% cases followed by triple combination cream containing a corticosteroid, tretinoin and hydroquinone in 13.2% cases. 1.4% of cases used various home remedies including lemon juice, papaya skin, wheat and turmeric paste. Family history of melasma was observed in 15.2% cases whereas hypothyroidism was noted in 3.4% cases. Majority of cases had malar distribution (68.6%), followed by centrofacial distribution (30.7%) and lastly mandibular involvement (0.7%). Under Wood's lamp examination, epidermal type was commonest (57.4%), followed by dermal (37.2%) and mixed (5.4%). The MASI score (Melasma Area and Severity Index) ranged from the lowest being 1.8 to the highest being 36 with a mean MASI score of 8.71±5.43.

Table 2- Clinical profile of patients with melasma

Clinical profile	Frequency (n=296)	Percentage	
Duration	< 1 year	109	36.8
	1 – 2 years	47	15.9
	2 – 5 years	78	26.4
	6 – 10 years	41	13.9
	>10 years	21	7.1
	Mean	43.29±13.78 months	
Worsening on Sun exposure	Yes	190	64.2
	No	106	35.8
Prior treatment	Unknown OTC cream	60	20.3
	Ayurvedic cream	16	5.4
	Topical treatment	21	7.1
	Kojic acid	15	5.1
	Sunscreen	10	3.4
	Hydroquinone cream	13	4.4
	Triple combination cream	39	13.2
	Chemical peel	5	1.7
	Azelaic acid cream	1	0.3
	Glycolic acid	4	1.4
	Home remedies	4	1.4
	Family history of Melasma	None	251
Aunt		1	0.3
Brother		3	1.0
Father		3	1.0
Father, Sister		1	0.3
Mother		23	7.8
Mother, Brother		1	0.3
Sister		13	4.4
Thyroid Disease	Hypothyroidism	10	3.4
Distribution	Centrofacial	91	30.7
	Malar	203	68.6
	Mandibular	2	0.7
Type	Dermal	110	37.2
	Epidermal	170	57.4
	Mixed	16	5.4
MASI	Mean	8.71±5.43 (Range-1.8-36)	

Aggravating factors were noted in all cases, however, pregnancy associated factors were noted in only females and thus females were considered as denominator. Among all the cases with melasma, cosmetic usage was present in 6.4% cases. Aggravation of melasma during was observed summer in 26.4% cases with the others noting no seasonal variation. Majority of patients were exposed to sun for approximately 1 to 3 hours on an average per day. Among female patients, pregnancy precipitated new onset of melasma in 16.5% cases. Additionally, 9% of patients noted aggravation in their pre-existing melasma during pregnancy. OC pill usage was present in 7.5% of female patients.

Table 3- Distribution according to aggravating factors

Aggravating factors	Frequency (n=296)	Percentage
OC pill*	No	277
	Yes	19
	No	236

Pregnancy precipitation *	Yes	42	16.5
	No	213	83.5
Pregnancy aggravation*	Yes	23	9
	No	232	91
Seasonal aggravation	No	218	73.6
	Summer aggravation	78	26.4
Hours of sun exposure per day	<1	120	40.5
	1 – 3	138	46.6
	4 – 6	29	9.8
	>5	9	3.0

*Only in females

DISCUSSION

Melasma is a melanogenesis dysfunction causing localized, chronic hypermelanosis of the skin symmetrically on sun exposed areas. The word melasma originates from the Greek root “melas”, meaning black, and refers to its brownish clinical presentation.⁶ Disease descriptions in literature extend as early as the reports of Hippocrates (470-360 BC).

In our study of 296 patients, 86.1% female predominance was observed. This was in concordance with studies worldwide, including a study in Libya by Abdullatif S. Alghwel et al⁷ having 89% female patients and a study in Turkey by Serkan Demirkan et al⁸ having 96.8% female patients.

In our study, mean age of the study population was 35.4 years, mean age of onset of melasma was 31.9 years and the mean duration of melasma was 43.29 months. A study by CL Goh et al⁹ had similar findings with mean age of their study population being 42.3 years, mean age of melasma onset being 37.6 years and mean duration of melasma being 55 months. In our study, epidermal type was commonest (57.4%), followed by dermal (37.2%) and mixed (5.4%) while the study by CL Goh et al⁹ had similar results; epidermal (68%), dermal (29%) and mixed (3%).

Family history of melasma was observed in 15.2% of our cases similar to Sai Pawar et al¹⁰ who found only 16.67% patients of their 120 patients had positive family history of melasma.

In our study, hypothyroidism was noted in 3.4% of patients while Satish DA¹¹ et al found hypothyroidism associated with melasma in 12.18% cases.

Majority of our cases had malar distribution (68.6%), followed by centrofacial (30.7%) and lastly mandibular involvement in 0.7% cases. Manjula Jagannathan et al¹² showed similar findings of malar distribution in 61% patients, centrofacial type in 30% patients and mandibular type in 9% of patients. They found OC pill intake to be 13.75% among female patients while OC pill usage was present in 7.5 % of our female cases.

Worsening of melasma with sun exposure was noted in 64.2% of our study while Arun Achar et al¹³ found melasma exacerbation during sun-exposure in 172 of their 312 patients (55.13%).

A study by Arun Achar et al¹³ found that 22.4% of 250 female patients reported that their disease precipitated during pregnancy and 13.6% patients stated that their pre-existing disease exacerbated during pregnancy. In our study, we found that pregnancy precipitated new onset of melasma in 16.5% of female cases. Additionally, 9% of female patients noted aggravation in their pre-existing melasma during pregnancy. Cosmetic usage was present in 6.4% of our cases while 23.39% patients in a study by Arun Achar et al¹³ used cosmetics regularly.

CONCLUSION

Melasma was more common in women between 31 to 45 years of age, with age of onset being below 30 years in majority of cases. Malar, epidermal type of melasma was the commonest pattern. Factors like sun exposure, pregnancy, familial predisposition, hypothyroidism and OC pill usage had significant etiological role in our study.

In spite of multiple therapeutic options, melasma remains a chronic condition with no definitive cure. Therefore, this study conducted on melasma would help make the concerned doctor well aware of the clinico-epidemiological behaviour, associated diseases and predisposing factors, some of which may be preventable.

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