

A Case Series of 500 Melasma Cases: A descriptive study

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Abstract—Melasma is a third most commonly cited skin disorders was pigmentary problem diagnosed most often, other two are post-inflammatory hyperpigmentation and vitiligo. So this study was conducted on 500 cases of Melasma attending at skin OPD of Charak Bhawan, a hospital attached to SMS Medical College, Jaipur (Rajasthan) with the aim to study its clinical pattern. Severity of Melasma was assessed by MASI. It was observed from this study that centro-facial distribution was found most prevalent (52.2%) pattern of Melasma followed by Malar pattern. Although mean MASI scores was found 12.47 ± 5.093 but majority (53.2%) of cases were of severe grade followed by moderate and mild grade of Melasma. Malar area was most affected area (99.8%) followed by forehead area and chin area. Variation of area affected with Melasma was found significant ($p < 0.001$). It was also observed that darkness as well as homogeneity was significantly more at malar region than that of forehead and chin. So it was also concluded from this study that Melasma cases who are attending at Skin OPD are having melasma lesion on malar region and of severe grade. Reasons for this observation is to be explored with further research.

Key Words: Melasma, MASI scores.

I. INTRODUCTION

The term “melasma” is derived from the Greek word “melas” meaning black. (Zanieri F, 2008).¹ It is a commonly acquired hypermelanosis characterized by irregular brown patches occurring primarily on the forehead, cheeks and chin in a mask-like distribution.²

The exact causes of melasma are unknown. However, multiple factors are implicated in its etiopathogenesis, mainly sunlight, genetic predisposition, and role of female hormonal activity. Exacerbation of melasma is almost inevitably seen after uncontrolled sun exposure and conversely melasma gradually fades during a period of sun avoidance. Genetic factors are also involved, as suggested by familial occurrence and the higher prevalence of the disease among Hispanics and Asians. Other factors incriminated in the pathogenesis of melasma include pregnancy, oral contraceptives, estrogen progesterone therapies, thyroid dysfunction, certain cosmetics, and phototoxic and anti-seizure drugs.³ The hyperpigmented patches may range from single to multiple, usually symmetrical on the face and occasionally V-neck area. According to the distribution of lesions, three clinical patterns of melasma are recognized.⁴ The centrofacial pattern is the most common pattern and involves the forehead, cheeks, upper lip, nose, and chin. The malar pattern involves the cheeks and nose. The mandibular pattern involves the ramus of the mandible.

It is a third most commonly cited skin disorders was pigmentary problem diagnosed most often, other two are post-inflammatory hyperpigmentation and vitiligo.⁵

It is known that Melasma occurs in all ethnic and population groups. However, epidemiological studies have reported higher prevalence among more pigmented phenotypes, such as East Asians (Japanese, Korean and Chinese), Indian, Pakistani, Middle Eastern and Mediterranean-African.⁶⁻⁸

The exact prevalence of Melasma is unknown in most of the countries. The reported prevalence of Melasma ranges from 8.8% among Latino females in the Southern United States to as high as 40% in the South-east Asian population.^{9,10} In India it is the most common pigment disorder.^{10,11} The exact prevalence in India is also not known although prevalence among paddy field workers in India reached 41%.^{10,11}

So it was decided to study Melasma cases attending at a tertiary hospital of Rajasthan with the aim to study its clinical pattern.

II. METHODOLOGY

A hospital based descriptive type of observational study was carried out to study clinical profile of Melasma cases attending at Skin OPD of Charak Bhawan an attached hospital in SMS Medical College Jaipur.

After approval from institutional ethical committee, data were collected from was carried out from 1st July 2015 to 28th July 2016 to have 500 diagnosed eligible melasma cases.

Every clinically diagnosed case of melasma attending at Skin OPD of Charak Bhawan an attached hospital in SMS Medical College Jaipur, was included in this study excluding patient having systemic or local causes of pigmentation and patients on drugs like minocycline, chlorpromazine, amiodarone, antimalarials etc.

Sample size was calculated 387 subjects at 95% confidence limit and 5% absolute allowable error assuming 41% prevalence of melasma in patients attending at skin OPD.¹⁰ So for the study purpose 500 Melasma cases will be included.

Every eligible case was interrogated as per predesigned semi-structured performa including bio-socio-demographic details along with details of Melasma lesion. After taking details as perfoma, severity of Melasma was assessed by Melasma Severity Score Index(MASI). MASI Score schedule is for recording the data related to the affected area (A), hyper pigmentation/darkness (D) and homogeneity of pigmentation (H) at four regions i.e. forehead (F), right malar region (RM), left malar region (LM) and chin (C).²³

MASI Score for calculating the index of severity of Melasma where total score ranges from 0 to 48. The total score correlates with the highest possible severity of the disease. This MASI tool for assessing the severity of Melasma was reported reliable and valid.²² Severity grading of Melasma is done as per MASI scores as follows:-

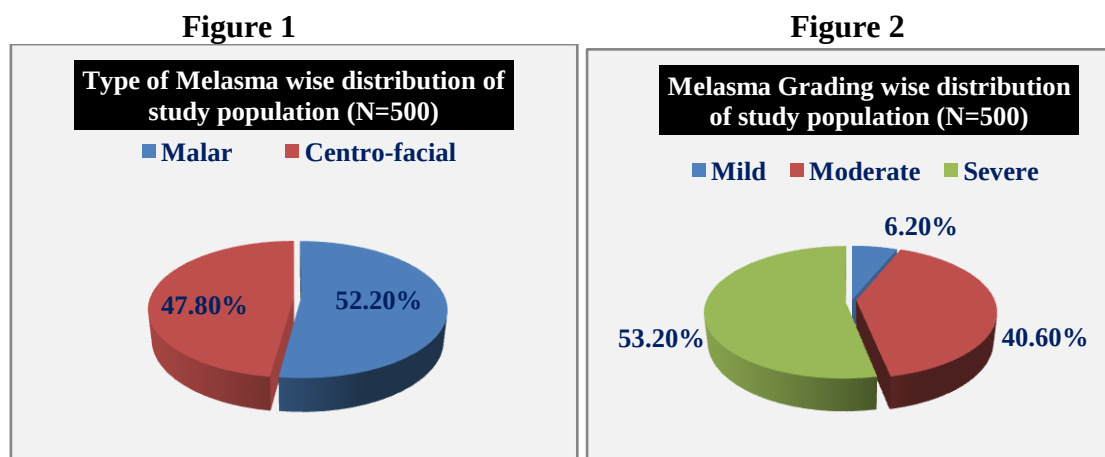
Melasma Grading	MASI Scores
Mild	0-16.9
Moderate	17-32.9
Severe	33-48

Statistical Method: Data thus collected were compiled in MS Excel worksheet 2007 in the form of master chart. Distribution of Melasma cases were observed and displays in the form of tables and chart.

III. RESULTS

In this present study as per distribution of melasma, Centro-facial distribution was found most prevalent followed by malar pattern. There was not a single case of mandibular pattern. (Figure 1)

When severity of these Melasma cases were assessed as per MASI, it was found that although mean MASI scores was found 12.47 with standard deviation (SD) 5.093 in the present study but majority of cases were of sever grade followed by moderate and mild grade of Melasma. (Figure 2)



It was also observed that out of total 500 cases, majority (499 i.e. 99.8%) of cases had involvement of malar area, followed by forehead (232 i.e.46.4%) and chin area (24 i.e.4.8% of cases). Majority of cases had 30-49% involvement of left malar area and of right malar area. This variation of area affected as per the site of Melasma was found significant ($p < 0.001$). (Table 1 & Figure 3)

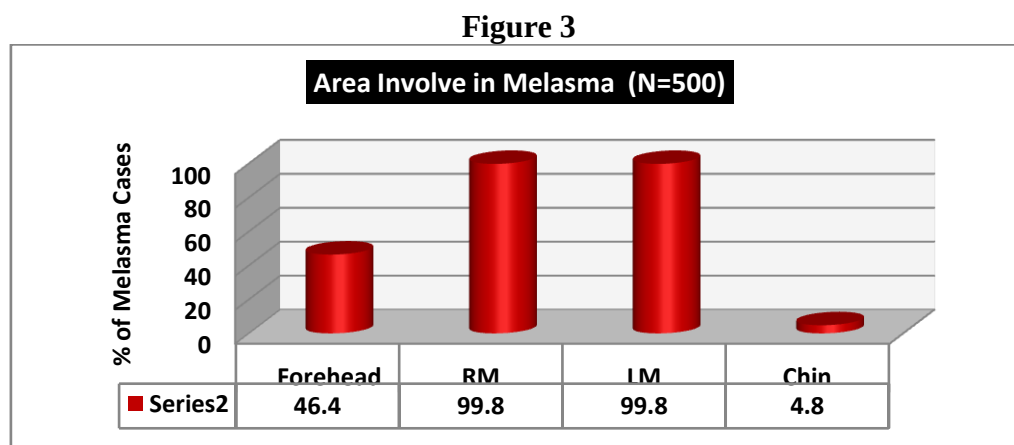


Table No 1
Area affected in Melasma wise distribution of study population (N=500)

S. No.	Area affected Grading	Melasma Region			
		Forehead	RM	LM	Chin
1	No Involvement	268	1	1	476
2	<10% Involvement	16	7	7	1
3	10-29% Involvement	112	80	86	14
4	30-49% Involvement	50	168	172	4
5	50-69% Involvement	31	124	116	2
6	70-89% Involvement	21	116	114	2
7	90-100% Involvement	2	4	4	1

Chi-square = 1497.040 with 18 degrees of freedom;

$P < 0.001$

LS=S

It was also observed that out of total 500 cases, darkness of Melasma was observed of marked grade at right and left malar region in 244 (48.8%) cases whereas it was marked at forehead and Chin in only 18.6% and 1.4% of cases respectively. This variation of darkness as per the site of Melasma was found significant ($p < 0.001$). (Table 2)

Table No 2
Darkness in Melasma wise distribution of study population (N=500)

S. No.	Darkness Grading	Melasma Region			
		Forehead	RM	LM	Chin
1	Absent	270	1	1	476
2	Slight	18	18	16	3
3	Mild	118	236	238	14
4	Marked	93	244	244	7
5	Maximum	1	1	1	0
	Total	500	500	500	500

Chi-square = 1375.790 with 12 degrees of freedom; $P < 0.001$

LS= S

It was also observed that out of total 500 cases, homogeneity in Melasma was observed of marked grade at right and left malar region i.e. 319 (63.8%) and 307 (61.4%) of cases respectively whereas it was marked only at forehead and Chin in 24% and 1.4% of cases. This variation of homogeneity as per the site of Melasma was found significant ($p < 0.001$). (Table 3)

Table No 3
Homogeneity in Melasma wise distribution of study population (N=500)

S. No.	Homogeneity Grading	Melasma Region			
		Forehead	RM	LM	Chin
1	Minimal	271	7	8	476
2	Slight	25	20	20	8
3	Mild	84	152	164	9
4	Marked	120	319	307	7
5	Maximum	0	2	1	0

Chi-square = 1336.409 with 12 degrees of freedom; $P < 0.001$

LS=S

IV. DISCUSSION

In the present study, centrofacial presentation Melasma lesions was observed in 52.2% of cases whereas malar presentation was found in 47.8%. None of the mandibular presentation was found in this study. Although in few studies^{13,14} reported in contrast to the observations of present study but many other studies^{15,16,17} reported maximum proportion of Centro facial presentation of Melasma. Kavya M et al, (2014)¹⁵ who had conducted a study in *department of Dermatology, Mandya Institute of Medical Sciences, Mandya* and found Centro facial pattern was in 47.22% of Melasma cases, Devasthanam Sundara Rao Krupa Shankar et al, (2014)¹⁶ did a multicentric study in various region of India and observed that the two prominent patterns of distribution were Centro facial (42%) and malar (39%). Arun Achar et al, (2011)¹⁷ conducted study in *Department of Dermatology, Mandya Institute of Medical Sciences, Mandya* and observed that Centrofacial was the most common pattern (55.44%) observed. Some of the authors^{18,19,20} reported quite high proportion of centro facial distribution of Melasma in their study. Vermani Sarvjot et al, (2009)¹⁸ who did a study in Safdargunj Hospital, New Delhi (India) observed Centro facial presentation in 88.4% of Melasma cases, likewise Charu Bansal et al, (2012)¹⁹ also reported Centro-facial Melasma was in 88.33% of cases followed by Malar type (11.7%) of Melasma presentation. None of the patients had a Mandibular pattern of Melasma. S Kumar et al, (2014)²⁰ also found that Centro-facial was the most common pattern observed in 76.74% of the

female patients while the Malar pattern was more common in males i.e. in 85.71%. Other patterns observed were mandibular in only 3.5% of cases.

In present study regarding area affected in Melasma it was observed that majority of cases had 30-49% involvement of left & right malar area and there was no involvement of forehead & chin area in 53.6% of cases. This variation of the area affected as per the site of Melasma was found significant ($p < 0.001$). As per distribution of darkness of Melasma it was observed in the present study that darkness of the marked grade was found on at right & left the malar region in 48.8% cases. This variation of darkness as per the site of Melasma was found significant ($p < 0.001$). In this study 53.2% of cases had severe grade Melasma, 40.6% had moderate grade of Melasma and 6.2% had mild grade Melasma. Mean MASI scores was found 12.47 with standard deviation (SD) 5.093 in the present study. Literature reported varied observations by various authors from various regions. Some of authors reported very less MASI score like Yalamanchili R et al,(2014)²¹ and Omar Soliman Safoury et al,(2009).²² Yalamanchili R et al,(2014)²¹ who conducted a study at JSS Hospital, Mysore and noticed that mean MASI score was 5.7, the minimum was 0.9 and the maximum was 28. Omar Soliman Safoury et al,(2009)²² who did a study on twenty married females with Melasma and found that the average (mean) MASI score in the right & left malar area was 4.460 ± 1.571 and 4.350 ± 1.468 at the time of first attended. Ochi Harumi et al,(2016)²³ conducted a study in a tertiary dermatology referral center in Singapore and found that the mean $\pm$ SD MASI score was 12.1 ± 6.5 (median 10.8). Sai Pawar et al, (2015)⁷² conducted a study at Narhe, (Pune) India and revealed that MASI score was 16.94 of Melasma cases. Rahul Mahajan et al,(2015)²⁴ did a prospective, randomized study in India on two group to compare the effect of different treatment. They revealed that the mean MASI of group 'A' and group 'B' before starting the treatment was 9.14 ± 6.25 and 9.08 ± 4.0 respectively. Charu Bansal, et al (2012)¹⁹ conducted a study on three groups of Indian patients of Melasma to compare the effect of different treatment. They found mean baseline MASI score 21.11 ± 6.91 , 15.90 ± 5.49 and group C 18.73 ± 7.53 in group 'A', 'B' and 'C' respectively. This reported lower mean MASI score may be because of the seeking treatment in latter stages of disease and majority of studied conducted were hospital based.

V. CONCLUSION

Centro-facial distribution was found most prevalent pattern of Melasma followed by malar pattern. Majority of cases were of sever grade followed by moderate and mild grade of Melasma. Malar area was the most affected area followed by chin and forehead. Darkness as well as homogeneity was marked maximally at malar region followed by forehead and chin.

So it was also be concluded from this study that Melasma cases who are attending at Skin OPD are those who are having melasma lesion on malar region and of sever grade. Reasons for this observation is o be explored with further research.

CONFLICT OF INTEREST

None declared till now.

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